



PUMA ENERGY CARIBE, LLC

July 18, 2017

*Delivered via Hand delivered*

David N. Cuevas-Miranda, Ph.D.  
Geologist/Marine Scientist  
Senior RCRA Corrective Action Project Manager  
US EPA-Region 2  
Caribbean Environmental Protection Division  
48 CARR 165 STE 7000  
City View Plaza II  
Guaynabo, PR 00968-8073

Subject:

Comments to the June 2016 Semi- Annual RCRA Report for the former CAPECO site facility in Bayamon Puerto Rico.

Dear Mr. Cuevas:

Puma Energy Caribe LLC is pleased to submit the Revised Semi Annual RCRA groundwater sampling report of the 76 monitoring wells located at our Bayamon Facility.

This submittal is in accordance with the comments from USEPA dated April 20, 2017.

Please feel free to contact me at 787.705.7929 or 787.600.5943 should you have any question or require additional information regarding this document.

Sincerely,

PUMA Energy Caribe, LLC

A handwritten signature in blue ink, appearing to read "BTD", written over a circular stamp.

Brenda Toraño Díaz, PE  
EHS Manager  
Enclosures

**PREQB and USEPA Comments and Responses**

Comment from Environmental Quality Board	Completed Date and Addressed
<p>Section 3.1, page 10: On the last paragraph, indicates that Arcadis' personnel performed the sampling event during the months of July 2006 and August 2006, which is a typographical error regarding the year, it should state 2016. Please correct accordingly.</p>	<p>Dates corrected to read: "performed the sampling event during the months of July 2016 and August 2016"</p>
<p>Section 3.2, page 11: The penultimate sentence states: "The measurements are presented in." The sentence appears to be incomplete as it seems like it would have been a reference to a table, which was not provided either. The field measurements for pH, Temperature, Dissolved Oxygen, Oxygen-Reduction Potential and Specific Conductivity should be presented in a table as part of the results section of the report. Please correct accordingly.</p>	<p>Paragraph in Section 3.2 was corrected for clarity and sense. Reference to Table 1: Water Measurements and LNAPL Thickness was added. Comment regarding adding field measurements noted.</p>
<p>Table 1</p> <p>a. There are discrepancies on the water level data for some of the monitoring wells between Table 1 and the field data sheets of the corresponding wells. The discrepancies are presented in the table below. Please correct accordingly.</p>	<p>Values in Table 1 corrected according to field forms. No other information was found indicating values were different than the ones in the field forms.</p>
<p>b. MW-30A is described in Table 1 as obstructed but no field data sheet was provided, it is important to provide all field data sheets. Also, there is a field data sheet for MW-75B however it is not listed on Table 1 and vice versa MW-75B2 is listed on Table 1 but no field data sheet provided. Please correct accordingly.</p>	<p>MW-30A: Field notebook for 7/12/16 (copy included) indicates at 10:00am the interphase probe cannot go down the well.</p> <p>MW-75B: Field notebook for 7/13/16 (copy included) indicates MW75B was sampled at 0858. And it should read MW-75B2. Table 1 was corrected accordingly.</p>
<p>Table 2: Quantitation limit values for some of the contaminants that were not detected are higher than their Maximum Contaminant Level (MCL) or when not available their Regional Screening Level (RSL). Because one of the objectives of analyzing the concentration of the contaminants is to determine if they are below or above their MCL's or RSL's, it is important that the quantitation limit of the analytical instrument or calibration curve is equal or lower than their MCL or RSL otherwise the instrument is not useful for this application. Below is a list of the compounds which have the MCL/RSL vs. quantitation limit discrepancy. Please make sure that for the next sampling events the quantitation limits are equal or below the MCL's/RSL's as explained previously.</p> <p>The field data sheets for monitoring wells P-121, P-122, P-123, P-124, 48B, 13B2, 84B2, 75B, 77B, 84B, 21B, 20B, 78B, 110B2, and 17B indicate that the pump was changed to Bailer and no field parameters were recorded. The bailer method tends to increase turbidity,</p>	<p>Pace Analytical Labs, has meet in many times with the PREQB and have explained that is not possible reach the requested levels (we have included the letter that the Lab sent PREQB. Appendix F) but we will make note and follow up with the laboratory.</p> <p>Field notebook for 6/30/16 (copy included) indicates peristaltic pump nor whaler could be used to sample wells P-121 and P-124, they are not powerful enough to lift the water that was approximately at 35 ft. On 7/5/16, P-123, 122, were at 26 ft. bailer also</p>

**Comment from Environmental Quality Board**

which may misrepresent contaminant levels. Please clarify why these wells were not sampled using a peristaltic low flow method as the others, and why the field parameters were not recorded while using the bailer sampling method.

**Completed Date and Addressed**

used. Monitoring wells 121, 122, 123,124 are located near combustible tanks 106, 103, 104, therefore use of electric devices is limited. MW-48B is located besides the central manifold and gas bullets; therefore, use of electric devices is limited. 13B2 is near south bullets. 84B2, 75B is located near the pipeline easement; therefore, use of electric devices may be limited. Monitoring Wells 77B, 20B, 78B, 21B, and 84B, are located on the northern site boundary, near Route 28. Monitoring wells 110B2, and 17B are located within undeveloped land, and unable to be accessed by vehicle that could provide electric power, Note taken for the other wells, will be done/justified with details on the next events.

When Bailers are used properly turbidity tents to be minimum and the USEPA approved plan has the use of bailers.

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The laboratory raw data from page 518 through 585 concerns to samples collected on December 2016. This appears to be an error; the data may pertain to samples from the December 2016 Semi-annual sampling event. Please verify that the data presented in each report pertains to the concerning sampling event to prevent confusion.

Removed pages that did not belonged and inserted correct pages.

Added laboratory results that were left out on the previous report.

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PUMA Energy Caribe, LLC

# **SEMI-ANNUAL SAMPLING REPORT JUNE 2016**

Former Caribbean Petroleum Corporation  
Refinery/Terminal – Bayamón, Puerto Rico

March 2017

Revised: July 14, 2017



**SEMI-ANNUAL  
SAMPLING REPORT –  
JUNE 2016**

Former CAPECO Refinery/Terminal  
Bayamón, Puerto Rico

Prepared for:  
PUMA Energy Caribe, LLC  
PO Box 11961  
San Juan, PR 00922

Prepared by:  
Arcadis Caribe, P.S.C.  
48 City View Plaza 1  
Suite 401  
Rd. 165  
Km 1.2  
Guaynabo  
Puerto Rico 00968  
Tel 787 777 4000  
Fax 787 777 8086

Our Ref.:  
B0063767

Date:  
March 16, 2017  
July 14, 2017 revised

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Efraín Calderón, Jr  
Operations Manager, Environmental

SEMI-ANNUAL SAMPLING REPORT

## VERSION CONTROL, OPTIONAL

Issue	Revision No	Date Issued	Page No	Description	Reviewed by
	1	7/14/2017	Various	EQB comments	

# SEMI-ANNUAL SAMPLING REPORT

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## SEMI-ANNUAL SAMPLING REPORT

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## ACRONYMS AND ABBREVIATIONS

Arcadis	Arcadis Caribe, PSC
bgs	below ground surface
amsl	above mean sea level
CAPECO	Caribbean Petroleum Corporation
DRO	diesel range organics
GRO	gasoline range organics
HASP	health and safety plan
ORO	oil range organics
PREQB	Puerto Rico Environmental Quality Board
PUMA	PUMA Energy Caribe, LLC
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
RFI	Resource Conservation and Recovery Act Facility Investigation
SOP	standard operation procedures
SWMU	solid waste management unit
TPH	total petroleum hydrocarbons
USEPA	United States Environmental Protection Agency
WWTP	wastewater treatment plant

## EXECUTIVE SUMMARY

Arcadis Caribe, PSC prepared this Bi-annual Groundwater Sampling Report for the June 2016 groundwater sampling event on behalf of Puma Energy Caribe LLC (Puma) to satisfy the activities stipulated in the Agreement with the New Purchaser (Agreement) dated 2011 (Docket Num. RCRA-02-2011-7305) between Puma and the United States Environmental Protection Agency. This Agreement served as a modification to the 1995 Administrative Order on Consent, Docket Num. II RCRA-95-3008(h)-0303 that was in place prior to the May 2011 purchase by Puma.

On November 2015, USEPA concurred with Puma's recommendation to implement a periodic groundwater sampling consisting of a semi-annual of 73 monitoring wells, for the first year beginning 2016 and annually for three years thereafter.

This report provides a summary of the groundwater sampling field activities and results performed of the first semi-annual sampling event from June to August 2016. Additionally, a summary of general results is presented for the monitoring well samples collected in which analytical data revealed detected concentrations for several Total Petroleum Hydrocarbons, Volatile Organic Compounds, Metals and Semi-Volatile Organic Compounds throughout the facility operations area and undeveloped wetland area.

## 1 INTRODUCTION

### Site Description

Puma Energy Caribe, LLC (Site or Facility) is located at Road PR-28, Km 2, Luchetti Industrial Park in Bayamón, Puerto Rico, approximately 3 miles to the south of the Atlantic Ocean coast. The land use on adjacent properties is primarily commercial or industrial. Commercial and industrial properties border the Facility to the south and west; the U.S. Army facility Fort Buchanan is to the east; and Highway PR-22 to the north.

The entire Facility encompasses approximately 179 acres, of which 115 acres are developed as a petroleum products storage facility, including operational buildings, administrative offices, parking areas, and a wastewater treatment plant to the north. The Facility has an aboveground pipeline for the transfer of fuel from loading docks on San Juan Bay and to customers at the Luis Muñoz Marín International Airport. Liquid propane gas storage and distribution area was recently incorporated to the activities of the Facility. The remainder of the property is undeveloped, and includes an undeveloped wetland area and Las Lajas Creek to the north of the operations area. **Figure 1** shows the general location and topography of the Facility and surrounding areas.

### Purpose

When the Facility was acquired by Puma in May 2011, Puma assumed the responsibility of executing Corrective Action activities required under Resource Conservation Recovery Act (RCRA) Agreement. The required activities were stipulated in the Agreement with the New Purchaser dated 2011 (Docket Num. RCRA-02-2011-7305) between Puma and the United States Environmental Protection Agency (USEPA), which served as a modification to the 1995 Administrative Order on Consent (Order), Docket Num. II RCRA-95-3008(h)-0303 that was in place prior to the May 2011 purchase by Puma.

On November 2015, USEPA concurred with Puma's recommendation to implement a periodic groundwater sampling consisting of a semi-annual for the first year beginning 2016 and annually for three years thereafter.

Arcadis Caribe PSC (Arcadis) prepared this report on behalf of Puma for the Facility.

This report provides a summary of the groundwater sampling field activities and results performed of the first semi-annual sampling event from June to August 2016. Additionally, a summary of general results is presented for the 70 out of 73 groundwater samples collected in which analytical data revealed detected concentrations for several Total Petroleum Hydrocarbons, Volatile Organic Compounds, Metals and Semi-Volatile Organic Compounds throughout the facility operations area and undeveloped wetland area.

## 2 HYDROGEOLOGY

The Facility is located on alluvium deposits (Qa), consisting of sand, clay, and sandy clay based on the USGS Geologic Map of the Bayamón Quadrangle (Monroe 1973).

### 2.1 Water Bearing Zones

Two general hydrogeologic units have been described at the Facility (Geraghty and Miller, Inc. 1989). The uppermost clay unit (Zone A) contains a low permeability semi-perched layer and a permeable carbonate water-bearing zone. The general horizontal groundwater flow direction in Zone A is to the north, although localized mounds and depressions reportedly occur in the central portion of the Facility.

The underlying carbonate sediment layer also contains a water-bearing zone (Zone B). Groundwater flow in Zone B is generally in the north to northwest direction 2004 Site-wide Groundwater Monitoring Report Groundwater in Zone B is semi-confined. The potentiometric surface of groundwater for wells completed in the carbonate sediment layer is generally higher than water level elevations measured in Zone A (i.e., the water table wells). The groundwater gradient is generally towards the north see **Figures 4 and 5**.

## 3 JUNE 2016 GROUNDWATER SAMPLING EVENT

### 3.1 Groundwater Sampling Procedures

Groundwater sampling included the, purging and sampling to collect a representative sample from each well were purged by removing three times their volume to be sampled with a disposable and dedicated bailer or using the low flow procedure after attaining stabilization of indicator parameters. Prior to sampling activities, a round of groundwater levels was documented by field personnel.

Personnel used dedicated and disposable nitrile gloves. The staff changed these between samples to avoid cross contamination. The standard operating procedures followed during groundwater sampling activities are provided in **Appendix A**. Personnel labeled the samples, and placed them inside an ice-filled cooler for shipment to Pace Analytical Laboratory

Field activities started in June 1, 2016 and ended in August 16, 2016 at the Facility. A total of 70 out of 73 groundwater monitoring wells were sampled in this period **Figure 2**. Each groundwater sample was collected from the existing monitoring wells located through the Facility area and two additional recently installed wells in June 2016 required by USEPA as part of the RCRA RFI Supplemental Sampling at the wastewater treatment plant area. The distribution of the wells is throughout the Facility operations area and Undeveloped Wetland Area. Samples were collected following the Arcadis Standard Operating Procedures (**Appendix A**) and were identified using the well identification number. See **Figure 2** for monitoring well identification numbers and locations. Field notes by Arcadis personnel are available in **Appendix B**, a photolog of the sampling activities in included in **Appendix C**. Arcadis' personnel performed the sampling event during the months of July 2016 and August 2016.

Static water levels and product thickness were measured in monitoring wells with an ORS oil/water interface probe. This instrument employs two-wire electrodes, and is marked every 0.01 feet (ft).

#### 3.1.1 Groundwater Sampling

The wells sampled are listed in **Table 1**. Collected samples were analyzed by Pace Analytical Laboratory for total petroleum hydrocarbons: gasoline range organics (GRO), diesel range organics (DRO), and oil range organics (ORO) by the United States Environmental Protection Agency's (USEPA's) Method 8015M and 8021; Volatile Organic Compounds by USEPA's Method 8260; Metals by USEPA Method 6010, Mercury by USEPA Method 7470; Semi-Volatile Organic Compounds by USEPA Method 8270. Laboratory reports can be found in **Appendix D**.

A low flow peristaltic purging/sampling pump was used to sample wells. The tubing used was a combination of Tygon and Teflon 3/16 ID. Tubing was replaced after each well to avoid cross contamination. The pump intake was placed approximately 1 foot below the water table. In wells that had a screen length that was entirely submerged, the pump intake was placed approximately 1 foot below the top of the screen. To ensure well samples were representative of the formation, 3 to 4 well casing volumes were purged from each well before sampling, or stabilization of field measurements.

With a Ground water samples were collected in laboratory-supplied containers; labeled and stored in coolers with ice in double-zip locked bags. The samples were relinquished to CPC at the end of each sampling day. Chain-of-Custody Forms were filled out every sampling day. Copies of Chain-of-Custody Forms are included in **Appendix D**.

### 3.2 Field Measurements

During well purging, field measurements for pH, Temperature (C<sup>o</sup>), Dissolved Oxygen (mg/L – milligrams per liter), Oxygen-Reduction Potential (ORP), Specific Conductivity (µmhos/cm, millisiemens/cm) were taken at approximately every ¼ well volume. The measurements from purged groundwater were taken from the pump discharge. Electronic water quality measuring devices were utilized for this activity. **Table 1** presents measurements of water level, and presence / thickness of floating product, if any.

Water and product thickness were measured using an ORS Water/Oil interphase probe and were recorded in the field Groundwater monitoring sheets included in **Appendix B**. Copies of Field Calibration Logs are included in **Appendix E**.

### 3.3 Decontamination

Except for the ORS and the water quality meters, all equipment was dedicated for each well. Therefore, minimal decontamination was required. Decontamination consisted of a rinse with D.I. water followed by a laboratory grade (micro) detergent and a final rinse with D.I. water. This was also done to the dedicated tubing before it was discarded.

All decontamination and purged water was left onsite to be treated at the Wastewater Treatment Plant.

## 4 RESULTS

### 4.1 Groundwater Elevations

Prior to sampling ground-water level and LNAPL measurements obtained from 73 monitoring wells during the months of June to August, show groundwater elevations ranging from 1.6 to 30.3 ft. amsl. The lowest groundwater elevations were obtained at the undeveloped wetland area wells ranging from 1.6 to 7.7 ft. amsl, while at the Facility operations area ranged from 4.4 to 30.3 ft. amsl, being the highest groundwater elevations located at the southern perimeter. The general groundwater flow direction is determined to be towards the north. See **Figure 3 and 4** for contour maps and flow directions.

### 4.2 Groundwater Analytical Results Summary

Groundwater analytical results obtained from the laboratory reports are presented in **Table 2** and Figure 6. The analytical results are compared to the USEPA May 2016 Tap water Regional Screening Levels (Tap water RSLs) and Maximum Contaminant Levels (MCLs), obtained from the May 2016 RSL Summary Table (<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016>), and the USEPA May 2016 Commercial Vapor Intrusion Screening Levels (Commercial VISLs), obtained from the VISL Calculator (<https://www.epa.gov/vaporintrusion/vapor-intrusion-screening-levels-visls>). Tap water RSLs and Commercial VISLs were calculated assuming either a target hazard quotient of 0.1 or target cancer risk of  $1 \times 10^{-6}$ .

The Facility receives potable water and sanitary sewerage services from the Puerto Rico Aqueduct and Sewer Authority (PRASA). Furthermore, there are no known downgradient wells used for public or private drinking water supply within 2 miles of the site. As such, the comparison of groundwater analytical results to potable water screening levels and MCLs is conservative, and does not indicate a potential for risk to human health on site. Similarly, there are a limited number of occupied buildings on site. None of the analytical results that are greater than the Commercial VISLs were reported at wells within 100 feet of occupied buildings.

Analytical results for 15 analytes in 37 samples collected from monitoring wells in the Facility Operations Area are greater than one or more of the corresponding screening levels see **Figure 5**. These results are summarized by monitoring well below:

- AD-1
  - Total arsenic was detected at a concentration greater than the Tap water RSL and the MCL.
  - Naphthalene was detected at a concentration greater than the Tap water RSL.
- AD-4
  - Naphthalene was detected at a concentration greater than the Tap water RSL.
- B-9
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL.
- DP1

- Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL. Total vanadium was detected at a concentration greater than the Tap water RSL.
- EB-101
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL. Naphthalene was detected at a concentration greater than the Tap water RSL.
- EB-103
  - MTBE was detected at a concentration greater than the Tap water RSL.
- EB-104
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL. MTBE was detected at a concentration greater than the Tap water RSL.
- EB-105
  - Total arsenic was detected at a concentration greater than the Tap water RSL and MCL.
- EB-106
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL.
- MW-MP2
  - Total vanadium was detected at a concentration greater than the Tap water RSL.
- MW-MP3
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL. Total lead was detected at a concentration greater than the Tap water RSL, but less than the MCL. Total vanadium was detected at a concentration greater than the Tap water RSL.
- MW-MP4
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL.
- MP-5A
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL. Trichloroethene was detected at a concentration greater than the Tap water RSL, but less than the MCL.
- MW-MP8
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL.
- MW-16C
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL. Total vanadium was detected at a concentration greater than the Tap water RSL.



Trichloroethene was detected at a concentration greater than the Tap water RSL but less than the MCL.

- MW-20B
  - Total arsenic and total mercury were detected at a concentration greater than the Tap water RSL, but less than the MCL.
- MW-21B
  - Total vanadium was detected at a concentration greater than the Tap water RSL.
- MW-33A
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL. Naphthalene was detected at a concentration greater than the Tap water RSL.
- MW-48B
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL. Total lead was detected at a concentration greater than the Tap water RSL and MCL. Total vanadium was detected at a concentration greater than the Tap water RSL.
- MW-57A
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL. Naphthalene was detected at a concentration greater than the Tap water RSL.
- MW-65A
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL.
- MW-83A
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL.
- MW-83B2
  - Trichloroethene was detected at a concentration greater than the Tap water RSL, MCL, and Commercial VISL. However, no buildings are located within 100 feet of this VISL exceedance.
- MW-88A
  - Naphthalene was detected at a concentration greater than the Tap water RSL.
- MW-75B
  - Total mercury was detected at a concentration greater than the Tap water RSL, but less than the MCL.
- MW-76B2
  - Benzo(a)anthracene was detected at a concentration greater than the Tap water RSL.

- MW-77B
  - Total arsenic was detected at a concentration greater than the Tap water RSL but less than the MCL. Total vanadium was detected at a concentration greater than the Tap water RSL.
- MW-78B
  - Vinyl chloride was detected at a concentration greater than the Tap water RSL, but less than the MCL.
- MW-86A
  - Total arsenic was detected at a concentration greater than the Tap water RSL but less than the MCL.
- MW-91A
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL. Naphthalene was detected at a concentration greater than the Tap water RSL and Commercial VISL. Benzene and ethylbenzene were detected at a concentration greater than the Tap water RSL, MCL, and Commercial VISL. o-Xylene and m&p-xylenes were detected at a concentration greater than the Tap water RSL but less than the MCL. No occupied buildings are located within 100 feet of this well.
- MW-98A
  - Naphthalene was detected at a concentration greater than the Tap water RSL.
- MW-B1
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL. Total vanadium was detected at a concentration greater than the Tap water RSL.
- PMW-116
  - Total arsenic was detected at a concentration greater than the Tap water RSL but less than the MCL.
- PMW-118
  - Total mercury was detected at a concentration greater than the Tap water RSL, but less than the MCL. Chloroform and cis-1,2-dichloroethene were detected at a concentration greater than the Tap water RSL, but less than the MCL. Trichloroethene was detected at a concentration greater than the Tap water RSL, MCL, and Commercial VISL. However, no buildings are located within 100 feet of this well.
- PMW-119
  - Trichloroethene was detected at a concentration greater than the Tap water RSL and Commercial VISL, but less than the MCL. No buildings are located within 100 feet of this well.
- PMW-121

- Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL. Total lead was detected at a concentration greater than the Tap water RSL and MCL. Total mercury was detected at a concentration greater than the Tap water RSL and equal to the MCL. Total vanadium was detected at a concentration greater than the Tap water RSL. Trichloroethene was detected at a concentration greater than the Tap water RSL and Commercial VISL, but less than the MCL. However, no buildings are located within 100 feet of this VISL exceedance.
- PMW-124
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL. Total mercury was detected at a concentration greater than the Tap water RSL and MCL. Total vanadium was detected at a concentration greater than the Tap water RSL.

Analytical results for 10 analytes in 11 samples collected from monitoring wells in the Undeveloped Wetland Area are greater than one or more of the corresponding screening levels. These results are summarized by monitoring well below:

- MW-114A
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL.
- MW-13A
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL. Naphthalene was detected at a concentration greater than the Tap water RSL. Benzene and ethylbenzene were detected at concentrations greater than the Tap water RSL, but less than the MCL. MTBE was detected at a concentration greater than the Tap water RSL.
- MW-13B2
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL.
- MW-15A
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL.
- MW-15B
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL.
- MW-15B2
  - Total arsenic was detected at a concentration greater than the Tap water RSL and the MCL.
- MW-17B
  - Total vanadium was detected at a concentration greater than the Tap water RSL. 1,2-Dibromo-3-chloropropane was detected at a concentration greater than the Tap water RSL, MCL, and

Commercial VISL. However, this well is located within the Undeveloped Wetland Area, and therefore, no buildings are located within 100 feet of this well.

- MW-37A
  - Total arsenic and mercury were detected at a concentration greater than the Tap water RSL, but less than the MCL. Naphthalene was detected at a concentration greater than the Tap water RSL and Commercial VISL. Benzene was detected at a concentration greater than the Tap water RSL, MCL, and Commercial VISL. Ethylbenzene was detected at a concentration greater than the Tap water RSL and Commercial VISL, but less than the MCL. m&p-Xylenes were detected at a concentration greater than the Tap water RSL, but less than the MCL. No buildings are located within 100 feet of this well.
- MW-38A
  - Chloroform was detected at a concentration greater than the Tap water RSL, but less than the MCL.
- MW-84A
  - Total arsenic was detected at a concentration greater than the Tap water RSL and the MCL.
- MW-84B2
  - Total arsenic was detected at a concentration greater than the Tap water RSL and MCL. Total mercury was detected at a concentration greater than the Tap water RSL, but less than the MCL. Total vanadium was detected at a concentration greater than the Tap water RSL.
- MW-110AB
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL. Total vanadium was detected at a concentration greater than the Tap water RSL.
- MW-110B2
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL.
- MW-111A
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL.

Analytical results for 3 analytes in 2 samples collected from monitoring wells in the WWTP Area are greater than one or more of the corresponding screening levels. These results are summarized by monitoring well below:

- WWTP-1
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL. Naphthalene was detected at a concentration greater than the Tap water RSL.

- WWTP-2
  - Total arsenic was detected at a concentration greater than the Tap water RSL, but less than the MCL. Total vanadium was detected at a concentration greater than the Tap water RSL.

**Table 3** presents the analytical results for the samples duplicates. Other Quality Assurance and Quality Control (QA/QC) samples results are included in **Appendix D**.

The results of this first Semi-Annual event results are not extending beyond the site also during 2016 free phase product was detected in three wells: two wells in the tank farm area and one well in the former WWTP. Nevertheless, comparison of 2009, 2011, 2014 and 2016 free phase product data revealed a decline in thickness in wells located in the WWTP area as well in the tank farm area also decreased the thickness during this period.

# TABLES



**Table 1. Sampled Wells**
**Water Levels and LNAPL Thickness**

Monitoring Well	Sample Date	Product Level (Feet BLS)	Water Level (feet BLS)	Product Thickness (inches)
MW-42B	7/12/2016	24.54	24.57	0.03
MW-40B	7/14/2016	12.75	12.96	0.21
MW-91A	7/12/2016		7.93	
MW-18D	6/24/2016		15.04	
MW-87A	6/22/2016		14.74	
MW-88A	6/24/2016		6.01	
MW-99A	6/23/2016		12.38	
MW-98A	6/23/2016		7.99	
MW-T9	7/14/2016	5.48	5.68	0.2
MW-30A	7/12/2016		Obstructed	
MW-48B	7/16/2016		7.03	
MW-P 119	6/30/2016		14.60	
MW-P118	6/28/2016		8.90	
MW-83B2	6/28/2016		6.57	
MW-83A	6/28/2016		5.52	
MW-75B	7/13/2016		2.42	
MW-114A	8/11/2016		2.98	
MW-AD2	6/28/2016		5.35	
MW-AD1	6/27/2016		4.72	
MW-57A	6/27/2016		5.28	
MW-AD3	6/27/2016		7.54	
MW-AD4	6/27/2016		9.29	
MW-33A	6/27/2016		7.71	
MW-P116	7/5/2016		4.05	
MW-P117	7/5/2016		4.74	
MW-65A	6/22/2016		3.36	
MW-15A	6/10/2016		3.62	
MW-15B2	6/10/2016		7.00	
MW-15B	6/10/2016		7.30	
MW-86A	6/22/2016		4.24	

**Table 1. Sampled Wells**
**Water Levels and LNAPL Thickness**

Monitoring Well	Sample Date	Product Level (Feet BLS)	Water Level (feet BLS)	Product Thickness (inches)
MW-MP8	6/16/2016		7.24	
MW-MP9	6/16/2016		4.70	
MW-MP4	6/21/2016		7.07	
MW-MP3	6/16/2016		4.02	
MW-MP2	6/15/2016		4.63	
MW-DP1	6/15/2016		4.45	
MW-MP5A	6/10/2016		5.80	
MW-DP5	6/10/2016		3.64	
MW-EB107	6/21/2016		5.22	
MW-EB108	6/21/2016		5.38	
MW-EB103	6/6/2016		5.90	
MW-EB104	6/6/2016		7.06	
MW-EB105	6/7/2016		8.08	
MW-EB106	6/7/2016		8.23	
MW-EB102	6/6/2016		7.68	
MW-EB101	6/3/2016		4.74	
MW-B9	6/10/2016		2.53	
MW-B1	6/3/2016		2.03	
MW-P120	6/24/2016		18.36	
MW-P122	7/5/2016		16.40	
MW-P123	7/5/2016		12.98	
MW-P124	6/30/2016		35.31	
MW-P121	6/30/2016		35.56	
MW-16C	6/6/2016		6.86	
MW-109A	7/12/2016		10.09	
MW-76A	6/21/2016		9.50	
MW-76B2	6/21/2016		6.99	
MW-17B	8/16/2016		4.12	
MW-78B	8/15/2016		4.24	
MW-37A	7/13/2016		10.49	



**Table 1. Sampled Wells**
**Water Levels and LNAPL Thickness**

Monitoring Well	Sample Date	Product Level (Feet BLS)	Water Level (feet BLS)	Product Thickness (inches)
MW-13B2	7/6/2016		13.44	
MW-13A	7/6/2016		8.90	
MW-110B2	8/16/2016		6.37	
MW-110AB	8/11/2016		7.98	
MW-111A	8/11/2016		11.42	
MW-63A	7/13/2016		8.15	
MW-38A	7/13/2016		5.76	
MW-84A	7/15/2016		4.95	
MW-84B2	7/16/2016		5.04	
MW-77B	7/15/2016		7.29	
MW-20B	8/10/2016		7.61	
MW-21B	7/14/2016		12.00	
WWTP-1	6/2/2016		6.69	
WWTP-2	6/2/2016		9.72	







### Table 3 QA/QC Analytical Results

Former Caribbean Petroleum Corporation Refinery/Terminal Bayamon, Puerto Rico

							Location:	MW-13B2	MW-21B	MW-48B	MW-77B	MW-86A	MW-B1	WWTP-2
							Sample Name:	DUP 4	DUP-6	DUP 5	DUP-7	DUP 3	DUP 2	DUP
							Sample Date:	7/6/2016	7/14/2016	7/6/2016	7/15/2016	6/22/2016	6/3/2016	6/2/2016
Method	Analyte	CAS Number	Units	May 2016 USEPA Tapwater RSL	USEPA MCL	May 2016 USEPA Commercial VISL								
Method 6010	Arsenic	7440-38-2	mg/l	0.000052	0.01	--	0.0040	0.0010 U	0.0040	0.0012	0.0013	0.0042	0.0022	
	Chromium	7440-47-3	mg/l	2.2	0.1	--	0.0015	0.0078	0.019	0.0042	0.0010 U	0.0028	0.0010 U	
	Lead	7439-92-1	mg/l	0.015	0.015	--	0.0010 U	0.0036	0.047	0.0028	0.0010 U	0.0014	0.0010 U	
	Mercury	7487-94-7	mg/l	0.00057	0.002	--	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U	
	Vanadium	7440-62-2	mg/l	0.0086	--	--	0.0071	0.013	0.047	0.018	0.0050 U	0.011	0.0088	
Method 8270	Acenaphthene	83-32-9	mg/l	0.053	--	--	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00057	
	Anthracene	120-12-7	mg/l	0.18	--	--	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	
	Benzo(a)anthracene	56-55-3	mg/l	0.000012	--	--	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	
	Benzo(a)pyrene	50-32-8	mg/l	0.0000034	0.0002	--	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	
	Benzo(b)fluoranthene	205-99-2	mg/l	0.000034	--	--	0.00010 U	0.00018	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	
	Benzo(g,h,i)perylene	191-24-2	mg/l	--	--	--	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	
	Benzo(k)fluoranthene	207-08-9	mg/l	0.00034	--	--	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	
	Chrysene	218-01-9	mg/l	0.0034	--	--	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	
	Fluoranthene	206-44-0	mg/l	0.08	--	--	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	
	Fluorene	86-73-7	mg/l	0.029	--	--	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	
	Naphthalene	91-20-3	mg/l	0.00017	--	0.02	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	
	Phenanthrene	85-01-8	mg/l	--	--	--	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	
	Pyrene	129-00-0	mg/l	0.012	--	--	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00020	0.00010 U	0.00010 U	
	Method 8021	Gasoline Range Organics	--	mg/l	--	--	--	0.16	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Method 8015	Diesel Range Organic (C10-C28)	--	mg/l	--	--	--	0.50 U	1.1	0.50 U	0.50 U	0.84	0.50 U	0.50 U	
	Oil Range Organics (>C28-C40)	--	mg/l	6	--	--	1.0 U	6.9	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Method 8260	Acetone	67-64-1	mg/l	1.4	--	9500	0.0155	0.0090	0.0140	0.0042	0.0226	0.0097	0.0095	
	Benzene	71-43-2	mg/l	0.00046	0.005	0.0069	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	
	Bromodichloromethane	75-27-4	mg/l	0.00013	0.08	0.0038	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	
	Bromoform	75-25-2	mg/l	0.0033	0.08	0.51	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	
	Bromomethane	74-83-9	mg/l	0.00075	--	0.0073	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	
	2-Butanone (MEK)	78-93-3	mg/l	0.56	--	940	0.0020 U	0.0020 U	0.0033	0.0020 U	0.0020 U	0.0020 U	0.0020 U	
	Carbon Disulfide	75-15-0	mg/l	0.081	--	0.52	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	
	Carbon Tetrachloride	56-23-5	mg/l	0.00046	0.005	0.0018	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	
	CFC-11	75-69-4	mg/l	0.52	--	--	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	
	CFC-12	75-71-8	mg/l	0.02	--	0.0031	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	
	Chlorobenzene	108-90-7	mg/l	0.0078	0.1	0.17	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	
	Chlorodibromomethane	124-48-1	mg/l	0.00087	0.08	--	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	
	Chloroethane	75-00-3	mg/l	2.1	--	9.7	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	
	Chloroform	67-66-3	mg/l	0.00022	0.08	0.0036	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	
	Chloromethane	74-87-3	mg/l	0.019	--	0.11	0.00065	0.00050 U	0.00050 U	0.00050 U	0.00089	0.00050 U	0.00050 U	
	1,2-Dibromo-3-chloropropane	96-12-8	mg/l	0.0000033	0.0002	0.00034	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	
	1,2-Dibromoethane	106-93-4	mg/l	0.0000075	0.00005	0.00077	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	
	1,1-Dichloroethane	75-34-3	mg/l	0.0028	--	0.033	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	
	1,2-Dichloroethane	107-06-2	mg/l	0.00017	0.005	0.0098	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	
	1,1-Dichloroethene	75-35-4	mg/l	0.028	0.007	0.082	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	
	cis-1,2-Dichloroethene	156-59-2	mg/l	0.0036	0.07	--	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	
	trans-1,2-Dichloroethene	156-60-5	mg/l	0.036	0.1	--	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	

### Table 3 QA/QC Analytical Results

Former Caribbean Petroleum Corporation Refinery/Terminal Bayamon, Puerto Rico

							Location:	MW-13B2	MW-21B	MW-48B	MW-77B	MW-86A	MW-B1	WWTP-2
							Sample Name:	DUP 4	DUP-6	DUP 5	DUP-7	DUP 3	DUP 2	DUP
							Sample Date:	7/6/2016	7/14/2016	7/6/2016	7/15/2016	6/22/2016	6/3/2016	6/2/2016
Method	Analyte	CAS Number	Units	May 2016 USEPA Tapwater RSL	USEPA MCL	May 2016 USEPA Commercial VISL								
	Dichloromethane	75-09-2	mg/l	0.011	0.005	2	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U
	1,2-Dichloropropane	78-87-5	mg/l	0.00044	0.005	0.011	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U
	cis-1,3-Dichloropropene	10061-01-5	mg/l	0.00047	--	0.021	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U
	trans-1,3-Dichloropropene	10061-02-6	mg/l	0.00047	--	0.021	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U
	Ethanol	64-17-5	mg/l	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	Ethylbenzene	100-41-4	mg/l	0.0015	0.7	0.015	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U
	Isopropylbenzene	98-82-8	mg/l	0.045	--	0.37	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
	Methyl Acetate	79-20-9	mg/l	2	--	--	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U
	Methyl N-Butyl Ketone (2-Hexanone)	591-78-6	mg/l	0.0038	--	3.4	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
	4-Methyl-2-Pentanone	108-10-1	mg/l	0.63	--	230	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
	Methyl-tert-butylether	1634-04-4	mg/l	0.014	--	2	0.0080	0.0034	0.00050 U	0.00050 U	0.00084	0.00050 U	0.00050 U	0.00050 U
	Styrene (Monomer)	100-42-5	mg/l	0.12	0.1	3.9	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
	tert-Butyl alcohol	75-65-0	mg/l	--	--	--	1.89	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
	1,1,2,2-Tetrachloroethane	79-34-5	mg/l	0.000076	--	0.014	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U
	Tetrachloroethene	127-18-4	mg/l	0.0041	0.005	0.024	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U
	Toluene	108-88-3	mg/l	0.11	1	8.1	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U
	1,1,1-Trichloroethane	71-55-6	mg/l	0.8	0.2	3.1	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U
	1,1,2-Trichloroethane	79-00-5	mg/l	0.000041	0.005	0.0026	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U
	Trichloroethene	79-01-6	mg/l	0.00028	0.005	0.0022	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U
	Vinyl chloride	75-01-4	mg/l	0.000019	0.002	0.0025	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U
	m&p-Xylenes	--	mg/l	0.019	10	0.16	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U
	o-Xylene	95-47-6	mg/l	0.019	10	0.21	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U

Notes:

- USEPA May 2016 Tapwater Regional Screening Levels (RSLs) and USEPA Maximum Contaminant Levels (MCLs) were obtained from the USEPA May 2016 Regional Screening Level Tables (<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016>).
- USEPA May 2016 Commercial Vapor Intrusion Screening Levels (VISLs) were obtained from the USEPA May 2016 Vapor Intrusion Screening Level Calculator (<https://www.epa.gov/vaporintrusion/vapor-intrusion-screening-levels-visls>).
- USEPA May 2016 Tapwater RSL, USEPA MCL and USEPA May 2016 Commercial VISL are based on a Target Hazard Quotient (THQ) of 0.1 or Target Cancer Risk (TCR) of  $1 \times 10^{-6}$ .
- The USEPA May 2016 Commercial VISL for Total Xylenes was used to evaluate m&p-Xylenes. The USEPA MCL for Total Xylenes was used to evaluate m&p-Xylenes and o-Xylene. The USEPA May 2016 Commercial VISL and Tapwater RSL for 1,3-Dichloropropene was used to evaluate cis-1,3-Dichloropropene and trans-1,3-Dichloropropene.
- Bolded values are greater than the USEPA May 2016 Tapwater RSL.
- Grey shaded values are greater than the USEPA MCL.
- Italicized values are greater than the USEPA May 2016 Commercial VISL.
- Abbreviations are as follows:  
 mg/l = milligrams per liter  
 U = The sample was analyzed for this compound, but it was not detected. The associated value is the compound quantitation limit.  
 -- = value unavailable

# FIGURES

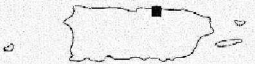
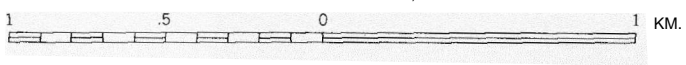




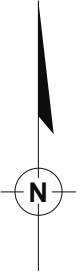
**SITE LOCATION**

SOURCE: BAYAMON QUADRANGLE - 1969, PHOTO REVISED: 1982.

GRAPHIC SCALE: 1 : 20,000



PUERTO RICO QUADRANGLE LOCATION



PUMA ENERGY CARIBE, LLC  
 PUMA TERMINAL, KM. 2.0 LUCHETTI INDUSTRIAL PARK  
 BAYAMON, PUERTO RICO  
**SEMI-ANNUAL GW SAMPLING - JUNE 2016**

**LOCATION MAP**



FIGURA  
**1**



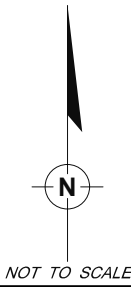




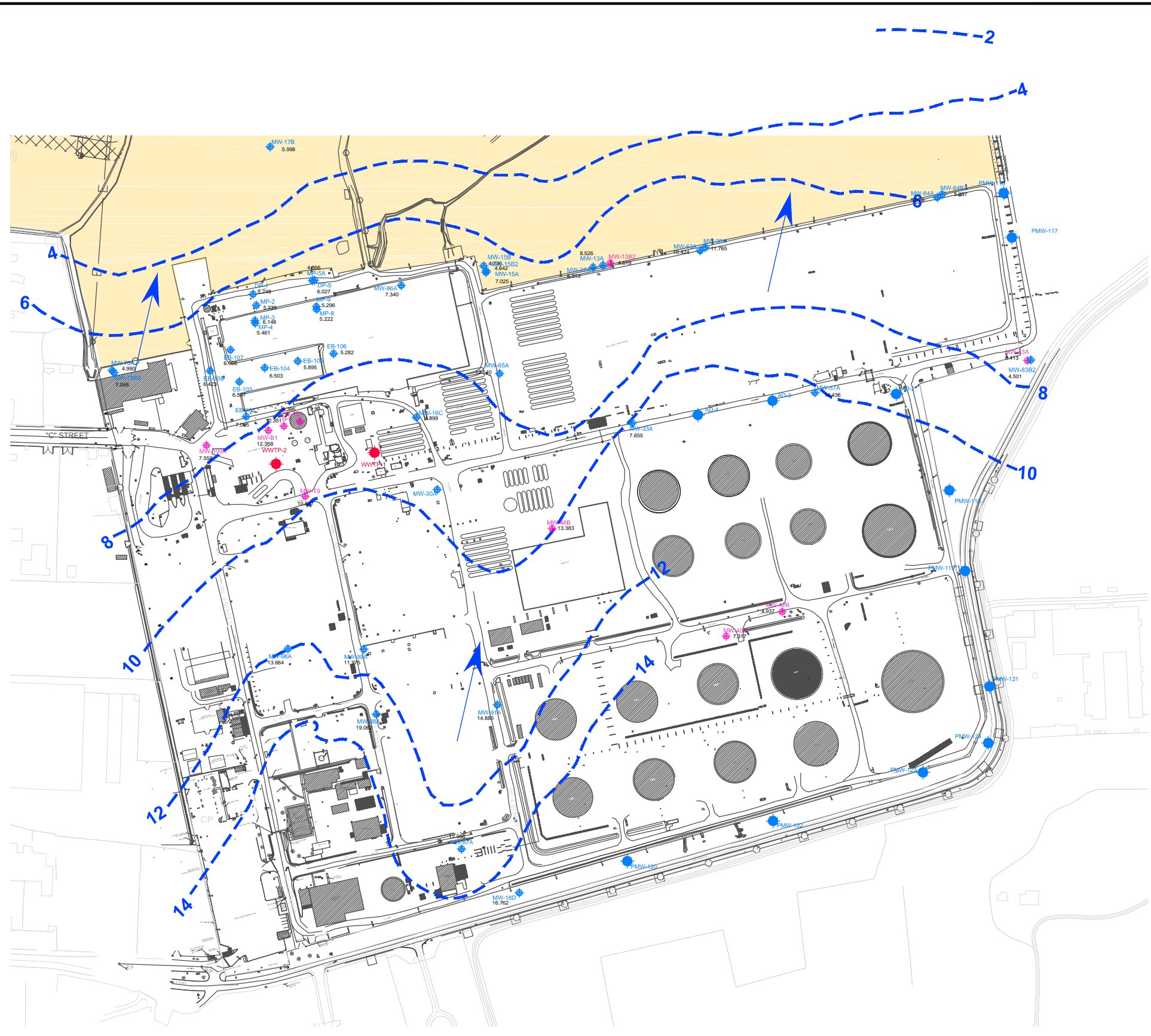
- LEGEND:**
- 10.837 GROUNDWATER ELEVATION
  - GROUNDWATER CONTOUR
  - 12 GROUNDWATER CONTOUR ELEVATION
  - GROUNDWATER CASE
  - MW-# ● EXISTING MONITORING WELL LOCATION
  - MW-# ● EXISTING MONITORING WELL LOCATION WITH PRODUCT

PUMA ENERGY CARIBE, LLC  
 PUMA TERMINAL, KM. 2.0 LUCHETTI INDUSTRIAL PARK  
 BAYAMON, PUERTO RICO  
**SEMI-ANNUAL GW SAMPLING - JUNE 2016**

**TERMINAL SITE LAYOUT  
 CONTOUR MAP - AQUIFER - A**



CITY/TOWNSHIP: DIV/PROJECT: DBA/VIEWS: LDM/VIEWS: PIC/OP: PM/REGD: TM/OP: LVR/OP/ON: OFF-REF: PROJECT: 2016/PUMA ENERGY/E068-63767 - Biannual Sampling Events June & Dec 2016/Draft and Final Presentation/Final Report/Figures/63767.0000 - Junio2016 Semi-annual Fig 03 - 04 Contours Maps - Final Fig.dwg LAYOUT: 4 SAVED: 3/15/2017 1:46 PM ACADVER: 18.1S (LIMS TECH) PAGES: 10 PLOT SETUP: PLOTSTYLETABLE: PRENVIROMENTAL\_PCF.CTB PLOTTED: 2/28/2017 10:00 AM BY: PEREZ, TONY



- LEGEND:**
- 10.837 GROUNDWATER ELEVATION
  - GROUNDWATER CONTOUR
  - 12 GROUNDWATER CONTOUR ELEVATION
  - GROUNDWATER CASE
  - MW-# ● EXISTING MONITORING WELL LOCATION
  - MW-# ● EXISTING MONITORING WELL LOCATION WITH PRODUCT

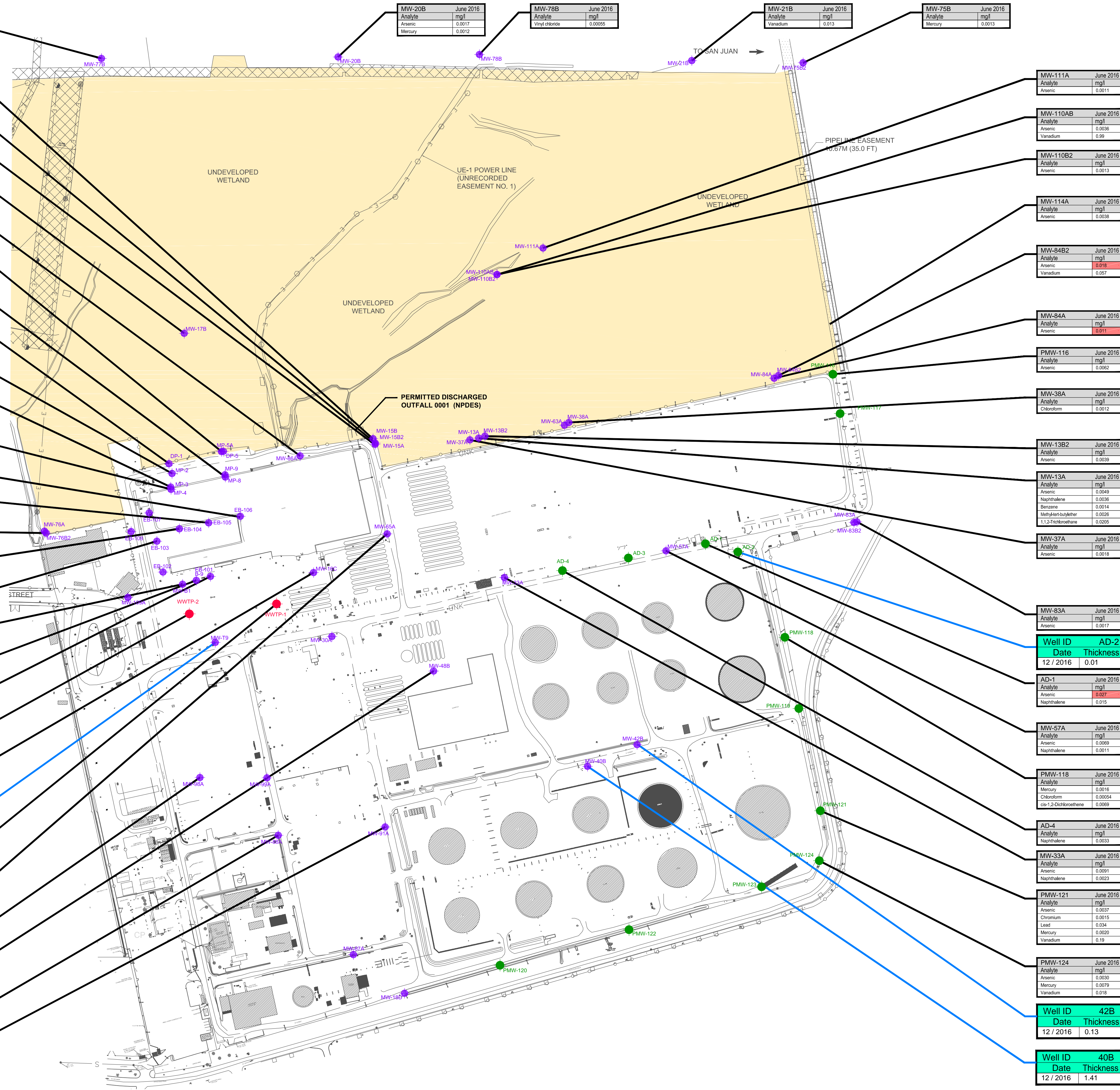
PUMA ENERGY CARIBE, LLC  
 PUMA TERMINAL, KM. 2.0 LUCHETTI INDUSTRIAL PARK  
 BAYAMON, PUERTO RICO  
**SEMI-ANNUAL GW SAMPLING - JUNE 2016**

**TERMINAL SITE LAYOUT  
 CONTOUR MAP - AQUIFER - B**

**ARCADIS** | FIGURA 4

NOT TO SCALE

MW-77B	June 2016	Analyte	mg/l	Arsenic	0.0011	Vanadium	0.017		
MW-15B	June 2016	Analyte	mg/l	Arsenic	0.0018				
MW-15B2	June 2016	Analyte	mg/l	Arsenic	0.016				
MW-15A	June 2016	Analyte	mg/l	Arsenic	0.0029				
MW-17B	June 2016	Analyte	mg/l	Vanadium	0.011				
MW-86A	June 2016	Analyte	mg/l	Arsenic	0.0012				
MPSA	June 2016	Analyte	mg/l	Arsenic	0.0077	Trichloroethene	0.0014		
MP8	June 2016	Analyte	mg/l	Arsenic	0.0032				
DP-1	June 2016	Analyte	mg/l	Arsenic	0.0013	Vanadium	0.016		
MP2	June 2016	Analyte	mg/l	Vanadium	0.024				
MP3	June 2016	Analyte	mg/l	Arsenic	0.0084	Lead	0.028	Vanadium	0.018
MP4	June 2016	Analyte	mg/l	Arsenic	0.0019				
EB-106	June 2016	Analyte	mg/l	Arsenic	0.0031				
EB-105	June 2016	Analyte	mg/l	Arsenic	0.013				
MW-76B2	June 2016	Analyte	mg/l	Benzo(a)anthracene	0.00018				
EB-104	June 2016	Analyte	mg/l	Arsenic	0.0012	Methyl-tert-butylether	0.0754		
EB-103	June 2016	Analyte	mg/l	Methyl-tert-butylether	0.0476				
MW-B1	June 2016	Analyte	mg/l	Arsenic	0.0029	Vanadium	0.011		
B-9	June 2016	Analyte	mg/l	Arsenic	0.0013				
EB-101	June 2016	Analyte	mg/l	Arsenic	0.0013	Naphthalene	0.00068		
WWTP-2	June 2016	Analyte	mg/l	Arsenic	0.0021	Vanadium	0.0091		
MW-16C	June 2016	Analyte	mg/l	Arsenic	0.0038	Vanadium	0.034	Vinyl chloride	0.00054
Well ID T9	12 / 2016	Thickness	0.22						
WWTP-1	June 2016	Analyte	mg/l	Arsenic	0.0015	Naphthalene	0.00085		
MW-65A	June 2016	Analyte	mg/l	Arsenic	0.0010				
MW-98A	June 2016	Analyte	mg/l	Naphthalene	0.00023				
MW-48B	June 2016	Analyte	mg/l	Arsenic	0.0040	Lead	0.033	Vanadium	0.037
MW-98A	June 2016	Analyte	mg/l	Naphthalene	0.00028				
MW-91A	June 2016	Analyte	mg/l	Arsenic	0.0048	m&p-Xylenes	0.114	o-Xylene	0.0389



Groundwater Analytical Results Box

Analyte	units	"MAY 2016 USEPA TAPWATER RSL"	"USEPA MCL"
Arsenic	mg/l	0.00052	0.01
Chromium	mg/l	2.2	0.1
Lead	mg/l	0.015	0.015
Mercury	mg/l	0.00057	0.002
Vanadium	mg/l	0.0086	--
Benzo(a)anthracene	mg/l	0.00012	--
Naphthalene	mg/l	0.00017	--
Benzene	mg/l	0.00046	0.005
Chloroform	mg/l	0.00022	0.008
1,2-Dibromo-3-chloropropane	mg/l	0.0000033	0.0002
cis-1,2-Dichloroethene	mg/l	0.0036	0.7
Ethylbenzene	mg/l	0.0015	0.07
Methyl-tert-butylether	mg/l	0.014	--
1,1,2-Trichloroethane	mg/l	0.00041	0.005
Trichloroethene	mg/l	0.00028	0.005
Vinyl chloride	mg/l	0.00019	0.002
m&p-Xylenes	mg/l	0.019	10
o-Xylene	mg/l	0.019	10

Product thickness Results Box

Well ID	Date	Thickness
AD-2	12 / 2016	0.01

NOTES:

- USEPA MAY 2016 TAPWATER REGIONAL SCREENING LEVELS (RSLs) AND USEPA MAXIMUM CONTAMINANT LEVELS (MCL) WERE OBTAINED FROM THE USEPA MAY 2016 REGIONAL SCREENING LEVEL TABLES (HTTPS://WWW.EPA.GOV/RISK/REGIONAL-SCREENING-LEVELS-RSLs-GENERIC-TABLES-MAY-2016).
- USEPA MAY 2016 COMMERCIAL VAPOR INTRUSION SCREENING LEVELS (VISLS) WERE OBTAINED FROM THE USEPA MAY 2016 VAPOR INTRUSION SCREENING LEVEL CALCULATOR (HTTPS://WWW.EPA.GOV/VAPORINTRUSION/VAPOR-INTRUSION-SCREENING-LEVELS-VISLS).
- USEPA MAY 2016 TAPWATER RSL, USEPA MCL AND USEPA MAY 2016 COMMERCIAL VISL ARE BASED ON A TARGET HAZARD QUOTIENT (THQ) OF 1 X 10-6 OR TARGET CANCER RISK (TCR) OF 1 X 10-6.
- THE USEPA MAY 2016 COMMERCIAL VISL FOR TOTAL XYLENES WAS USED TO EVALUATE M&P-XYLENES. THE USEPA MCL FOR TOTAL XYLENES WAS USED TO EVALUATE M&P-XYLENES AND O-XYLENE. THE USEPA MAY 2016 COMMERCIAL VISL AND TAPWATER RSL FOR 1,3-DICHLOROPROPENE WAS USED TO EVALUATE CIS-1,3-DICHLOROPROPENE AND TRANS-1,3-DICHLOROPROPENE.
- VALUES ARE GREATER THAN THE USEPA MAY 2016 TAPWATER RSL.
- SHADED (■) VALUES ARE GREATER THAN THE USEPA MCL.
- ABBREVIATIONS ARE AS FOLLOWS:  
mg/l = MILLIGRAMS PER LITER  
-- = VALUE UNAVAILABLE

LEGEND:

MW-#	EXISTING MONITORING WELL (BEFORE 2014)
MW-#	NEW MONITORING WELL (2014)
MW-#	NEW MONITORING WELL (2016)
■	UNDEVELOPED WETLAND

PUMA ENERGY CARIBE, L.L.C.  
PUMA TERMINAL, KM. 2.0 LUCIETTI INDUSTRIAL PARK  
BAYAMÓN, PUERTO RICO  
SEMI-ANNUAL GW SAMPLING - DEC. 2016

# APPENDIX A

The Standard Operating Procedures



## **Water-Level and NAPL Thickness Measurement Procedures**

Rev. #: 0

Rev Date: February 27, 2009

**Approval Signatures**

Prepared by: Andrew Korik Date: 2/27/09  
Andrew Korik

Reviewed by: Michael J Gefell Date: 2/27/09  
Michael Gefell (Technical Expert)

## I. Scope and Application

Monitoring well water levels and thickness of non-aqueous phase liquids (NAPLs) will be determined, as appropriate, to develop groundwater elevation contour maps and to assess the presence or absence of NAPL in wells. This SOP applies to light and/or dense NAPLs (LNAPLs and DNAPLs, respectively). In addition, because this SOP describes water-level measurement from surveyed measurement points, this SOP can be followed, to obtain surface water level measurements from surveyed measurement points.

Fluid levels will be measured using an electric water-level probe and/or NAPL-water interface probe from established reference points. Reference points are surveyed, and are established at the highest point at the top of well riser, and will be based on mean sea level, or local/onsite datum. The Operating and Maintenance (O&M) Instruction Manual for the electric water level probe and/or and interface probe should be reviewed prior to commencing work for safe and accurate operation.

## II. Personnel Qualifications

Individuals conducting fluid level measurements will have been trained in the proper use of the instruments, including their use for measuring fluid levels and the bottom depth of wells. In addition, ARCADIS field sampling personnel will have current health and safety training including 40-hour HAZWOPER training, site supervisor training, site-specific training, first aid, and CPR, as needed. In addition, ARCADIS field sampling personnel will be versed in the relevant SOPs and possess the required skills and experience necessary to successfully complete the desired field work. ARCADIS field personnel will also be compliant with client-specific training requirements, such as (but not limited to) LPS or other behavior-based training, and short-service employee restrictions.

## III. Equipment List

The following materials, as required, shall be available during fluid level measurements.

- photoionization detector (PID)
- appropriate health and safety equipment, as specified in the site Health and Safety Plan (HASP)



- laboratory-type soap (Alconox or equivalent), methanol/hexane rinse, potable water, distilled water, and/or other equipment that may be needed for decontamination purposes
- electronic NAPL-water interface probe
- electronic water-level meter
- 6-foot engineer's rule
- portable containers
- plastic sheeting
- field logbook and/or personal digital assistant (PDA)
- indelible ink pen
- digital camera (optional, if allowed by site policy)

#### IV. Cautions

Electronic water-level probes and NAPL-water interface probes can sometimes produce false-positive readings. For example, if the inside surface of the well has condensation above the water level, then an electronic water-level probe may produce a signal by contacting the side of the well rather than the true water level in the well. In addition, NAPL-water interface probes can sometimes indicate false positive signals when contacting a sediment layer on the bottom of a well. In contrast, a NAPL-water interface probe may produce a false-negative (no signal) if a floating layer of non-aqueous phase liquid (NAPL) is too thin, such as a film or sheen. To produce reliable data, the electronic water level probe and/or interface probe should be raised and lowered several times at the approximate depth where the instrument produces a tone indicating a fluid interface to verify consistent, repeatable results. In addition, a bottom-loading bailer should periodically be used to check for the presence of NAPLs rather than relying solely on the NAPL-water interface probe.

The graduated tape or cable with depth markings is designed to indicate the depth of the electronic sensor that detects the fluid interface, but not the depth of the bottom of the instrument. When using these devices to measure the total well depth, the additional length of the instrument below the electronic sensor must be added to the apparent well depth reading, as observed on the tape or cable of the instrument, to obtain the true total depth of the well. If the depth markings on the tape or cable are

worn or otherwise difficult to read, extra care must be taken in obtaining the depth readings.

## **V. Health and Safety Considerations**

The HASP will be followed, as appropriate, to ensure the safety of field personnel. Access to wells may expose field personnel to hazardous materials such as contaminated groundwater or NAPL. Other potential hazards include stinging insects that may inhabit well heads, other biologic hazards, and potentially the use of sharp cutting tools (scissors, knife). Appropriate personal protective equipment (PPE) will be worn during these activities. Field personnel will thoroughly review client-specific health and safety requirements, which may preclude the use of fixed/folding-blade knives.

## **VI. Procedure**

### **Calibration Procedures**

If there is any uncertainty regarding the accuracy of the tape or cable associated with the electronic water-level probe or NAPL-water interface probe, it should be checked versus a standard length prior to use to assess if the tape or cable above the meter has been correctly calibrated by the manufacturer, and to identify evidence of tape or cable stretching, etc.

1. Measure the lengths between markers on the cable with a 6-foot engineer's rule or a fiberglass engineer's tape. The tape or cable associated with the electronic water-level probe or NAPL-water interface probe should be checked for the length corresponding to the deepest total well depth to be monitored during the data collection event.
2. If the length designations on the tape or cable associated with the electronic water-level probe or NAPL-water interface probe are found to be incorrect, the probe will not be used until it is repaired by the manufacturer.
3. Record verification of this calibration process in field logbook or PDA.

### **Measurement Procedures**

The detailed procedure for obtaining fluid level depth measurements is as follows. Field notes on logs will be treated as secured documentation and indelible ink will be used. As a general rule, the order of measuring should proceed from the least to most contaminated monitoring wells, based on available data.

1. Identify site and well number in field logbook using indelible ink, along with date, time, personnel, and weather conditions.
2. Field personnel will avoid activities that may introduce contamination into monitoring wells. Activities such as dispensing gasoline into vehicles or generators should be accomplished well in advance of obtaining field measurements.
3. Don PPE as required by the HASP..
4. Clean the NAPL/water interface probe and cable in accordance with the appropriate cleaning procedures. Down-hole instrumentation should be cleaned prior to obtaining readings at the first monitoring well and upon completion of readings at each well.
5. Clean the NAPL/water level interface probe and cable with a soapy (Alconox) water rinse followed by a solvent rinse (if appropriate based on site-specific constituents of concern) an analyte-free water rinse Contain rinse water in a portable container that will be transferred to an on-site container.
6. Put clean plastic sheeting on the ground next to the well.
7. Unlock and open the well cover while standing upwind from the well. Place the well cap on the plastic sheeting.
8. Locate a measuring reference point on the well casing. If one is not found, initiate a reference point at the highest discernable point on the inner casing (or outer if an inner casing is not present) by notching with a hacksaw, or using an indelible marker. All down-hole measurements will be taken from the reference point established at each well on the inner casing (on the outer only if an inner casing is not present).
9. Measure to the nearest hundredth of a foot and record the height of the inner and outer casings (from reference point, as appropriate) to ground level.
10. Record the inside diameter of the well casing in the field log.
11. If an electronic water level probe is used to measure the water level, lower the probe until it emits a signal (tone and or light) indicating the top of the water surface. Gently raise and lower the instrument through this interface to confirm its depth. Measure and record the depth of the water surface, and the total well depth, to the nearest hundredth of a foot from the reference point at the top of

the well. Lower the probe to the bottom of the well to obtain a total depth measurement.

12. If a NAPL/water interface probe is being used to measure the depth and thickness of NAPL, lower the instrument until it emits a signal (tone and or light) indicating whether LNAPL is present. Continue to lower the NAPL/water level interface probe until it indicates the top of water. Lower the probe to the bottom of the well to obtain a total depth measurement. Note also of the depth indicating the bottom of water and top of DNAPL layer, if any, based on the signal emitted by the interface probe. At each fluid interface, gently raise and lower the instrument through each the interface to confirm its depth. Measure to the nearest hundredth of a foot and record the depth of each fluid interface, and the total well depth, from the reference point.
13. Clean the NAPL/water interface probe and cable in accordance with the appropriate cleaning procedures.
14. If using a bailer to confirm the presence/absence of NAPL, the bailer should either have been previously dedicated to the well, or be a new previously unused bailer.
15. Compare the depth of the well to previous records, and note any discrepancy.
16. Lock the well when all activities are completed.

## **VII. Waste Management**

Decontamination fluids, PPE, and other disposable equipment will be properly stored on site in labeled containers and disposed of properly. Be certain that waste containers are properly labeled and documented in the field log book. Review appropriate waste management SOPs, which may be state- or client-specific.

## **VIII. Data Recording and Management**

Fluid level measurement data will be recorded legibly on “write-in-the-rain” field notebook in indelible pen and/or a PDA. Field situations such as apparent well damage or suspected tampering, or other observations of conditions that may result in compromised data collection will be photographically documented where practicable.

## **IX. Quality Assurance**

As described in the detailed procedure, the electronic water-level meter and/or NAPL-water interface probe will be calibrated prior to use versus an engineer's rule to ensure accurate length demarcations on the tape or cable. Fluid interface measurements will be verified by gently raising and lowering the instrument through each interface to confirm repeatable results.

## **X. References**

No literature references are required for this SOP.

**LNAPL Thickness/Water-Level  
Measurement and Manual  
LNAPL Removal (Bailing or  
Installation of Absorbent  
Socks)**

Rev. #: 1

Rev Date: December 29, 2005

**Approval Signatures**

Prepared by: \_\_\_\_\_ Date: \_\_\_\_\_

Reviewed by: \_\_\_\_\_ Date: \_\_\_\_\_  
(Technical Expert)

Reviewed by: \_\_\_\_\_ Date: \_\_\_\_\_  
(Project Manager)

## I. Scope and Application

Manual light non-aqueous phase liquid (LNAPL) removal and absorbent sock installation is appropriate for recovery of residual LNAPL or LNAPL recovery rate testing.

Monitoring well water levels and LNAPL thickness will be used, as appropriate, to develop piezometric maps and evaluate LNAPL extent migration or extent reduction. The water levels and LNAPL thickness will be obtained using an oil/water interface probe. The Operation and Maintenance (O&M) Manual for the probe should be reviewed prior to commencement of work for safe and accurate operation. LNAPL will be removed using either a bailer or absorbent sock. LNAPL and associated disposable personal protection equipment (PPE)/ materials will be stored in separate drums, labeled, and properly disposed at a licensed facility. Procedures for determining water levels and LNAPL thicknesses in monitoring wells and LNAPL removal are presented in this Standard Operating Procedure (SOP).

## II. Personnel Qualifications

LNAPL removal, monitoring well water level, and LNAPL level measurements will be performed by persons trained in the proper usage of water-level measurement equipment and LNAPL handling under the guidance of an experienced field geologist, engineer, or technician.

## III. Equipment List

- oil/water interface probe and O&M Manual;
- photoionization detector (PID) to measure headspace vapors;
- bailer;
- bucket;
- 15-foot length section of 1½ " outside diameter (OD) Schedule 40 PVC pipe;
- 15-foot length section of ¾" OD Schedule 40 PVC pipe;
- well opening tools (large screwdriver, small brass lock, socket set, hammer);
- well construction information for monitoring wells;



- health and safety equipment, as required by the site Health and Safety Plan (HASP), task Job Safety Analysis (JSA), and Journey Management Plan (JMP);
- cleaning brushes;
- plastic sheeting;
- measuring tape;
- non-phosphate soap;
- distilled/deionized water;
- solvent cleaner (e.g., CitraSolv™);
- watch (to record time and day);
- field notebook;
- absorbent pads;
- absorbent socks;
- appropriate LNAPL and/or absorbent material disposable containers;
- LNAPL thickness/water-level measurement and manual LNAPL removal log (LNAPL removal log; Attachment A);
- monitoring well keys; and
- tape (to loosely seal end of PVC pipe) (Note: do not use electrical tape).

#### IV. Cautions

Handle and store LNAPL with care to avoid spills. Use the absorbent material when handling equipment that contains or has been coated with LNAPL. Monitoring wells with viscous LNAPL (tar-like LNAPL) are extremely difficult to remove and measure depth to water. Do not use electrical tape, as this tape may contaminate water samples.

## V. Health and Safety Considerations

Field activities will be performed in accordance with the site-specific HASP, JSA, and JMP, copies of which will be present on-site during such activities.

## VI. Procedures

### Groundwater and LNAPL Elevation Measurements

1. Identify site and well number on the LNAPL removal log (Attachment A), along with other appropriate information collected during water-level measurement.
2. Don PPE as required by the HASP.
3. Clean the oil/water interface probe and cable in accordance with the appropriate cleaning procedures.
4. Place a piece of plastic sheeting and absorbent pads adjacent to the well to use as a clean work area. Cut a hole in the center of sheeting and place the sheet around the well.
5. If LNAPL or absorbent sock is present in the well (based on a review historical data, if available), place enough absorbent pads on the plastic sheet beside the well to absorb oil that may be present when the absorbent sock and oil/water interface probe is removed from the well.
6. Unlock and open the well cover while standing upwind of the well. Remove well cap. Insert PID probe approximately 4 to 6 inches into the casing of the well headspace and cover with gloved hand. Record the PID reading on the field log. If the well headspace reading is less than 5 PID units, proceed; if the well headspace reading is greater than 5 PID units, screen the air within the breathing zone. If the PID reading in the breathing zone is below 5 PID units, proceed. If the PID reading is above 5 PID units, move upwind from the well for 5 minutes to allow the volatiles to dissipate. Repeat the breathing zone test. If the reading is still above 5 PID units, don appropriate respiratory protection in accordance with the requirements of the HASP. Record all PID readings.
7. Locate a measuring reference point on the well casing. If one is not found, initiate a reference point by notching the inner and outer casings with a hacksaw or by using a waterproof marker. All down-hole measurements will be taken from the reference points. The acronym "TIC" will designate the top of inner casing and the acronym "TOC" will designate the top of the outer casing. If a well has both

inner and outer casings, use the TIC as the reference point.

Note: The following steps describe the procedures for water-level measurement and detection of immiscible layers. For wells subject to routine monitoring (e.g., monthly monitoring locations), determining the depth of the well will be performed initially and at a maximum interval of annually thereafter.

8. If an absorbent sock is already in the well, note the presence of the sock on the log, remove the absorbent sock, and make a qualitative estimate of the volume of LNAPL present in the absorbent sock. Proceed to Step 9 after the well has equilibrated (wait up to 1 hour before measuring LNAPL thickness and water level).
9. Measure to the nearest 0.01 foot and record the height of the inner and outer casings from reference point to ground level.
10. Record the inside diameter of the well casing on the field log.
11. At all locations, **except those monitoring wells containing viscous LNAPL (see note below)**, lower the oil/water interface probe into the well to determine the existence of any light immiscible layer. Carefully record the depths of the air/light-phase and light-phase/water interfaces (to the nearest 0.01 foot) to determine the thickness of the light-phase immiscible layer (if present). If no light-phase immiscible layer is present, record the depth of the air/water interface.

**Note: Use extreme caution when gauging monitoring wells with viscous LNAPL.** The viscous nature of LNAPL is difficult to remove. Instead, mark a 10-foot section of PVC pipe at 1-foot intervals to estimate location of the pipe within the well and slowly lower pipe into the well until reaching the fluid/air interface. Mark the PVC pipe at the TIC and slowly remove. Measure difference between the uppermost limit of LNAPL on the pipe (if present) and the mark made at the TIC. The difference is the top of LNAPL. To get depth to water, use two sections of PVC pipe that when put one inside the other will also fit down the 2-inch diameter well (i.e.,  $\frac{3}{4}$ " diameter inside a  $1\frac{1}{2}$ " diameter pipe with the  $\frac{3}{4}$ " pipe). Make sure that the  $\frac{3}{4}$ " pipe is at least 6 inches longer than the  $1\frac{1}{2}$ " pipe). Tape the bottom of the two pipes such that the tape can be easily removed, but can be lowered through the LNAPL/water interface. Slowly lower the two pipes into the well until reaching the bottom (~15' below ground surface [bgs]). Push the  $\frac{3}{4}$ " pipe through the  $1\frac{1}{2}$ " pipe to remove the tape and allow groundwater to enter pipes. Remove the  $\frac{3}{4}$ " diameter pipe and allow the water level to equilibrate inside the  $1\frac{1}{2}$ " pipe (wait up to 1 hour before measuring).

Measure and record the depth of the air/water interface inside the 1½" pipe using the oil/water interface probe (to the nearest 0.01 foot) relative to the TIC.

12. If greater than ½ inch of LNAPL is measured, remove LNAPL with bailer and reinstall absorbent material (see procedures below).
13. If less than ½ inch, remove LNAPL with bailer and measure thickness during subsequent gauging event (see procedure below).

#### **LNAPL Removal with Bailer**

- a. Remove the bailer from the plastic covering and attach a string or rope to the top of the bailer.
- b. Gently lower the bailer into the LNAPL. To avoid removing groundwater, do not lower the bailer deeper than the expected LNAPL/groundwater interface. Use care not to stir up the LNAPL and groundwater.
- c. Pour the LNAPL into a bucket or container for measurement and repeat until the LNAPL thickness has been reduced to less than approximately 0.1 foot.
- d. Record the volume of LNAPL removed in the field notebook and transfer LNAPL to a labeled drum or container for disposal (see Section VII).

#### **Installation of Absorbent Socks for LNAPL Removal**

- a. Tie one end of the sock to a rope and lower into the monitoring well.
- b. Lower the sock such that the bottom of the sock is at the LNAPL/groundwater interface. In monitoring wells that are affected by tidal fluxes, allow extra length in the rope for groundwater elevation fluxes.
- c. Tie the end of the rope to the top of the well casing.
- d. Replace the absorbent sock when the sock becomes saturated, dispose of the socks in a labeled drum or container, stage drum at an approved location, and arrange for proper off-site disposal.

14. Between wells, when obtaining water-level/oil thickness measurements at more than one location, clean the instrument with a non-phosphate soap and water wash followed by a distilled/deionized water rinse. Use an appropriate solvent rinse, if necessary, to remove oil deposits.
15. Close and secure the monitoring wells and LNAPL disposal containers when all activities are completed.
16. Collect all PPE and other wastes generated for disposal. Separately containerize all PPE and disposable supplies from LNAPL (see Section VII).

## **VII. Waste Management**

Materials generated during water-level/oil thickness measurement and LNAPL removal procedures, including disposable equipment (including absorbent pads and socks) and LNAPL, will be containerized in appropriate labeled containers or drums. Solids, such as absorbents, are to be stored separately from liquids. LNAPL from all wells may be containerized in one drum. Containerized waste labeling, storage locating procedures are detailed in a separate SOP.

## **VIII. Data Recording and Management**

The supervising geologist/technician will be responsible for documenting site conditions and field activities using a daily field log or bound field notebook to record all relevant information in a clear and concise format which will include the following (at a minimum):

- start and finish times of water and LNAPL measurement events;
- name and location of project;
- project number, client, and site location;
- depth to water and LNAPL;
- volume and description of LNAPL removed;
- number and volume of on-site drums; and
- weather conditions.

Water-level and LNAPL measurements should be recorded on the LNAPL removal log (Attachment A). All records are to be sent to the Project Manager for review and original records are to be stored in the project files.

#### **IX. Quality Assurance**

Groundwater elevation data will be compared to historical data and if groundwater elevations are not within historical ranges, the groundwater elevation data will be confirmed by additional field measurements.

#### **X. References**

[Click here and enter Text]

**ATTACHMENT A**

**NAME OF SITE  
 CITY, STATE**

**LNAPL THICKNESS/WATER-LEVEL MEASUREMENT AND MANUAL LNAPL REMOVAL LOG**

<b>Well ID</b>	<b>MW-</b>	<b>MW-</b>	<b>MW-</b>	<b>MW-</b>	<b>MW-</b>
<b>Date</b>					
<b>Inside Diameter of Well (inches)</b>					
<b>Depth to LNAPL (feet)</b>					
<b>Depth to Water (feet)</b>					
<b>LNAPL Recovered from Absorbent Pad (gallons)</b>					
<b>LNAPL Bailed (gallons)</b>					
<b>Total LNAPL Recovered</b>					
<b>Absorbent Replaced? (yes/no)</b>					
<b>Notes</b>					

Note:

1 gallon = 3,785 milliliters

## **Chain-of-Custody, Handling, Packing and Shipping**


Rev. #: 2

Rev Date: March 6, 2009



**Approval Signatures**

Prepared by:  Date: 3/6/09  
Caron Koll

Reviewed by:  Date: 3/6/09  
Jane Kennedy (Technical Expert)

## I. Scope and Application

This Standard Operating Procedure (SOP) describes the chain-of-custody, handling, packing, and shipping procedures for the management of samples to decrease the potential for cross-contamination, tampering, mis-identification, and breakage, and to insure that samples are maintained in a controlled environment from the time of collection until receipt by the analytical laboratory.

## II. Personnel Qualifications

ARCADIS field sampling personnel will have current health and safety training, including 40-hour HAZWOPER training, Department of Transportation (DOT) training, site supervisor training, and site-specific training, as needed. In addition, ARCADIS field sampling personnel will be versed in the relevant SOPs and possess the skills and experience necessary to successfully complete the desired field work.

## III. Equipment List

The following list provides materials that may be required for each project. Project documents and sample collection requirements should be reviewed prior to initiating field operations:

- indelible ink pens (black or blue);
- polyethylene bags (resealable-type);
- clear packing tape, strapping tape, duct tape;
- chain of custody
- DOT shipping forms, as applicable
- custody seals or tape;
- appropriate sample containers and labels,;
- insulated coolers of adequate size for samples and sufficient ice to maintain 4°C during collection and transfer of samples;
- wet ice;
- cushioning and absorbent material (i.e., bubble wrap or bags);

- temperature blank
- sample return shipping papers and addresses; and
- field notebook.

#### **IV. Cautions**

Review project requirements and select appropriate supplies prior to field mobilization.

Insure that appropriate sample containers with applicable preservatives, coolers, and packing material have been supplied by the laboratory.

Understand the offsite transfer requirements for the facility at which samples are collected.

If overnight courier service is required schedule pick-up or know where the drop-off service center is located and the hours of operation. Prior to using air transportation, confirm air shipment is acceptable under DOT and International Air Transport Association (IATA) regulation

Schedule pick-up time for laboratory courier or know location of laboratory/service center and hours of operation.

Understand DOT and IATA shipping requirements and evaluate dangerous goods shipping regulations relative to the samples being collected (i.e. complete an ARCADIS shipping determination). Review the ARCADIS SOPs for shipping, packaging and labeling of dangerous goods. Potential samples requiring compliance with this DOT regulation include:

- Methanol preservation for Volatile Organic Compounds in soil samples
- Non-aqueous phase liquids (NAPL)

#### **V. Health and Safety Considerations**

Follow health and safety procedures outlined in the project/site Health and Safety Plan (HASP).

Use caution and appropriate cut resistant gloves when tightening lids to 40 mL vials. These vials can break while tightening and can lacerate hand. Amber vials (thinner glass) are more prone to breakage.

Some sample containers contain preservatives.

- The preservatives must be retained in the sample container and should in no instance be rinsed out.
- Preservatives may be corrosive and standard care should be exercised to reduce potential contact to personnel skin or clothing. Follow project safety procedures if spillage is observed.
- If sample container caps are broken discard the bottle. Do not use for sample collection.

## VI. Procedure

### Chain-of-Custody Procedures

1. Prior to collecting samples, complete the chain-of-custody record header information by filling in the project number, project name, and the name(s) of the sampling technician(s) and other relevant project information. Attachment 1 provides an example chain-o- custody record
2. Chain-of-custody information **MUST** be printed legibly using indelible ink (black or blue).
3. After sample collection, enter the individual sample information on the chain-of-custody:
  - a. Sample Identification indicates the well number or soil location that the sample was collected from. Appropriate values for this field include well locations, grid points, or soil boring identification numbers (e.g., MW-3, X-20, SB-30). When the depth interval is included, the complete sample ID would be "SB-30 (0.5-1.0) where the depth interval is in feet. Please note it is very important that the use of hyphens in sample names and depth units (i.e., feet or inches) remain consistent for all samples entered on the chain-of-custody form. **DO NOT** use the apostrophe or quotes in the sample ID. Sample names may also use the abbreviations "FB," "TB," and "DUP" as prefixes or suffixes to indicate that the sample is a field blank, trip blank, or field duplicate, respectively. **NOTE:** The sample

nomenclature may be dictated by the project database and require unique identification for each sample collected for the project. Consult the project data management plan for additional information regarding sample identification.

- b. List the date of sample collection. The date format to be followed should be mm/dd/yy (e.g., 03/07/09) or mm/dd/yyyy (e.g. 03/07/2009).
- c. List the time that the sample was collected. The time value should be presented using military format. For example, 3:15 P.M. should be entered as 15:15.
- d. The composite field should be checked if the sample is a composite over a period of time or from several different locations and mixed prior to placing in sample containers.
- e. The "Grab". field should be marked with an "X" if the sample was collected as an individual grab sample. (e.g. monitoring well sample or soil interval).
- f. Any sample preservation should be noted.
- g. The analytical parameters that the samples are being analyzed for should be written legibly on the diagonal lines. As much detail as possible should be presented to allow the analytical laboratory to properly analyze the samples. For example, polychlorinated biphenyl (PCB) analyses may be represented by entering "PCBs" or "Method 8082." Multiple methods and/or analytical parameters may be combined for each column (e.g., PCBs/VOCs/SVOCs or 8082/8260/8270). These columns should also be used to present project-specific parameter lists (e.g., Appendix IX+3 target analyte list. Each sample that requires a particular parameter analysis will be identified by placing the number of containers in the appropriate analytical parameter column. For metals in particular, indicate which metals are required.
- h. Number of containers for each method requested. This information may be included under the parameter or as a total for the sample based on the chain of custody form used.
- i. Note which samples should be used for site specific matrix spikes.
- j. Indicate any special project requirements.

- k. Indicate turnaround time required.
  - l. Provide contact name and phone number in the event that problems are encountered when samples are received at the laboratory.
  - m. If available attach the Laboratory Task Order or Work Authorization forms
  - n. The remarks field should be used to communicate special analytical requirements to the laboratory. These requirements may be on a per sample basis such as “extract and hold sample until notified,” or may be used to inform the laboratory of special reporting requirements for the entire sample delivery group (SDG). Reporting requirements that should be specified in the remarks column include: 1) turnaround time; 2) contact and address where data reports should be sent; 3) name of laboratory project manager; and 4) type of sample preservation used.
  - o. The “Relinquished By” field should contain the signature of the sampling technician who relinquished custody of the samples to the shipping courier or the analytical laboratory.
  - p. The “Date” field following the signature block indicates the date the samples were relinquished. The date format should be mm/dd/yyyy (e.g., 03/07/2005).
  - q. The “Time” field following the signature block indicates the time that the samples were relinquished. The time value should be presented using military format. For example, 3:15 P.M. should be entered as 15:15.
  - r. The “Received By” section is signed by sample courier or laboratory representative who received the samples from the sampling technician or it is signed upon laboratory receipt from the overnight courier service.
3. Complete as many chain-of-custody forms as necessary to properly document the collection and transfer of the samples to the analytical laboratory.
  4. Upon completing the chain-of-custody forms, forward two copies to the analytical laboratory and retain one copy for the field records.
  5. If electronic chain-of-custody forms are utilized, sign the form and make 1 copy for ARCADIS internal records and forward the original with the samples to the laboratory.

## Handling Procedures

1. After completing the sample collection procedures, record the following information in the field notebook with indelible ink:
  - project number and site name;
  - sample identification code and other sample identification information, if appropriate;
  - sampling method;
  - date;
  - name of sampler(s);
  - time;
  - location (project reference);
  - location of field duplicates and both sample identifications;
  - locations that field QC samples were collected including equipment blanks, field blanks and additional sample volume for matrix spikes; and
  - any comments.
  
2. Complete the sample label with the following information in indelible ink:
  - sample type (e.g., surface water);
  - sample identification code and other sample identification information, if applicable;
  - analysis required;
  - date;
  - time sampled; and
  - initials of sampling personnel;

- sample matrix; and
  - preservative added, if applicable.
3. Cover the label with clear packing tape to secure the label onto the container and to protect the label from liquid.
  4. Confirm that all caps on the sample containers are secure and tightly closed.
  5. In some instances it may be necessary to wrap the sample container cap with clear packing tape to prevent it from becoming loose.
  6. For some projects individual custody seals may be required. Custody seal evidence tape may be placed on the shipping container or they may be placed on each sample container such that the cooler or cap cannot be opened without breaking the custody seal. The custody seal should be initialed and dated prior to relinquishing the samples.

### **Packing Procedures**

Following collection, samples must be placed on wet ice to initiate cooling to 4°C immediately. Retain samples on ice until ready to pack for shipment to the laboratory.

1. Secure the outside and inside of the drain plug at the bottom of the cooler being used for sample transport with “Duct” tape.
2. Place a new large heavy duty plastic garbage bag inside each cooler
3. Place each sample bottle wrapped in bubble wrap inside the garbage bag. VOC vials may be grouped by sample in individual resealable plastic bags). If a cooler temperature blank is supplied by the laboratory, it should be packaged following the same procedures as the samples. If the laboratory did not include a temperature blank, do not add one. Place 1 to 2 inches of cushioning material (i.e., vermiculite) at the bottom of the cooler.
4. Place the sealed sample containers upright in the cooler.
5. Package ice in large resealable plastic bags and place inside the large garbage bag in the cooler. Samples placed on ice will be cooled to and maintained at a temperature of approximately 4°C.



6. Fill the remaining space in the cooler with cushioning material such as bubble wrap. The cooler must be securely packed and cushioned in an upright position and be surrounded (Note: to comply with 49 CFR 173.4, filled cooler must not exceed 64 pounds).
7. Place the completed chain-of-custody record(s) in a large resealable bag and tape the bag to the inside of the cooler lid.
8. Close the lid of the cooler and fasten with packing tape.
9. Wrap strapping tape around both ends of the cooler.
10. Mark the cooler on the outside with the following information: shipping address, return address, "Fragile, Handle with Care" labels on the top and on one side, and arrows indicating "This Side Up" on two adjacent sides.
11. Place custody seal evidence tape over front right and back left of the cooler lid, initial and date, then cover with clear plastic tape.

**Note:** Procedure numbers 2, 3, 5, and 6 may be modified in cases where laboratories provide customized shipping coolers. These cooler types are designed so the sample bottles and ice packs fit snugly within preformed styrofoam cushioning and insulating packing material.

### Shipping Procedures

1. All samples will be delivered by an express carrier within 48 hours of sample collection. Alternatively, samples may be delivered directly to the laboratory or laboratory service center or a laboratory courier may be used for sample pickup.
2. If parameters with short holding times are required (e.g., VOCs [EnCore™ Sampler], nitrate, nitrite, ortho-phosphate and BOD), sampling personnel will take precautions to ship or deliver samples to the laboratory so that the holding times will not be exceeded.
3. Samples must be maintained at 4°C±2°C until shipment and through receipt at the laboratory
4. All shipments must be in accordance with DOT regulations and ARCADIS dangerous goods shipping SOPs.

5. When the samples are received by the laboratory, laboratory personnel will complete the chain-of-custody by recording the date and time of receipt of samples, measuring and recording the internal temperature of the shipping container, and checking the sample identification numbers on the containers to ensure they correspond with the chain-of-custody forms.

Any deviations between the chain-of-custody and the sample containers, broken containers, or temperature excursions will be communicated to ARCADIS immediately by the laboratory.

#### **VII. Waste Management**

Not applicable

#### **VIII. Data Recording and Management**

Chain-of-custody records will be transmitted to the ARCADIS PM or designee at the end of each day unless otherwise directed by the ARCADIS PM. The sampling team leader retains copies of the chain-of-custody forms for filing in the project file. Record retention shall be in accordance with project requirements.

#### **IX. Quality Assurance**

Chain-of-custody forms will be legibly completed in accordance with the applicable project documents such as Sampling and Analysis Plan (SAP), Quality Assurance Project Plan (QAPP), Work Plan, or other project guidance documents. A copy of the completed chain-of-custody form will be sent to the ARCADIS Project Manager or designee for review.

#### **X. References**

Not Applicable

**Attachment 1**



ID#:

**CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM**

Page \_\_\_ of \_\_\_

Lab Work Order #

<b>Send Results to:</b>	Contact & Company Name:	Telephone:	<b>Preservative</b>											
	Address:	Fax:	<b>Filtered (✓)</b>											
	City State Zip	E-mail Address:	<b># of Containers</b>											
				<b>Container Information</b>										
<b>PARAMETER ANALYSIS &amp; METHOD</b>														
Project Name/Location (City, State)		Project #:		<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><b>Preservation Key:</b>  A. H<sub>2</sub>SO<sub>4</sub>  B. HCL  C. HNO<sub>3</sub>  D. NaOH  E. None  F. Other: _____  G. Other: _____  H. Other: _____</p> <p><b>Matrix Key:</b>  SO - Soil  W - Water  T - Tissue</p> </div> <div style="width: 45%;"> <p><b>Keys</b></p> <p><b>Container Information Key:</b>  1. 40 ml Vial  2. 1 L Amber  3. 250 ml Plastic  4. 500 ml Plastic  5. Encore  6. 2 oz. Glass  7. 4 oz. Glass  8. 8 oz. Glass  9. Other: _____  10. Other: _____</p> <p>SE - Sediment NL - NAPL/Oil  SL - Sludge SW - Sample Wipe  A - Air Other: _____</p> </div> </div>										
Sampler's Printed Name:		Sampler's Signature:												
<b>Sample ID</b>	<b>Collection</b>		<b>Type (✓)</b>									<b>Matrix</b>		
	Date	Time	Comp									Grab		
<b>Special Instructions/Comments:</b>				<input type="checkbox"/> <b>Special QA/QC Instructions(✓):</b>										
<b>Laboratory Information and Receipt</b>				<b>Relinquished By</b>		<b>Received By</b>		<b>Relinquished By</b>		<b>Laboratory Received By</b>				
Lab Name:		<b>Cooler Custody Seal (✓)</b>		Printed Name:		Printed Name:		Printed Name:		Printed Name:				
<input type="checkbox"/> Cooler packed with ice (✓)		<input type="checkbox"/> Intact <input type="checkbox"/> Not Intact		Signature:		Signature:		Signature:		Signature:				
Specify Turnaround Requirements:		<b>Sample Receipt:</b>		Firm:		Firm/Counter:		Firm/Counter:		Firm:				
Shipping Tracking #:		Condition/Cooler Temp: _____		Date/Time:		Date/Time:		Date/Time:		Date/Time:				

## **Photoionization Detector Air Monitoring and Field Screening**

Rev. #: 1

Rev Date: November 8, 2009

**Approval Signatures**

Prepared by: (the late) Maureen Geisser

Date: July 28, 2003



Reviewed/revised by: Christopher C. Lutes  
(Technical Expert)

Date: November 8, 2009

## I. Scope and Application

Field screening with a photoionization detector (PID), such as an HNu™, Photovac™, MicroTIP™, or MiniRAE™, is a procedure to measure relative concentrations of volatile organic compounds (VOCs) and other compounds. Characteristics of the PID are presented in Attachment 1 and the compounds a PID can detect are presented in Attachment 2. Field screening will frequently be conducted on the following:

- Work area air to assess exposure to on-site workers of air contaminants via the air pathway;
- Well headspaces as a precautionary measure each time the well cover is opened; and
- Headspace of soil samples to assess the relative concentration of volatile organics in the sample or to select particular intervals for off-site analysis for VOCs.

## II. Personnel Qualifications

Personnel performing this method should be familiar with the basic principles of quantitative analytical chemistry (such as calibration) and familiar with the particular operation of the instrument to be used.

## III. Equipment List

The following materials, as required, shall be available while performing PID field screening:

- personal protective equipment (PPE), as required by the site Health and Safety Plan (HASP);
- PID and operating manual;
- PID extra battery pack and battery charger;
- calibration canisters for the PID;
- sample jars;
- Q-tips;

- aluminum foil;
- field calibration log (attached); and
- field notebook.

#### IV. Cautions

PIDs are sensitive to moisture and may not function under high humidity. PIDs cannot be used to indicate oxygen deficiency or combustible gases.

#### V. Health and Safety Considerations

Since the PIDs cannot detect all of the chemicals that may be present at a sample location, a zero reading on either instrument does not necessarily signify the absence of air contaminants. PIDs cannot be used as an indicator for oxygen deficiency.

**VI. Procedure (*Note these procedures were written particular to one specific instrument model, therefore please also refer to your owners manual. However the general principles – such as always measuring both a zero and span gas after an instrument adjustment/at the beginning of the analytical day, after four hours of testing and again at the end of an analytical day can be applied to all instruments.*)**

#### PID Calibration

PID field instruments will be calibrated and operated to yield “total organic vapor” in parts per million (ppm) (v/v) relative to benzene or isobutylene (or equivalent). Operation, maintenance, and calibration shall be performed in accordance with the manufacturer’s instructions and entered on the PID calibration and maintenance log (Attachment 3).

1. Don PPE, as required by the HASP.
2. Perform a BATTERY CHECK. Turn the FUNCTION switch to the BATTERY CHECK position. Check that the indicator is within or beyond the green battery arc. If battery is low, the battery must be charged before calibration.
3. Allow the instrument to warm up, then calibrate the PID. If equipped, turn the FUNCTION switch to the STANDBY position and rotate the ZERO

POTENTIOMETER until the meter reads zero with the instrument sampling clean air. Wait 15 to 20 seconds to confirm the adjustment. If unstable, readjust. If equipped, check to see that the SPAN POTENTIOMETER is adjusted for the probe being used (e.g., 9.8 for 10.2 electron volts [eV]). Set the FUNCTION switch to the desired ppm range (0-20, 0-200, or 0-2,000). A violet glow from the ultraviolet (UV) source should be visible at the sample inlet of the probe/sensor unit.

4. Listen for the fan operation to verify fan function.
5. Connect one end of the sampling hose to the calibration canister regulator outlet and the other end to the sampling probe of the PID. Crack the regulator valve and take a reading after 5 to 10 seconds. Adjust the span potentiometer to produce the concentration listed on the span gas cylinder. Record appropriate information on a PID Calibration and Maintenance Log (Attachment 3, or equivalent).
6. If so equipped, set the alarm at desired level.
7. Recheck the zero with fresh/clean air
8. Always recheck both zero and span after making any instrment adjustment, after four hours of screenign work and again after sample analysis.

#### **Work Area Air Monitoring**

1. Measure and record the background PID reading.
2. Measure and record the breathing space reading.

#### **Well Headspace Screening**

1. Measure and record the background PID reading.
2. Unlock and open the well cover while standing upwind of the well.
3. Remove the well cap.
4. Place the PID probe approximately 6 inches above the top of the casing.
5. Record all PID readings and proceed in accordance with the HASP.



## Field Screening Procedures

Soil samples will be field screened upon collection with the PID for a relative measure of the total volatile organic concentration. The following steps define the PID field screening procedures.

1. Half-fill two clean glass jars with the sample (if sufficient quantities of soil are available) to be analyzed. Quickly cover each open top with one or two sheets of clean aluminum foil and subsequently apply screw caps to tightly seal the jars. Sixteen-ounce (approximately 500 mL) soil or "mason" type jars are preferred; jars less than 8 ounces (approximately 250 mL) total capacity may not be used.
2. Allow headspace development for at least 10 minutes. Vigorously shake jars for 15 seconds at both the beginning and end of the headspace development period. Where ambient temperatures are below 32°F (0°C), headspace development should be within a heated building.
3. Subsequent to headspace development, remove screw lid to expose the foil seal. Quickly puncture foil seal with instrument sampling probe, to a point about one-half of the headspace depth. Exercise care to avoid contact with water droplets or soil particulates.
4. Following probe insertion through foil seal, record the highest meter response for each sample as the jar headspace concentration. Using the foil seal/probe insertion method, maximum response should occur between 2 and 5 seconds. Erratic meter response may occur at high organic vapor concentrations or conditions of elevated headspace moisture, in which case headspace data should be recorded and erratic meter response noted.
5. The headspace screening data from both jar samples should be recorded and compared; generally, replicate values should be consistent to plus or minus 20%. It should be noted that in some cases (e.g., 6-inch increment soil borings), sufficient sample quantities may not be available to perform duplicate screenings. One screening will be considered sufficient for this case.
6. PID field instruments will be operated and calibrated to yield "total organic vapors" in ppm (v/v) as benzene. PID instruments must be operated with at least a 10.0 eV (+) lamp source. Operation, maintenance, and calibration will be performed in accordance with the manufacturer's specifications presented in Attachment 12-1. For jar headspace analysis, instrument calibration will be checked/adjusted at least twice per day, at the beginning and end of each day

of use. Calibration will exceed twice per day if conditions and/or manufacturer's specifications dictate.

7. Instrumentation with digital (LED/LCD) displays may not be able to discern maximum headspace response unless equipped with a "maximum hold" feature or strip-chart recorder.

## **VII. Waste Management**

Do not dispose canisters of compressed gas, if there is still compressed gas in the canister. Return the canister to the manufacturer for proper disposal.

## **VIII. Data Recording and Management**

Measurements will be recorded in the field notebook or boring logs at the time of measurement with notation of date, time, location, depth (if applicable), and item monitored. If a data memory is available, readings will be downloaded from the unit upon access to a computer with software to retrieve the data.

## **IX. Quality Assurance**

After each use, the readout unit should be wiped down with a clean cloth or paper towel.

For a HNu, the UV light source window and ionization chamber should be cleaned once a month in the following manner:

1. With the PID off, disconnect the sensor/probe from the unit.
2. Remove the exhaust screw, grasp the end cap in one hand and the probe shell in the other, and pull apart.
3. Loosen the screws on top of the end cap and separate the end cap and ion chamber from the lamp and lamp housing.
4. Tilt the lamp housing with one hand over the opening so that the lamp slides out into your hand.
5. Clean the lamp with lens paper and HNu cleaning compound (except 11.7 eV). For the 11.7 eV lamp, use a chlorinated organic solvent.

6. Clean the ion chamber using methanol on a Q-tip and then dry gently at 50°C to 60°C for 30 minutes.
7. Following cleaning, reassemble by first sliding the lamp back into the lamp housing. Place ion chamber on top of the housing, making sure the contacts are properly aligned.
8. Place the end cap on top of the ion chamber and replace the two screws (tighten the screws only enough to seal the o-ring).
9. Line up the pins on the base of the lamp housing with pins inside the probe shell and slide the housing assembly into the shell.

#### **X. References**

Denahan, S.A. et. al "Relationships Between Chemical Screening Methodologies for Petroleum Contaminated Soils: Theory and Practice" *Chapter 5 In Principles and Practices for Petroleum Contaminated Soils*, E.J. Calabrese and P.T. Kostecki Eds., Lewis Publishers 1993.

Fitzgerald, J. "Onsite Analytical Screening of Gasoline Contaminated Media Using a Jar Headspace Procedure" *Chapter 4 in Principles and Practices for Petroleum Contaminated Soils*, E.J. Calabrese and P.T. Kostecki Eds., Lewis Publishers 1993.

## ATTACHMENT 1

### *Characteristics of the Photoionization Detector (PID)*

#### **I. Introduction**

PIDs are used in the field to detect a variety of compounds in air. PIDs can be used to detect leaks of volatile substances in drums and tanks, to determine the presence of volatile compounds in soil and water, and to make ambient air surveys. If personnel are thoroughly trained to operate the instrument and interpret the data, these PID instruments can be a valuable tool. Its use can help in deciding the level of protection to be worn, assist in determining the implementation of other safety procedures, and in determining subsequent monitoring or sampling locations.

Portable PIDs detect the concentration of organic gases, as well as a few inorganic gases. The basis for detection is the ionization of gaseous species. The incoming gas molecules are subjected to UV radiation, which ionizes molecules that have an ionization potential (IP) less than or equal to that rated for the UV source. Every molecule has a characteristic IP, which is the energy required to remove an electron from the molecule, thus yielding a positively charged ion and the free electron. These ions are attracted to an oppositely charged electrode, causing a current and an electric signal to the LED display. Compounds are measured on a ppm volume basis.

#### **II. HNu PI-101 / MiniRAE or Equivalent PID**

The PIDs detect the concentration of organic gases, as well as a few inorganic gases. The basis for detection is the ionization of gaseous species. The incoming gas molecules are subjected to UV radiation, which is energetic enough to ionize many gaseous compounds. Each molecule is transformed into charged ion pairs, creating a current between two electrodes. Every molecule has a characteristic IP, which is the energy required to remove an electron from the molecule, yielding a positively charged ion and the free electron.

Three probes, each containing a different UV light source, are available for use with the PID. Probe energies are typically 9.5, 10.2, and 11.7 eV, respectively. All three probes detect many aromatic and large-molecule hydrocarbons. In addition, the 10.2 eV and 11.7 eV probes detect some smaller organic molecules and some halogenated hydrocarbons. The 10.2 eV probe is the most useful for environmental response work, as it is more durable than the 11.7 eV probe and detects more compounds than the 9.5 eV probe. A listing of molecules and compounds that the HNu can detect is presented in Attachment 2.

The primary PID calibration gas is either benzene or isobutylene. The span potentiometer knob is turned to 9.8 for benzene calibration. A knob setting of zero increases the sensitivity to benzene approximately 10-fold. Its lower detection limit is in the low ppm range. Additionally, response time is rapid; the dot matrix liquid crystal displays 90% of the indicated concentration within 3 seconds.

#### **III. Limitations**

The PID instrument can monitor several vapors and gases in air. Many non-volatile liquids, toxic solids, particulates, and other toxic gases and vapors, however, cannot be detected with PIDs (such as methane). Since the PIDs cannot detect all of the chemicals that may be present at a sample location, a zero reading on either instrument does not necessarily signify the absence of air contaminants.

The PID instrument is generally not specific and their response to different compounds is relative to the calibration gases. Instrument readings may be higher or lower than the true concentration. This effect can be observed when monitoring total contaminant concentrations if several different compounds are being detected at once. In addition, the response of these instruments is not linear over the entire detection range. Therefore, care must be taken when interpreting the data. Concentrations should be reported in terms of the calibration gas and probe type.

PIDs are small, portable instruments and may not yield results as accurate as laboratory instruments. PIDs were originally designed for specific industrial applications. They are relatively easy to use and interpret when detecting total concentrations of known contaminants in air, but interpretation becomes more difficult when trying to identify the individual components of a mixture. PIDs cannot be used as an indicator for combustible gases or oxygen deficiency.

**ATTACHMENT 2**

***Molecules and Compounds Detected by a PID***

<u>Some Atoms and Simple Molecules</u>			<u>Paraffins and Cycloparaffins</u>	
	<u>IP(eV)</u>	<u>IP(eV)</u>	<u>Molecule</u>	<u>IP(eV)</u>
H	13.595 I <sub>2</sub>	9.28	methane	12.98
C	11.264 HF	15.77	ethane	11.65
N	14.54 HCl	12.74	propane	11.07
O	13.614 HBr	11.62	n-butane	10.63
Si	8.149 HI	10.38	i-butane	10.57
S	10.357 SO <sub>2</sub>	12.34	n-pentane	10.35
F	17.42 CO <sub>2</sub>	13.79	i-pentane	10.32
Cl	13.01 COS	11.18	2,2-dimethylpropane	10.35
Br	11.84 CS <sub>2</sub>	10.08	n-hexane	10.18
I	10.48 N <sub>2</sub> O	12.90	2-methylpentane	10.12
H <sub>2</sub>	15.426 NO <sub>2</sub>	9.78	3-methylpentane	10.08
N <sub>2</sub>	15.580 O <sub>3</sub>	12.80	2,2-dimethylbutane	10.06
O <sub>2</sub>	12.075 H <sub>2</sub> O	12.59	2,3-dimethylbutane	10.02
CO	14.01 H <sub>2</sub> S	10.46	n-heptane	10.08
CN	15.13 H <sub>2</sub> Se	9.88	2,2,4-trimethylpentane	9.86
NO	9.25 H <sub>2</sub> Te	9.14	cyclopropane	10.06
CH	11.1 HCN	3.91	cyclopentane	10.53
OH	13.18 C <sub>2</sub> N <sub>2</sub>	13.8	cyclohexane	9.88
F <sub>2</sub>	15.7 NH <sub>3</sub>	10.15	methlycyclohexane	9.8
Cl <sub>2</sub>	11.48 CH <sub>3</sub>	9.840		
Br <sub>2</sub>	10.55 CH <sub>4</sub>	12.98		

<u>Alkyl Halides</u>		<u>Alkyl Halides</u>	
<u>IP(eV)</u>	<u>IP(eV)</u>	<u>Molecule</u>	<u>IP(eV)</u>
HCl	12.74	methyl iodide	9.54
Cl <sub>2</sub>	11.48	diiodomethane	9.34
CH <sub>4</sub>	12.98	ethyl iodide	9.33
methyl chloride	11.28	1-iodopropane	9.26
dichloroemethane	11.35	2-iodopropane	9.17
trichloromethane	11.42	1-iodobutane	9.21
tetrachloromethane	11.47	2-iodobutane	9.09
ethyl chloride	10.98	1-iodo-2-methylpropane	9.18
1,2-dichloroethane	11.12	2-iodo-2-methylpropane	9.02
1-chloropropane	10.82	1-iodopentane	9.19
2-chloropropane	10.78	F <sub>2</sub>	15.7
1,2-dichloropropane	10.87	HF	15.77
1,3-dichloropropane	10.85	CFCl <sub>3</sub> (Freon 11)	11.77
1-chlorobutane	10.67	CF <sub>2</sub> Cl <sub>2</sub> (Freon 12)	12.31
2-chlorobutane	10.65	CF <sub>3</sub> Cl (Freon 13)	12.91
1-chloro-2-methylpropane	10.66	CHClF <sub>2</sub> (Freon 22)	12.45
2-chloro-2-methylpropane	10.61	CFBR <sub>3</sub>	10.67
HBr	11.62	CF <sub>2</sub> Br <sub>2</sub>	11.07
Br <sub>2</sub>	10.55	CH <sub>3</sub> CF <sub>2</sub> Cl (Genetron 101)	11.98
methyl bromide	10.53	CFCl <sub>2</sub> CF <sub>2</sub> Cl	11.99
dibromomethane	10.49	CF <sub>3</sub> CCl <sub>3</sub> (Freon 113)	11.78
tribromomethane	10.51	CFHBrCH <sub>2</sub> Cr	10.75
CH <sub>2</sub> BrCl	10.77	CF <sub>2</sub> BrCH <sub>2</sub> Br	10.83
CHBr <sub>2</sub> Cl	10.59	CF <sub>3</sub> CH <sub>2</sub> I	10.00
ethyl bromide	10.29	n-C <sub>3</sub> F <sub>7</sub> I	10.36
1,1-dibromoethane	10.19	n-C <sub>3</sub> F <sub>7</sub> CH <sub>2</sub> Cl	11.84
1-bromo-2-chloroethane	10.63	n-C <sub>3</sub> F <sub>7</sub> CH <sub>2</sub> I	9.96
1-bromopropane	10.18		
2-bromopropane	10.075		
1,3-dibromopropane	10.07		
1-bromobutane	10.13		
2-bromobutane	9.98		
1-bromo-2-methylpropane	10.09		
2-bromo-2-methylpropane	9.89		
1-bromopentane	10.10		
HI	10.38		
I <sub>2</sub>	9.28		

**Aliphatic Alcohol, Ether, Thiol, and Sulfides**

<b><u>Molecule</u></b>	<b><u>IP(eV)</u></b>
H <sub>2</sub> O	12.59
methyl alcohol	10.85
ethyl alcohol	10.48
n-propyl alcohol	10.20
i-propyl alcohol	10.16
n-butyl alcohol	10.04
dimethyl ether	10.00
diethyl ether	9.53
n-propyl ether	9.27
i-propyl ether	9.20
H <sub>2</sub> S	10.46
methanethiol	9.440
ethanethiol	9.285
1-propanethiol	9.195
1-butanethiol	9.14
dimethyl sulfide	8.685
ethyl methyl sulfide	8.55
diethyl sulfide	8.430
di-n-propyl sulfide	8.30



**Aliphatic Aldehydes and Ketones**

<b><u>Molecule</u></b>	<b><u>IP(eV)</u></b>
CO <sub>2</sub>	13.79
formaldehyde	10.87
acetaldehyde	10.21
propionaldehyde	9.98
n-butyraldehyde	9.86
isobutyraldehyde	9.74
n-valeraldehyde	9.82
isovaleraldehyde	9.71
acrolein	10.10
crotonaldehyde	9.73
benzaldehyde	9.53
acetone	9.69
methyl ethyl ketone	9.53
methyl n-propyl ketone	9.39
methyl i-propyl ketone	9.32
diethyl ketone	9.32
methyl n-butyl ketone	9.34
methyl i-butyl ketone	9.30
3,3-dimethyl butanone	9.17
2-heptanone	9.33
cyclopentanone	9.26
cyclohexanone	9.14
2,3-butanedione	9.23
2,4-pentanedione	8.87

**Aliphatic Acids and Esters**

<b><u>Molecule</u></b>	<b><u>IP(eV)</u></b>
CO <sub>2</sub>	13.79
formic acid	11.05
acetic acid	10.37
propionic acid	10.24
n-butyric acid	10.16
isobutyric acid	10.02
n-valeric acid	10.12
methyl formate	10.815
ethyl formate	10.61
n-propyl formate	10.54
n-butyl formate	10.50
isobutyl formate	10.46
methyl acetate	10.27
ethyl acetate	10.11
n-propyl acetate	10.04
isopropyl acetate	9.99
n-butyl acetate	10.01
isobutyl acetate	9.97
sec-butyl acetate	9.91
methyl propionate	10.15
ethyl propionate	10.00
methyl n-butyrate	10.07
methyl isobutyrate	9.98

**Aliphatic Amines and Amides**

<b><u>Molecule</u></b>	<b><u>IP(eV)</u></b>
NH <sub>3</sub>	10.15
methyl amine	8.97
ethyl amine	8.86
n-propyl amine	8.78
i-propyl amine	8.72
n-butyl amine	8.71
i-butyl amine	8.70
s-butyl amine	8.70
t-butyl amine	8.64
dimethyl amine	8.24
diethyl amine	8.01
di-n-propyl amine	7.84
di-i-propyl amine	7.73
di-n-butyl amine	7.69
trimethyl amine	7.82
triethyl amine	7.50
tri-n-propyl amine	7.23
formamide	10.25
acetamide	9.77
N-methyl acetamide	8.90
N,N-dimethyl formamide	9.12
N,N-dimethyl acetamide	8.81
N,N-diethyl formamide	8.89
N,N-diethyl acetamide	8.60

**Other Aliphatic Molecules with N Atom**

<b><u>Molecule</u></b>	<b><u>IP(eV)</u></b>
nitromethane	11.08
nitroethane	10.88
1-nitropropane	10.81
2-nitropropane	10.71
HCN	13.91
acetonitrile	12.22
propionitrile	11.84
n-butyronitrile	11.67
acrylonitrile	10.91
3-butene-nitrile	10.39
ethyl nitrate	11.22
n-propyl nitrate	
methyl thiocyanate	10.065
ethyl thiocyanate	9.89
methyl isothiocyanate	9.25
ethyl isothiocyanate	9.14

**Olefins, Cyclo-olefins, Acetylenes**

<b><u>Molecule</u></b>	<b><u>IP(eV)</u></b>
ethylene	10.515
propylene	9.73
1-butene	9.58
2-methylpropene	9.23
trans-2-butene	9.13
cis-2-butene	9.13
1-pentene	9.50
2-methyl-1-butene	9.12
3-methyl-1-butene	9.51
3-methyl-2-butene	8.67
1-hexene	9.46
1,3-butadiene	9.07
isoprene	8.845
cyclopentene	9.01
cyclohexene	8.945
4-methylcyclohexene	8.91
4-cinylcyclohexene	8.93
cyclo-octatetraene	7.99
acetylene	11.41
propyne	10.36
1-butyne	10.18

**Some Derivatives of Olefins**

<b><u>Molecule</u></b>	<b><u>IP(eV)</u></b>
vinyl chloride	9.995
cis-dichloroethylene	9.65
trans-dichloroethylene	9.66
trichloroethylene	9.45
tetrachloroethylene	9.32
vinyl bromide	9.80
1,2-dibromoethylene	9.45
tribromoethylene	9.27
3-chloropropene	10.04
2,3-dichloropropene	9.82
1-bromopropene	9.30
3-bromopropene	9.7
CF <sub>3</sub> CCl=CClCF <sub>3</sub>	10.36
n-C <sub>5</sub> F <sub>11</sub> CF=CF <sub>2</sub>	10.48
acrolein	10.10
crotonaldehyde	9.73
mesityl oxide	9.08
vinyl methyl ether	8.93
allyl alcohol	9.67
vinyl acetate	9.19

**Aromatic Compounds**

<b><u>Molecule</u></b>	<b><u>IP(eV)</u></b>
benzene	9.245
toluene	8.82
ethyl benzene	8.76
n-propyl benzene	8.72
i-propyl benzene	8.69
n-butyl benzene	8.69
s-butyl benzene	8.68
t-butyl benzene	8.68
o-xylene	8.56
m-xylene	8.56
p-xylene	8.445
mesitylene	8.40
durene	8.025
styrene	8.47
alpha-methyl styrene	8.35
ethynylbenzene	8.815
naphthalene	8.12
1-methylnaphthalene	7.69
2-methylnaphthalene	7.955
biphenyl	8.27
phenol	8.50
anisole	8.22
phenetole	8.13
benzaldehyde	9.53
acetophenone	9.27
benzenethiol	8.33
phenyl isocyanate	8.77

**Aromatic Compounds**

<b><u>Molecule</u></b>	<b><u>IP(eV)</u></b>
phenyl isothiocyanate	8.520
benzonitrile	9.705
nitrobenzene	9.92
aniline	7.70
fluoro-benzene	9.195
chloro-benzene	9.07
bromo-benzene	8.98
iodo-benzene	8.73
o-dichlorobenzene	9.07
m-dichlorobenzene	9.12
p-dichlorobenzene	8.94
1-chloro-2-fluorobenzene	9.155
1-chloro-3-fluorobenzene	9.21
1-chloro-4-fluorobenzene	8.99
o-fluorotoluene	8.915
m-fluorotoluene	8.915
p-fluorotoluene	8.785
o-chlorotoluene	8.83
m-chlorotoluene	8.83
p-chlorotoluene	8.70
o-bromotoluene	8.79
m-bromotoluene	8.81
p-bromotoluene	8.67
o-iodotoluene	8.62
m-iodotoluene	8.61
p-iodotoluene	8.50
benzotrifluoride	9.68
o-fluorophenol	8.66

**Heterocyclic Molecules**

<b><u>Molecule</u></b>	<b><u>IP(eV)</u></b>
furan	8.89
2-methyl furan	8.39
2-furaldehyde	9.21
tetrahydrofuran	9.54
dihydropyran	8.34
tetrahydropyran	9.26
thiophene	8.860
2-chlorothiophene	8.68
2-bromothiophene	8.63
pyrrole	8.20
pyridine	9.32
2-picoline	9.02
3-picoline	9.04
4-picoline	9.04
2,3-lutidine	8.85
2,4-lutidine	8.85
2,6-lutidine	8.85

**Miscellaneous Molecules**

<b><u>Molecule</u></b>	<b><u>IP(eV)</u></b>
ethylene oxide	10.565
propylene oxide	10.22
p-dioxane	9.13
dimethoxymethane	10.00
diethoxymethane	9.70
1,1-dimethoxyethane	9.65
propiolactone	9.70
methyl disulfide	8.46
ethyl disulfide	8.27
diethyl sulfite	9.68
thiolacetic acid	10.00
acetyl chloride	11.02
acetyl bromide	10.55
cyclo-C <sub>6</sub> H <sub>11</sub> CF <sub>3</sub>	10.46
(n-C <sub>3</sub> F <sub>7</sub> )(CH <sub>3</sub> )C=O	10.58
trichlorovinylsilane	10.79
(C <sub>2</sub> F <sub>5</sub> ) <sub>3</sub> N	11.7
isoprene	9.08
phosgene	11.77

**Notes:**

Reference: HNu Systems, Inc., 1985

IP = Ionization Potential

**ATTACHMENT 3**

<b>PID CALIBRATION AND MAINTENANCE LOG</b>						
<b>Instrument Model Number</b>						
<b>Instrument Serial Number</b>						
<b>Calibration Gas</b> <span style="float: right;">ppm</span>						
<b>Date/Time</b>	<b>Initials</b>	<b>Battery Check</b>	<b>Calibration</b>			
			<b>Background Value</b>	<b>True Gas Value</b>	<b>Measured Gas Value</b>	<b>Adjust</b>
<b>COMMENTS:</b>						

**Low-Flow Groundwater  
Purging and Sampling  
Procedures for Monitoring  
Wells**

Rev. #: 4

Rev Date: February 2, 2011

**Approval Signatures**

Prepared by: *Daniel A. Lipson* Date: 2/2/2011

Reviewed by: *Michael J. Goffall* Date: 2/2/2011  
(Technical Expert)



## I. Scope and Application

Groundwater samples will be collected from monitoring wells to evaluate groundwater quality. The protocol presented in this standard operating procedure (SOP) describes the procedures to be used to purge monitoring wells and collect groundwater samples. This protocol has been developed in accordance with the United States Environmental Protection Agency (USEPA) Region I Low Stress (Low Flow) Purging and Sampling Procedures for the Collection of Groundwater Samples from Monitoring Wells (USEPA SOP No. GW0001; July 30, 1996). Both filtered and unfiltered groundwater samples may be collected using this low-flow sampling method. Filtered samples will be obtained using a 0.45-micron disposable filter. No wells will be sampled until well development has been performed in accordance with the procedures presented in the SOP titled Monitoring Well Development, unless that well has been sampled or developed within the prior 1-year time period. Groundwater samples will not be collected within 1 week following well development.

## II. Personnel Qualifications

ARCADIS personnel directing, supervising, or leading groundwater sample collection activities should have a minimum of 2 years of previous groundwater sampling experience. ARCADIS personnel providing assistance to groundwater sample collection and associated activities should have a minimum of 6 months of related experience or an advanced degree in environmental sciences, engineering, hydrogeology, or geology.

The supervisor of the groundwater sampling team will have at least 1 year of previous supervised groundwater sampling experience.

Prior to mobilizing to the field, the groundwater sampling team should review and be thoroughly familiar with relevant site-specific documents including but not limited to the site work plan, field sampling plan, QAPP, HASP, and historical information. Additionally, the groundwater sampling team should review and be thoroughly familiar with documentation provided by equipment manufacturers for all equipment that will be used in the field prior to mobilization.

## III. Equipment List

Specific to this activity, the following materials (or equivalent) will be available:

- Health and safety equipment (as required in the site Health and Safety Plan [HASP]).

- Site Plan, well construction records, prior groundwater sampling records (if available).
- Sampling pump, which may consist of one or more of the following:
  - submersible pump (e.g., Grundfos Redi-Flo 2);
  - peristaltic pump (e.g., ISCO Model 150); and/or
  - bladder pump (e.g., Marschalk System 1, QED Well Wizard, Geotech, etc.).
- Appropriate controller and power source for pump:
  - Submersible and peristaltic pumps require electric power from either a generator or a deep cell battery.
  - Submersible pumps such as Grundfos require a pump controller to run the pump
  - Bladder pumps require a pump controller and a gas source (e.g., air compressor or compressed N<sub>2</sub> or CO<sub>2</sub> gas cylinders).
- Teflon<sup>®</sup> tubing or Teflon<sup>®</sup>-lined polyethylene tubing of an appropriate size for the pump being used. For peristaltic pumps, dedicated Tygon<sup>®</sup> tubing (or other type as specified by the manufacturer) will also be used through the pump apparatus.
- Water-level probe (e.g., Solinist Model 101).
- Water-quality (temperature/pH/specific conductivity/ORP/turbidity/dissolved oxygen) meter and flow-through measurement cell. Several brands may be used, including:
  - YSI 6-Series Multi-Parameter Instrument;
  - Hydrolab Series 3 or Series 4a Multiprobe and Display; and/or
  - Horiba U-10 or U-22 Water Quality Monitoring System.
- Supplemental turbidity meter (e.g., Horiba U-10, Hach 2100P, LaMotte 2020). Turbidity measurements collected with multi-parameter meters have been shown to sometimes be unreliable due to fouling of the optic lens of the

turbidity meter within the flow-through cell. A supplemental turbidity meter will be used to verify turbidity data during purging if such fouling is suspected. Note that industry improvements may eliminate the need for these supplemental measurements in the future.

- Appropriate water sample containers (supplied by the laboratory).
- Appropriate blanks (trip blank supplied by the laboratory).
- 0.45-micron disposable filters (if field filtering is required).
- Large glass mixing container (if sampling with a bailer).
- Teflon<sup>®</sup> stirring rod (if sampling with a bailer).
- Cleaning equipment.
- Groundwater sampling log (attached) or bound field logbook.

Note that in the future, the client may acquire different makes/models of some of this equipment if the listed makes/models are no longer available, or as a result of general upgrades or additional equipment acquisitions. In the event that the client uses a different make/model of the equipment listed, the client will use an equivalent type of equipment (e.g., pumps, flow-through analytical cells) and note the specific make/model of the equipment used during a sampling event on the groundwater sampling log. In addition, should the client desire to change to a markedly different sampling methodology (e.g., discrete interval samplers, passive diffusion bags, or a yet to be developed technique), the client will submit a proposed SOP for the new methodology for USEPA approval prior to implementing such a change.

The maintenance requirements for the above equipment generally involve decontamination or periodic cleaning, battery charging, and proper storage, as specified by the manufacturer. For operational difficulties, the equipment will be serviced by a qualified technician.

#### **IV. Cautions**

If heavy precipitation occurs and no cover over the sampling area and monitoring well can be erected, sampling must be discontinued until adequate cover is provided. Rain water could contaminate groundwater samples.

Do not use permanent marker or felt-tip pens for labels on sample container or sample coolers – use indelible ink. The permanent markers could introduce volatile constituents into the samples.

It may be necessary to field filter some parameters (e.g., metals) prior to collection, depending on preservation, analytical method, and project quality objectives.

Store and/or stage empty and full sample containers and coolers out of direct sunlight.

To mitigate potential cross-contamination, groundwater samples are to be collected in a pre-determined order from least impacted to impacted based on previous analytical data. If no analytical data are available, samples are collected in order of upgradient, then furthest downgradient to source area locations.

Be careful not to over-tighten lids with Teflon liners or septa (e.g., 40 mL vials). Over-tightening can cause the glass to shatter or impair the integrity of the Teflon seal.

## **V. Health and Safety Considerations**

Use caution and appropriate cut resistant gloves when tightening lids to 40 mL vials. These vials can break while tightening and can lacerate hand. Amber vials (thinner glass) are more prone to breakage.

If thunder or lightning is present, discontinue sampling and take cover until 30 minutes have passed after the last occurrence of thunder or lightning.

Use caution when removing well caps as well may be under pressure, cap can dislodge forcefully and cause injury.

Use caution when opening protective casing on stickup wells as wasps frequently nest inside the tops of the covers. Also watch for fire ant mounds near well pads when sampling in the south or western U.S.

## **VI. Procedure**

Groundwater will be purged from the wells using an appropriate pump. Peristaltic pumps will initially be used to purge and sample all wells when applicable. If the depth to water is below the sampling range of a peristaltic pump (approximately 25 feet), submersible pumps or bladder pumps will be used provided the well is constructed with a casing diameter greater than or equal to 2 inches (the minimum well diameter capable of accommodating such pumps). Bladder pumps are preferred over peristaltic and submersible pumps if sampling of VOCs is required to prevent volatilization. For smaller diameter wells where the depth to water is below the sampling range of a

peristaltic pump, alternative sampling methods (i.e., bailing or small diameter bladder pumps) will be used to purge and sample the groundwater. Purge water will be collected and containerized.

1. Calibrate field instruments according to manufacturer procedures for calibration.
2. Measure initial depth to groundwater prior to placement of pumps.
3. Prepare and install pump in well: For submersible and non-dedicated bladder pumps, decontaminate pump according to site decontamination procedures. Non-dedicated bladder pumps will require a new Teflon<sup>®</sup> bladder and attachment of an air line, sample discharge line, and safety cable prior to placement in the well. Attach the air line tubing to the air port on the top of the bladder pump. Attach the sample discharge tubing to the water port on the top of the bladder pump. Care should be taken not to reverse the air and discharge tubing lines during bladder pump set-up as this could result in bladder failure or rupture. Attach and secure a safety cable to the eyebolt on the top of bladder pump (if present, depending on pump model used). Slowly lower pump, safety cable, tubing, and electrical lines into the well to a depth corresponding to the approximate center of the saturated screen section of the well. Take care to avoid twisting and tangling of safety cable, tubing, and electrical lines while lowering pump into well; twisted and tangled lines could result in the pump becoming stuck in the well casing. Also, make sure to keep tubing and lines from touching the ground or other surfaces while introducing them into the well as this could lead to well contamination. If a peristaltic pump is being used, slowly lower the sampling tubing into the well to a depth corresponding to the approximate center of the saturated screen section of the well. The pump intake or sampling tube must be kept at least 2 feet above the bottom of the well to prevent mobilization of any sediment present in the bottom of the well.
4. If using a bladder pump, connect the air line to the pump controller output port. The pump controller should then be connected to a supply line from an air compressor or compressed gas cylinder using an appropriate regulator and air hose. Take care to tighten the regulator connector onto the gas cylinder (if used) to prevent leaks. Teflon tape may be used on the threads of the cylinder to provide a tighter seal. Once the air compressor or gas cylinder is connected to the pump controller, turn on the compressor or open the valve on the cylinder to begin the gas flow. Turn on the pump controller if an on/off switch is present and verify that all batteries are charged and fully operating before beginning to pump.
5. Connect the pump discharge water line to the bottom inlet port on the flow-through cell connected to the water quality meter.

6. Measure the water level again with the pump in the well before starting the pump. Start pumping the well at 200 to 500 milliliters (mL) per minute (or at lower site-specific rate if specified). The pump rate should be adjusted to cause little or no water level drawdown in the well (less than 0.3 feet below the initial static depth to water measurement) and the water level should stabilize. The water level should be monitored every 3 to 5 minutes (or as appropriate, lower flow rates may require longer time between readings) during pumping if the well diameter is of sufficient size to allow such monitoring. Care should be taken not to break pump suction or cause entrainment of air in the sample. Record pumping rate adjustments and depths to water. If necessary, pumping rates should be reduced to the minimum capabilities of the pump to avoid pumping the well dry and/or to stabilize indicator parameters. A steady flow rate should be maintained to the extent practicable. Groundwater sampling records from previous sampling events (if available) should be reviewed prior to mobilization to estimate the optimum pumping rate and anticipated drawdown for the well in order to more efficiently reach a stabilized pumping condition.

If the recharge rate of the well is very low, alternative purging techniques should be used, which will vary based on the well construction and screen position. For wells screened across the water table, the well should be pumped dry and sampling should commence as soon as the volume in the well has recovered sufficiently to permit collection of samples. For wells screened entirely below the water table, the well should be pumped until a stabilized level (which may be below the maximum displacement goal of 0.3 feet) can be maintained and monitoring for stabilization of field indicator parameters can commence. If a lower stabilization level cannot be maintained, the well should be pumped until the drawdown is at a level slightly higher than the bentonite seal above the well screen. Sampling should commence after one well volume has been removed and the well has recovered sufficiently to permit collection of samples.

During purging, monitor the field indicator parameters (e.g., turbidity, temperature, specific conductance, pH, etc.) every 3 to 5 minutes (or as appropriate). Field indicator parameters will be measured using a flow-through analytical cell or a clean container such as a glass beaker. Record field indicator parameters on the groundwater sampling log. The well is considered stabilized and ready for sample collection when turbidity values remain within 10% (or within 1 NTU if the turbidity reading is less than 10 NTU), the specific conductance and temperature values remain within 3%, ORP readings remain within  $\pm 10$  mV and pH remains within 0.1 units for three consecutive readings collected at 3- to 5-minute intervals (or other appropriate interval, alternate stabilization goals may exist in different geographic regions, consult the site-specific Work Plan for stabilization criteria). If the field indicator parameters do not stabilize within 1 hour of the start of purging, but the groundwater turbidity is

below the goal of 50 NTU and the values for all other parameters are within 10%, the well can be sampled. If the parameters have stabilized but the turbidity is not in the range of the 50 NTU goal, the pump flow rate should be decreased to a minimum rate of 100 mL/min to reduce turbidity levels as low as possible. Dissolved oxygen is extremely susceptible to various external influences (including temperature or the presence of bubbles on the DO meter); care should be taken to minimize the agitation or other disturbance of water within the flow-through cell while collecting these measurements. If air bubbles are present on the DO probe or in the discharge tubing, remove them before taking a measurement. If dissolved oxygen values are not within acceptable range for the temperature of groundwater (Attachment 1), then again check for and remove air bubbles on probe before re-measuring. If the dissolved oxygen value is 0.00 or less, then the meter should be serviced and re-calibrated. If the dissolved oxygen values are above possible results, then the meter should be serviced and re-calibrated.

During extreme weather conditions, stabilization of field indicator parameters may be difficult to obtain. Modifications to the sampling procedures to alleviate these conditions (e.g., measuring the water temperature in the well adjacent to the pump intake) will be documented in the field notes. If other field conditions exist that preclude stabilization of certain parameters, an explanation of why the parameters did not stabilize will also be documented in the field logbook.

7. Complete the sample label(s) and cover the label(s) with clear packing tape to secure the label onto the container.
8. After the indicator parameters have stabilized, collect groundwater samples by diverting flow out of the unfiltered discharge tubing into the appropriate labeled sample container. If a flow-through analytical cell is being used to measure field parameters, the flow-through cell should be disconnected after stabilization of the field indicator parameters and prior to groundwater sample collection. Under no circumstances should analytical samples be collected from the discharge of the flow-through cell. When the container is full, tightly screw on the cap. Samples should be collected in the following order: VOCs, TOC, SVOCs, metals and cyanide, and others (or other order as defined in the site-specific Work Plan).
9. If sampling for total and filtered metals and/or PCBs, a filtered and unfiltered sample will be collected. Install an in-line, disposable 0.45-micron particle filter on the discharge tubing after the appropriate unfiltered groundwater sample has been collected. Continue to run the pump until an initial volume of "flush" water has been run through the filter in accordance with the manufacturer's directions (generally 100 to 300 mL). Collect filtered groundwater sample by diverting flow

out of the filter into the appropriately labeled sample container. When the container is full, tightly screw on the cap.

10. Secure with packing material and store at 4°C in an insulated transport container provided by the laboratory.
11. Record on the groundwater sampling log or bound field logbook the time sampling procedures were completed, any pertinent observations of the sample (e.g., physical appearance, and the presence or lack of odors or sheens), and the values of the stabilized field indicator parameters as measured during the final reading during purging (Attachment 2 – Example Sampling Log).
12. Turn off the pump and air compressor or close the gas cylinder valve if using a bladder pump set-up. Slowly remove the pump, tubing, lines, and safety cable from the well. Do not allow the tubing or lines to touch the ground or any other surfaces which could contaminate them.
13. If tubing is to be dedicated to a well, it should be folded to a length that will allow the well to be capped and also facilitate retrieval of the tubing during later sampling events. A length of rope or string should be used to tie the tubing to the well cap. Alternatively, if tubing and safety line are to be saved and reused for sampling the well at a later date they may be coiled neatly and placed in a clean plastic bag that is clearly labeled with the well ID. Make sure the bag is tightly sealed before placing it in storage.
14. Secure the well and properly dispose of personal protective equipment (PPE) and disposable equipment.
15. Complete the procedures for packaging, shipping, and handling with associated chain-of-custody.
16. Complete decontamination procedures for flow-through analytical cell and submersible or bladder pump, as appropriate.
17. At the end of the day, perform calibration check of field instruments.

If it is not technically feasible to use the low-flow sampling method, purging and sampling of monitoring wells may be conducted using the bailer method as outlined below:

1. Don appropriate PPE (as required by the HASP).
2. Place plastic sheeting around the well.



3. Clean sampling equipment.
4. Open the well cover while standing upwind of the well. Remove well cap and place on the plastic sheeting. Insert PID probe approximately 4 to 6 inches into the casing or the well headspace and cover with gloved hand. Record the PID reading in the field log. If the well headspace reading is less than 5 PID units, proceed; if the headspace reading is greater than 5 PID units, screen the air within the breathing zone. If the breathing zone reading is less than 5 PID units, proceed. If the PID reading in the breathing zone is above 5 PID units, move upwind from well for 5 minutes to allow the volatiles to dissipate. Repeat the breathing zone test. If the reading is still above 5 PID units, don appropriate respiratory protection in accordance with the requirements of the HASP. Record all PID readings. For wells that are part of the regular weekly monitoring program and prior PID measurements have not resulted in a breathing zone reading above 5 PID units, PID measurements will be taken monthly.
5. Measure the depth to water and determine depth of well by examining drilling log data or by direct measurement. Calculate the volume of water in the well (in gallons) by using the length of the water column (in feet), multiplying by 0.163 for a 2-inch well or by 0.653 for a 4-inch well. For other well diameters, use the formula:  
  
$$\text{Volume (in gallons)} = \pi \text{ TIMES well radius (in feet) squared TIMES length of water column (in feet) TIMES } 7.481 \text{ (gallons per cubic foot)}$$
6. Measure a length of rope or twine at least 10 feet greater than the total depth of the well. Secure one end of the rope to the well casing and secure the other end to the bailer. Test the knots and make sure the rope will not loosen. Check bailers so that all parts are intact and will not be lost in the well.
7. Lower bailer into well and remove one well volume of water. Contain all water in appropriate containers.
8. Monitor the field indicator parameters (e.g., turbidity, temperature, specific conductance, and pH). Measure field indicator parameters using a clean container such as a glass beaker or sampling cups provided with the instrument. Record field indicator parameters on the groundwater sampling log.
9. Repeat Steps 7 and 8 until three or four well volumes have been removed. Examine the field indicator parameter data to determine if the parameters have stabilized. The well is considered stabilized and ready for sample collection when turbidity values remain within 10% (or within 1 NTU if the turbidity reading is less than 10 NTU), the specific conductance and temperature values remain

within 3%, and pH remains within  $\pm 0.1$  units for three consecutive readings collected once per well volume removed.

10. If the field indicator parameters have not stabilized, remove a maximum of five well volumes prior to sample collection. Alternatively, five well volumes may be removed without measuring the field indicator parameters.
11. If the recharge rate of the well is very low, wells screened across the water table may be bailed dry and sampling should commence as soon as the volume in the well has recovered sufficiently to permit collection of samples. For wells screened entirely below the water table, the well should only be bailed down to a level slightly higher than the bentonite seal above the well screen. The well should not be bailed completely dry, to maintain the integrity of the seal. Sampling should commence as soon as the well volume has recovered sufficiently to permit sample collection.
12. Following purging, allow water level in well to recharge to a sufficient level to permit sample collection.
13. Complete the sample label and cover the label with clear packing tape to secure the label onto the container.
14. Slowly lower the bailer into the screened portion of the well and carefully retrieve a filled bailer from the well causing minimal disturbance to the water and any sediment in the well.
15. The sample collection order (as appropriate) will be as follows:
  - a. VOCs;
  - b. TOC;
  - c. SVOCs;
  - d. metals and cyanide; and
  - e. others.
16. When sampling for volatiles, collect water samples directly from the bailer into 40-mL vials with Teflon<sup>®</sup>-lined septa.
17. For other analytical samples, remove the cap from the large glass mixing container and slowly empty the bailer into the large glass mixing container. The

sample for dissolved metals and/or filtered PCBs should either be placed directly from the bailer into a pressure filter apparatus or pumped directly from the bailer with a peristaltic pump, through an in-line filter, into the pre-preserved sample bottle.

18. Continue collecting samples until the mixing container contains a sufficient volume for all laboratory samples.
19. Mix the entire sample volume with the Teflon<sup>®</sup> stirring rod and transfer the appropriate volume into the laboratory jar(s). Secure the sample jar cap(s) tightly.
20. If sampling for total and filtered metals and/or PCBs, a filtered and unfiltered sample will be collected. Sample filtration for the filtered sample will be performed in the field using a peristaltic pump prior to preservation. Install new medical-grade silicone tubing in the pump head. Place new Teflon<sup>®</sup> tubing into the sample mixing container and attach to the intake side of pump tubing. Attach (clamp) a new 0.45-micron filter (note the filter flow direction). Turn the pump on and dispense the filtered liquid directly into the laboratory sample bottles.
21. Secure with packing material and store at 4°C in an insulated transport container provided by the laboratory.
22. After sample containers have been filled, remove one additional volume of groundwater. Measure the pH, temperature, turbidity, and conductivity. Record on the groundwater sampling log or bound field logbook the time sampling procedures were completed, any pertinent observations of the sample (e.g., physical appearance, and the presence or lack of odors or sheens), and the values of the field indicator parameters.
23. Remove bailer from well, secure well, and properly dispose of PPE and disposable equipment.
24. If a bailer is to be dedicated to a well, it should be secured inside the well above the water table, if possible. Dedicated bailers should be tied to the well cap so that inadvertent loss of the bailer will not occur when the well is opened.
25. Complete the procedures for packaging, shipping, and handling with associated chain-of-custody.

## VII. Waste Management

Materials generated during groundwater sampling activities, including disposable equipment, will be placed in appropriate containers. Containerized waste will be disposed of by the client consistent with the procedures identified in the HASP.

## VIII. Data Recording and Management

Initial field logs and chain-of-custody records will be transmitted to the ARCADIS PM at the end of each day unless otherwise directed by the PM. The groundwater team leader retains copies of the groundwater sampling logs.

## IX. Quality Assurance

In addition to the quality control samples to be collected in accordance with this SOP, the following quality control procedures should be observed in the field:

- Collect samples from monitoring wells in order of increasing concentration, to the extent known based on review of historical site information if available.
- Equipment blanks should include the pump and tubing (if using disposable tubing) or the pump only (if using tubing dedicated to each well).
- Collect equipment blanks after wells with higher concentrations (if known) have been sampled.
- Operate all monitoring instrumentation in accordance with manufacturer's instructions and calibration procedures. Calibrate instruments at the beginning of each day and verify the calibration at the end of each day. Record all calibration activities in the field notebook.
- Clean all groundwater sampling equipment prior to use in the first well and after each subsequent well using procedures for equipment decontamination.

## X. References

United States Environmental Protection Agency (USEPA). 1986. RCRA Groundwater Monitoring Technical Enforcement Guidance Document (September 1986).

USEPA Region II. 1998. *Ground Water Sampling Procedure Low Stress (Low Flow) Purging and Sampling*.

USEPA. 1991. Handbook Groundwater, Volume II Methodology, Office of Research and Development, Washington, DC. USEPN62S, /6-90/016b (July, 1991).

U.S. Geological Survey (USGS). 1977. National Handbook of Recommended Methods for Water-Data Acquisition: USGS Office of Water Data Coordination. Reston, Virginia.

**Attachment 1**

**Groundwater Sampling Log**

**Attachment 2**

**Oxygen Solubility in Fresh Water**

<b>Temperature (degrees C)</b>	<b>Dissolved Oxygen (mg/L)</b>
0	14.6
1	14.19
2	13.81
3	13.44
4	13.09
5	12.75
6	12.43
7	12.12
8	11.83
9	11.55
10	11.27
11	11.01
12	10.76
13	10.52
14	10.29
15	10.07
16	9.85
17	9.65
18	9.45
19	9.26
20	9.07
21	8.9
22	8.72
23	8.56
24	8.4
25	8.24
26	8.09
27	7.95
28	7.81
29	7.67
30	7.54
31	7.41
32	7.28
33	7.16
34	7.05
35	6.93

Reference: Vesilind, P.A., *Introduction to Environmental Engineering*, PWS Publishing Company, Boston, 468 pages (1996).

**Low-Flow Groundwater  
Purging and Sampling  
Procedures for Monitoring  
Wells**

Rev. #: 4

Rev Date: February 2, 2011



**Approval Signatures**

Prepared by: *Daniel A. Lipson* Date: 2/2/2011

Reviewed by: *Michael J. Goffall* Date: 2/2/2011  
(Technical Expert)

## I. Scope and Application

Groundwater samples will be collected from monitoring wells to evaluate groundwater quality. The protocol presented in this standard operating procedure (SOP) describes the procedures to be used to purge monitoring wells and collect groundwater samples. This protocol has been developed in accordance with the United States Environmental Protection Agency (USEPA) Region I Low Stress (Low Flow) Purging and Sampling Procedures for the Collection of Groundwater Samples from Monitoring Wells (USEPA SOP No. GW0001; July 30, 1996). Both filtered and unfiltered groundwater samples may be collected using this low-flow sampling method. Filtered samples will be obtained using a 0.45-micron disposable filter. No wells will be sampled until well development has been performed in accordance with the procedures presented in the SOP titled Monitoring Well Development, unless that well has been sampled or developed within the prior 1-year time period. Groundwater samples will not be collected within 1 week following well development.

## II. Personnel Qualifications

ARCADIS personnel directing, supervising, or leading groundwater sample collection activities should have a minimum of 2 years of previous groundwater sampling experience. ARCADIS personnel providing assistance to groundwater sample collection and associated activities should have a minimum of 6 months of related experience or an advanced degree in environmental sciences, engineering, hydrogeology, or geology.

The supervisor of the groundwater sampling team will have at least 1 year of previous supervised groundwater sampling experience.

Prior to mobilizing to the field, the groundwater sampling team should review and be thoroughly familiar with relevant site-specific documents including but not limited to the site work plan, field sampling plan, QAPP, HASP, and historical information. Additionally, the groundwater sampling team should review and be thoroughly familiar with documentation provided by equipment manufacturers for all equipment that will be used in the field prior to mobilization.

## III. Equipment List

Specific to this activity, the following materials (or equivalent) will be available:

- Health and safety equipment (as required in the site Health and Safety Plan [HASP]).

- Site Plan, well construction records, prior groundwater sampling records (if available).
- Sampling pump, which may consist of one or more of the following:
  - submersible pump (e.g., Grundfos Redi-Flo 2);
  - peristaltic pump (e.g., ISCO Model 150); and/or
  - bladder pump (e.g., Marschalk System 1, QED Well Wizard, Geotech, etc.).
- Appropriate controller and power source for pump:
  - Submersible and peristaltic pumps require electric power from either a generator or a deep cell battery.
  - Submersible pumps such as Grundfos require a pump controller to run the pump
  - Bladder pumps require a pump controller and a gas source (e.g., air compressor or compressed N<sub>2</sub> or CO<sub>2</sub> gas cylinders).
- Teflon<sup>®</sup> tubing or Teflon<sup>®</sup>-lined polyethylene tubing of an appropriate size for the pump being used. For peristaltic pumps, dedicated Tygon<sup>®</sup> tubing (or other type as specified by the manufacturer) will also be used through the pump apparatus.
- Water-level probe (e.g., Solinst Model 101).
- Water-quality (temperature/pH/specific conductivity/ORP/turbidity/dissolved oxygen) meter and flow-through measurement cell. Several brands may be used, including:
  - YSI 6-Series Multi-Parameter Instrument;
  - Hydrolab Series 3 or Series 4a Multiprobe and Display; and/or
  - Horiba U-10 or U-22 Water Quality Monitoring System.
- Supplemental turbidity meter (e.g., Horiba U-10, Hach 2100P, LaMotte 2020). Turbidity measurements collected with multi-parameter meters have been shown to sometimes be unreliable due to fouling of the optic lens of the

turbidity meter within the flow-through cell. A supplemental turbidity meter will be used to verify turbidity data during purging if such fouling is suspected. Note that industry improvements may eliminate the need for these supplemental measurements in the future.

- Appropriate water sample containers (supplied by the laboratory).
- Appropriate blanks (trip blank supplied by the laboratory).
- 0.45-micron disposable filters (if field filtering is required).
- Large glass mixing container (if sampling with a bailer).
- Teflon<sup>®</sup> stirring rod (if sampling with a bailer).
- Cleaning equipment.
- Groundwater sampling log (attached) or bound field logbook.

Note that in the future, the client may acquire different makes/models of some of this equipment if the listed makes/models are no longer available, or as a result of general upgrades or additional equipment acquisitions. In the event that the client uses a different make/model of the equipment listed, the client will use an equivalent type of equipment (e.g., pumps, flow-through analytical cells) and note the specific make/model of the equipment used during a sampling event on the groundwater sampling log. In addition, should the client desire to change to a markedly different sampling methodology (e.g., discrete interval samplers, passive diffusion bags, or a yet to be developed technique), the client will submit a proposed SOP for the new methodology for USEPA approval prior to implementing such a change.

The maintenance requirements for the above equipment generally involve decontamination or periodic cleaning, battery charging, and proper storage, as specified by the manufacturer. For operational difficulties, the equipment will be serviced by a qualified technician.

#### **IV. Cautions**

If heavy precipitation occurs and no cover over the sampling area and monitoring well can be erected, sampling must be discontinued until adequate cover is provided. Rain water could contaminate groundwater samples.

Do not use permanent marker or felt-tip pens for labels on sample container or sample coolers – use indelible ink. The permanent markers could introduce volatile constituents into the samples.

It may be necessary to field filter some parameters (e.g., metals) prior to collection, depending on preservation, analytical method, and project quality objectives.

Store and/or stage empty and full sample containers and coolers out of direct sunlight.

To mitigate potential cross-contamination, groundwater samples are to be collected in a pre-determined order from least impacted to impacted based on previous analytical data. If no analytical data are available, samples are collected in order of upgradient, then furthest downgradient to source area locations.

Be careful not to over-tighten lids with Teflon liners or septa (e.g., 40 mL vials). Over-tightening can cause the glass to shatter or impair the integrity of the Teflon seal.

## **V. Health and Safety Considerations**

Use caution and appropriate cut resistant gloves when tightening lids to 40 mL vials. These vials can break while tightening and can lacerate hand. Amber vials (thinner glass) are more prone to breakage.

If thunder or lightning is present, discontinue sampling and take cover until 30 minutes have passed after the last occurrence of thunder or lightning.

Use caution when removing well caps as well may be under pressure, cap can dislodge forcefully and cause injury.

Use caution when opening protective casing on stickup wells as wasps frequently nest inside the tops of the covers. Also watch for fire ant mounds near well pads when sampling in the south or western U.S.

## **VI. Procedure**

Groundwater will be purged from the wells using an appropriate pump. Peristaltic pumps will initially be used to purge and sample all wells when applicable. If the depth to water is below the sampling range of a peristaltic pump (approximately 25 feet), submersible pumps or bladder pumps will be used provided the well is constructed with a casing diameter greater than or equal to 2 inches (the minimum well diameter capable of accommodating such pumps). Bladder pumps are preferred over peristaltic and submersible pumps if sampling of VOCs is required to prevent volatilization. For smaller diameter wells where the depth to water is below the sampling range of a

peristaltic pump, alternative sampling methods (i.e., bailing or small diameter bladder pumps) will be used to purge and sample the groundwater. Purge water will be collected and containerized.

1. Calibrate field instruments according to manufacturer procedures for calibration.
2. Measure initial depth to groundwater prior to placement of pumps.
3. Prepare and install pump in well: For submersible and non-dedicated bladder pumps, decontaminate pump according to site decontamination procedures. Non-dedicated bladder pumps will require a new Teflon<sup>®</sup> bladder and attachment of an air line, sample discharge line, and safety cable prior to placement in the well. Attach the air line tubing to the air port on the top of the bladder pump. Attach the sample discharge tubing to the water port on the top of the bladder pump. Care should be taken not to reverse the air and discharge tubing lines during bladder pump set-up as this could result in bladder failure or rupture. Attach and secure a safety cable to the eyebolt on the top of bladder pump (if present, depending on pump model used). Slowly lower pump, safety cable, tubing, and electrical lines into the well to a depth corresponding to the approximate center of the saturated screen section of the well. Take care to avoid twisting and tangling of safety cable, tubing, and electrical lines while lowering pump into well; twisted and tangled lines could result in the pump becoming stuck in the well casing. Also, make sure to keep tubing and lines from touching the ground or other surfaces while introducing them into the well as this could lead to well contamination. If a peristaltic pump is being used, slowly lower the sampling tubing into the well to a depth corresponding to the approximate center of the saturated screen section of the well. The pump intake or sampling tube must be kept at least 2 feet above the bottom of the well to prevent mobilization of any sediment present in the bottom of the well.
4. If using a bladder pump, connect the air line to the pump controller output port. The pump controller should then be connected to a supply line from an air compressor or compressed gas cylinder using an appropriate regulator and air hose. Take care to tighten the regulator connector onto the gas cylinder (if used) to prevent leaks. Teflon tape may be used on the threads of the cylinder to provide a tighter seal. Once the air compressor or gas cylinder is connected to the pump controller, turn on the compressor or open the valve on the cylinder to begin the gas flow. Turn on the pump controller if an on/off switch is present and verify that all batteries are charged and fully operating before beginning to pump.
5. Connect the pump discharge water line to the bottom inlet port on the flow-through cell connected to the water quality meter.

6. Measure the water level again with the pump in the well before starting the pump. Start pumping the well at 200 to 500 milliliters (mL) per minute (or at lower site-specific rate if specified). The pump rate should be adjusted to cause little or no water level drawdown in the well (less than 0.3 feet below the initial static depth to water measurement) and the water level should stabilize. The water level should be monitored every 3 to 5 minutes (or as appropriate, lower flow rates may require longer time between readings) during pumping if the well diameter is of sufficient size to allow such monitoring. Care should be taken not to break pump suction or cause entrainment of air in the sample. Record pumping rate adjustments and depths to water. If necessary, pumping rates should be reduced to the minimum capabilities of the pump to avoid pumping the well dry and/or to stabilize indicator parameters. A steady flow rate should be maintained to the extent practicable. Groundwater sampling records from previous sampling events (if available) should be reviewed prior to mobilization to estimate the optimum pumping rate and anticipated drawdown for the well in order to more efficiently reach a stabilized pumping condition.

If the recharge rate of the well is very low, alternative purging techniques should be used, which will vary based on the well construction and screen position. For wells screened across the water table, the well should be pumped dry and sampling should commence as soon as the volume in the well has recovered sufficiently to permit collection of samples. For wells screened entirely below the water table, the well should be pumped until a stabilized level (which may be below the maximum displacement goal of 0.3 feet) can be maintained and monitoring for stabilization of field indicator parameters can commence. If a lower stabilization level cannot be maintained, the well should be pumped until the drawdown is at a level slightly higher than the bentonite seal above the well screen. Sampling should commence after one well volume has been removed and the well has recovered sufficiently to permit collection of samples.

During purging, monitor the field indicator parameters (e.g., turbidity, temperature, specific conductance, pH, etc.) every 3 to 5 minutes (or as appropriate). Field indicator parameters will be measured using a flow-through analytical cell or a clean container such as a glass beaker. Record field indicator parameters on the groundwater sampling log. The well is considered stabilized and ready for sample collection when turbidity values remain within 10% (or within 1 NTU if the turbidity reading is less than 10 NTU), the specific conductance and temperature values remain within 3%, ORP readings remain within  $\pm 10$  mV and pH remains within 0.1 units for three consecutive readings collected at 3- to 5-minute intervals (or other appropriate interval, alternate stabilization goals may exist in different geographic regions, consult the site-specific Work Plan for stabilization criteria). If the field indicator parameters do not stabilize within 1 hour of the start of purging, but the groundwater turbidity is

below the goal of 50 NTU and the values for all other parameters are within 10%, the well can be sampled. If the parameters have stabilized but the turbidity is not in the range of the 50 NTU goal, the pump flow rate should be decreased to a minimum rate of 100 mL/min to reduce turbidity levels as low as possible. Dissolved oxygen is extremely susceptible to various external influences (including temperature or the presence of bubbles on the DO meter); care should be taken to minimize the agitation or other disturbance of water within the flow-through cell while collecting these measurements. If air bubbles are present on the DO probe or in the discharge tubing, remove them before taking a measurement. If dissolved oxygen values are not within acceptable range for the temperature of groundwater (Attachment 1), then again check for and remove air bubbles on probe before re-measuring. If the dissolved oxygen value is 0.00 or less, then the meter should be serviced and re-calibrated. If the dissolved oxygen values are above possible results, then the meter should be serviced and re-calibrated.

During extreme weather conditions, stabilization of field indicator parameters may be difficult to obtain. Modifications to the sampling procedures to alleviate these conditions (e.g., measuring the water temperature in the well adjacent to the pump intake) will be documented in the field notes. If other field conditions exist that preclude stabilization of certain parameters, an explanation of why the parameters did not stabilize will also be documented in the field logbook.

7. Complete the sample label(s) and cover the label(s) with clear packing tape to secure the label onto the container.
8. After the indicator parameters have stabilized, collect groundwater samples by diverting flow out of the unfiltered discharge tubing into the appropriate labeled sample container. If a flow-through analytical cell is being used to measure field parameters, the flow-through cell should be disconnected after stabilization of the field indicator parameters and prior to groundwater sample collection. Under no circumstances should analytical samples be collected from the discharge of the flow-through cell. When the container is full, tightly screw on the cap. Samples should be collected in the following order: VOCs, TOC, SVOCs, metals and cyanide, and others (or other order as defined in the site-specific Work Plan).
9. If sampling for total and filtered metals and/or PCBs, a filtered and unfiltered sample will be collected. Install an in-line, disposable 0.45-micron particle filter on the discharge tubing after the appropriate unfiltered groundwater sample has been collected. Continue to run the pump until an initial volume of "flush" water has been run through the filter in accordance with the manufacturer's directions (generally 100 to 300 mL). Collect filtered groundwater sample by diverting flow



out of the filter into the appropriately labeled sample container. When the container is full, tightly screw on the cap.

10. Secure with packing material and store at 4°C in an insulated transport container provided by the laboratory.
11. Record on the groundwater sampling log or bound field logbook the time sampling procedures were completed, any pertinent observations of the sample (e.g., physical appearance, and the presence or lack of odors or sheens), and the values of the stabilized field indicator parameters as measured during the final reading during purging (Attachment 2 – Example Sampling Log).
12. Turn off the pump and air compressor or close the gas cylinder valve if using a bladder pump set-up. Slowly remove the pump, tubing, lines, and safety cable from the well. Do not allow the tubing or lines to touch the ground or any other surfaces which could contaminate them.
13. If tubing is to be dedicated to a well, it should be folded to a length that will allow the well to be capped and also facilitate retrieval of the tubing during later sampling events. A length of rope or string should be used to tie the tubing to the well cap. Alternatively, if tubing and safety line are to be saved and reused for sampling the well at a later date they may be coiled neatly and placed in a clean plastic bag that is clearly labeled with the well ID. Make sure the bag is tightly sealed before placing it in storage.
14. Secure the well and properly dispose of personal protective equipment (PPE) and disposable equipment.
15. Complete the procedures for packaging, shipping, and handling with associated chain-of-custody.
16. Complete decontamination procedures for flow-through analytical cell and submersible or bladder pump, as appropriate.
17. At the end of the day, perform calibration check of field instruments.

If it is not technically feasible to use the low-flow sampling method, purging and sampling of monitoring wells may be conducted using the bailer method as outlined below:

1. Don appropriate PPE (as required by the HASP).
2. Place plastic sheeting around the well.

3. Clean sampling equipment.
4. Open the well cover while standing upwind of the well. Remove well cap and place on the plastic sheeting. Insert PID probe approximately 4 to 6 inches into the casing or the well headspace and cover with gloved hand. Record the PID reading in the field log. If the well headspace reading is less than 5 PID units, proceed; if the headspace reading is greater than 5 PID units, screen the air within the breathing zone. If the breathing zone reading is less than 5 PID units, proceed. If the PID reading in the breathing zone is above 5 PID units, move upwind from well for 5 minutes to allow the volatiles to dissipate. Repeat the breathing zone test. If the reading is still above 5 PID units, don appropriate respiratory protection in accordance with the requirements of the HASP. Record all PID readings. For wells that are part of the regular weekly monitoring program and prior PID measurements have not resulted in a breathing zone reading above 5 PID units, PID measurements will be taken monthly.
5. Measure the depth to water and determine depth of well by examining drilling log data or by direct measurement. Calculate the volume of water in the well (in gallons) by using the length of the water column (in feet), multiplying by 0.163 for a 2-inch well or by 0.653 for a 4-inch well. For other well diameters, use the formula:  
  
$$\text{Volume (in gallons)} = \pi \text{ TIMES well radius (in feet) squared TIMES length of water column (in feet) TIMES } 7.481 \text{ (gallons per cubic foot)}$$
6. Measure a length of rope or twine at least 10 feet greater than the total depth of the well. Secure one end of the rope to the well casing and secure the other end to the bailer. Test the knots and make sure the rope will not loosen. Check bailers so that all parts are intact and will not be lost in the well.
7. Lower bailer into well and remove one well volume of water. Contain all water in appropriate containers.
8. Monitor the field indicator parameters (e.g., turbidity, temperature, specific conductance, and pH). Measure field indicator parameters using a clean container such as a glass beaker or sampling cups provided with the instrument. Record field indicator parameters on the groundwater sampling log.
9. Repeat Steps 7 and 8 until three or four well volumes have been removed. Examine the field indicator parameter data to determine if the parameters have stabilized. The well is considered stabilized and ready for sample collection when turbidity values remain within 10% (or within 1 NTU if the turbidity reading is less than 10 NTU), the specific conductance and temperature values remain

within 3%, and pH remains within  $\pm 0.1$  units for three consecutive readings collected once per well volume removed.

10. If the field indicator parameters have not stabilized, remove a maximum of five well volumes prior to sample collection. Alternatively, five well volumes may be removed without measuring the field indicator parameters.
11. If the recharge rate of the well is very low, wells screened across the water table may be bailed dry and sampling should commence as soon as the volume in the well has recovered sufficiently to permit collection of samples. For wells screened entirely below the water table, the well should only be bailed down to a level slightly higher than the bentonite seal above the well screen. The well should not be bailed completely dry, to maintain the integrity of the seal. Sampling should commence as soon as the well volume has recovered sufficiently to permit sample collection.
12. Following purging, allow water level in well to recharge to a sufficient level to permit sample collection.
13. Complete the sample label and cover the label with clear packing tape to secure the label onto the container.
14. Slowly lower the bailer into the screened portion of the well and carefully retrieve a filled bailer from the well causing minimal disturbance to the water and any sediment in the well.
15. The sample collection order (as appropriate) will be as follows:
  - a. VOCs;
  - b. TOC;
  - c. SVOCs;
  - d. metals and cyanide; and
  - e. others.
16. When sampling for volatiles, collect water samples directly from the bailer into 40-mL vials with Teflon<sup>®</sup>-lined septa.
17. For other analytical samples, remove the cap from the large glass mixing container and slowly empty the bailer into the large glass mixing container. The

sample for dissolved metals and/or filtered PCBs should either be placed directly from the bailer into a pressure filter apparatus or pumped directly from the bailer with a peristaltic pump, through an in-line filter, into the pre-preserved sample bottle.

18. Continue collecting samples until the mixing container contains a sufficient volume for all laboratory samples.
19. Mix the entire sample volume with the Teflon<sup>®</sup> stirring rod and transfer the appropriate volume into the laboratory jar(s). Secure the sample jar cap(s) tightly.
20. If sampling for total and filtered metals and/or PCBs, a filtered and unfiltered sample will be collected. Sample filtration for the filtered sample will be performed in the field using a peristaltic pump prior to preservation. Install new medical-grade silicone tubing in the pump head. Place new Teflon<sup>®</sup> tubing into the sample mixing container and attach to the intake side of pump tubing. Attach (clamp) a new 0.45-micron filter (note the filter flow direction). Turn the pump on and dispense the filtered liquid directly into the laboratory sample bottles.
21. Secure with packing material and store at 4°C in an insulated transport container provided by the laboratory.
22. After sample containers have been filled, remove one additional volume of groundwater. Measure the pH, temperature, turbidity, and conductivity. Record on the groundwater sampling log or bound field logbook the time sampling procedures were completed, any pertinent observations of the sample (e.g., physical appearance, and the presence or lack of odors or sheens), and the values of the field indicator parameters.
23. Remove bailer from well, secure well, and properly dispose of PPE and disposable equipment.
24. If a bailer is to be dedicated to a well, it should be secured inside the well above the water table, if possible. Dedicated bailers should be tied to the well cap so that inadvertent loss of the bailer will not occur when the well is opened.
25. Complete the procedures for packaging, shipping, and handling with associated chain-of-custody.

## VII. Waste Management

Materials generated during groundwater sampling activities, including disposable equipment, will be placed in appropriate containers. Containerized waste will be disposed of by the client consistent with the procedures identified in the HASP.

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Initial field logs and chain-of-custody records will be transmitted to the ARCADIS PM at the end of each day unless otherwise directed by the PM. The groundwater team leader retains copies of the groundwater sampling logs.

## IX. Quality Assurance

In addition to the quality control samples to be collected in accordance with this SOP, the following quality control procedures should be observed in the field:

- Collect samples from monitoring wells in order of increasing concentration, to the extent known based on review of historical site information if available.
- Equipment blanks should include the pump and tubing (if using disposable tubing) or the pump only (if using tubing dedicated to each well).
- Collect equipment blanks after wells with higher concentrations (if known) have been sampled.
- Operate all monitoring instrumentation in accordance with manufacturer's instructions and calibration procedures. Calibrate instruments at the beginning of each day and verify the calibration at the end of each day. Record all calibration activities in the field notebook.
- Clean all groundwater sampling equipment prior to use in the first well and after each subsequent well using procedures for equipment decontamination.

## X. References

United States Environmental Protection Agency (USEPA). 1986. RCRA Groundwater Monitoring Technical Enforcement Guidance Document (September 1986).

USEPA Region II. 1998. *Ground Water Sampling Procedure Low Stress (Low Flow) Purging and Sampling*.

USEPA. 1991. Handbook Groundwater, Volume II Methodology, Office of Research and Development, Washington, DC. USEPN62S, /6-90/016b (July, 1991).

U.S. Geological Survey (USGS). 1977. National Handbook of Recommended Methods for Water-Data Acquisition: USGS Office of Water Data Coordination. Reston, Virginia.

**Attachment 1**

**Groundwater Sampling Log**

**Attachment 2**

**Oxygen Solubility in Fresh Water**

<b>Temperature (degrees C)</b>	<b>Dissolved Oxygen (mg/L)</b>
0	14.6
1	14.19
2	13.81
3	13.44
4	13.09
5	12.75
6	12.43
7	12.12
8	11.83
9	11.55
10	11.27
11	11.01
12	10.76
13	10.52
14	10.29
15	10.07
16	9.85
17	9.65
18	9.45
19	9.26
20	9.07
21	8.9
22	8.72
23	8.56
24	8.4
25	8.24
26	8.09
27	7.95
28	7.81
29	7.67
30	7.54
31	7.41
32	7.28
33	7.16
34	7.05
35	6.93

Reference: Vesilind, P.A., *Introduction to Environmental Engineering*, PWS Publishing Company, Boston, 468 pages (1996).



## **Investigation-Derived Waste Handling and Storage**

Rev. #: 2

Rev Date: March 6, 2009

**Approval Signatures**

Prepared by: Andrew Kamik Date: 3/6/09

Reviewed by: Jim Marsh Date: 3/6/09  
(Technical Expert)

## I. Scope and Application

The objective of this Standard Operating Procedure (SOP) is to describe the procedures to manage investigation-derived wastes (IDW), both hazardous and non-hazardous, generated during site activities, which may include, but are not limited to - drilling, trenching/excavation, construction, demolition, monitoring well sampling, soil sampling, decontamination and remediation. Please note that this SOP is intended for materials that have been deemed a solid waste as defined by 40 CFR § 261.2 (which may include liquids, solids, and sludges). In some cases, field determinations will be made based on field screening or previous data that materials are not considered a solid waste. IDW may include soil, groundwater, drilling fluids, decontamination liquids, personal protective equipment (PPE), sorbent materials, construction and demolition debris, and disposable sampling materials that may have come in contact with potentially impacted materials. IDW will be collected and staged at the point of generation. Quantities small enough to be containerized in 55-gallon drums will be taken to a designated temporary storage area (discussed in further detail under Drum Storage) onsite pending characterization and disposal. Waste materials will be analyzed for constituents of concern to evaluate proper disposal methods. PPE and disposable sampling equipment will be placed in DOT-approved drums prior to disposal and typically does not require laboratory analysis. This SOP describes the necessary equipment, field procedures, materials, regulatory references, and documentation procedures necessary for proper handling and storage of IDW up to the time it is properly disposed. The procedures for handling IDW are based on the United States Environmental Protection Agency's Guide to Management of Investigation Derived Wastes (USEPA, 1992). IDW is assumed to be contaminated with the site constituents of concern (COCs) until analytical evidence indicates otherwise. IDW will be managed to ensure the protection of human health and the environment and will comply with all applicable or relevant and appropriate requirements (ARAR). The following Laws and Regulations on Hazardous Waste Management are potential ARAR for this site.

### State Laws and Regulations

- To Be Determined Based on Location of Site and Location of Treatment, Storage, and/or Disposal Facility (TSDF) to be utilized

### Federal Laws and Regulations

- Resource Conservation and Recovery Act (RCRA) 42 USC § 6901-6987
- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) 42 USC § 9601-9675

- Superfund Amendments and Reauthorization Act (SARA)
- Department of Transportation (DOT) Hazardous Materials Transportation

Pending characterization, IDW will be stored appropriately within each area of contamination (AOC). Under RCRA, “storage” is defined as the holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of, or stored elsewhere” (40 CFR § 260.10). The onsite waste staging area will be in a secure and controlled area. Waste characterization can either be based on generator knowledge, such as using materials safety data sheets (MSDS’), or can be based upon analytical results. The laboratory used for waste characterization analysis must have the appropriate state and federal certifications and be approved by ARCADIS and Client. IDW will be classified as RCRA hazardous or non-regulated under RCRA based on the waste characterization.

If IDW is characterized as RCRA hazardous waste, RCRA and DOT requirements must be followed for packaging, labeling, transporting, storing, and record keeping as described in 40 CFR § 262 and 49 CFR § 171-178. Wastes judged to potentially meet the criteria for hazardous wastes shall be stored in DOT approved packaging. Waste material classified as RCRA non-hazardous may be handled and disposed of as an industrial waste.

Liquid wastes judged to potentially meet the criteria for hazardous wastes shall be stored in DOT approved 55 gallon drums or other approved containers that are compatible with the type of material stored therein. Solid materials deemed to potentially meet hazardous criteria will be drummed where practicable. Large quantities of potentially hazardous solid materials must be containerized (such as in a roll-off box) for up to a maximum of 90 or 180 days as described in the Excavated Solids Section. Waste material classified as non-hazardous may be handled and disposed of as an industrial waste and is not subject to the 90-day or 180-day on-site storage limitation.

This is a standard (i.e., typically applicable) operating procedure which may be varied or changed as required, dependent upon site conditions, equipment limitations, or limitations imposed by the procedure. The ultimate procedure employed will be documented in the project work plans or reports. If changes to the sampling procedures are required due to unanticipated field conditions, the changes will be discussed with the Project Manager and Client as soon as practicable and documented in the report.

## II. Personnel Qualifications

ARCADIS field sampling personnel will have current health and safety training including 40-hour HAZWOPER training, site supervisor training, site-specific training, first aid, and CPR, as needed. ARCADIS personnel may sign manifests on a case-to-case basis for clients, provided the appropriate agreement is in place between ARCADIS and the client documenting that ARCADIS is not the generator, but is acting as authorized representative for the generator. ARCADIS personnel who sign hazardous waste manifests will have the current DOT hazardous materials transportation training according to 49 CFR § 172.704. ARCADIS field personnel will also comply with client-specific training such as LPS. In addition, ARCADIS field sampling personnel will be versed in the relevant SOPs and possess the required skills and experience necessary to successfully complete the desired field work.

## III. Equipment List

The following materials, as required, shall be available for IDW handling and storage:

Appropriate personal protective equipment as specified in the Site Health and Safety Plan

- 55-gallon steel drums, DOT 1A2 or equivalent
- $\frac{3}{4}$ -inch socket wrench
- Hammer
- Leather gloves
- Drum dolly
- Appropriate drum labels (outdoor waterproof self adhesive)
- Polyethylene storage tank
- Appropriate labeling, packing, chain-of-custody forms, and shipping materials as specified in the *Chain-of-Custody SOP* and *Field Sampling Handling, Packing, and Shipping SOP*.
- Indelible ink and/or permanent marking pens
- Plastic sheeting

- Appropriate sample containers, labels, and forms
- Stainless-steel bucket auger
- Stainless steel spatula or knife
- Stainless steel hand spade
- Stainless steel scoop
- Digital camera
- Field logbook.

#### **IV. Cautions**

- Filled drums can be very heavy, always use appropriate moving techniques and equipment.
- Similar media will be stored in the same drums to aid in sample analysis and disposal.
- Drum lids must be secured to prevent rainwater from entering the drums.
- Drums containing solid material may not contain any free liquids.
- Waste containers stored for extended periods of time may be subject to deterioration. Drum over packs may be used as secondary containment.
- All drums must be in good condition to prevent potential leakage and facilitate subsequent disposal. Inspect the drums for dents and rust, and verify the drum has a secure lid prior to use.

#### **V. Health and Safety Considerations**

- Appropriate personal protective equipment must be worn by all field personnel within the designated work area.
- Air monitoring may be required during certain field activities as required in the Site Health and Safety Plan.

- If excavating in potentially hazardous areas is possible, contingency plans should be developed to address the potential for encountering gross contamination or non-aqueous phase liquids.
- ARCADIS field personnel will be familiar and compliant with Client-specific health and safety requirements such as Chevron's hand safety policy including the prohibition of fixed and/or folding blade knives.

## **VI. Procedure**

Waste storage and handling procedures to be used depend upon the type of generated waste. For this reason, IDW should be stored in a secure location onsite in separate 55-gallon storage drums, solids can be stockpiled onsite (if non-hazardous), and purge water may be stored in polyethylene tanks. Waste materials such as broken sample bottles or equipment containers and wrappings will be stored in 55-gallon drums unless they were not in contact with sample media.

### **Management of IDW**

Minimization of IDW should be considered by the Project Manager during all phases of the project. Site managers may want to consider techniques such as replacing solvent-based cleaners with aqueous-based cleaners for decontamination of equipment, reuse of equipment (where it can be decontaminated), limitation of traffic between exclusion and support zones, and drilling methods and sampling techniques that generate little waste. Alternative drilling and subsurface sampling methods may include the use of small diameter boreholes, as well as borehole testing methods such as a core penetrometer or direct push technique instead of coring (EPA, 1993).

### **Drum Storage**

Drums containing hazardous waste shall be stored in accordance with the requirements of 40 CFR 265 Subpart I (for containers) and 265 Subpart DD (for containment buildings). All 55-gallon drums will be stored at a secure, centralized on-site location that is readily accessible for vehicular pick-up. Drums confirmed as, or believed to contain hazardous waste will be stored over an impervious surface provided with secondary containment. The storage location will, for drums containing liquid, have a containment system that can contain at least the larger of 10% of the aggregate volume of staged materials or 100% of the volume of the largest container. Drums will be closed during storage and be in good condition in accordance with the Guide to Management of Investigation-Derived Wastes (USEPA, 1992).

### **Hazardous Waste Determination**

Waste material must be characterized to determine if it meets any of the federal definitions of hazardous waste as required by 40 CFR § 262.11. If the waste does not meet any of the federal definitions, it must then be established if any state-specific hazardous waste criteria exist/apply.

### **Generator Status**

Once hazardous waste determination has been made, the generator status will be determined. Large quantity generators (LQG) are generators who generate more than 1,000 kilograms of hazardous waste in a calendar month. Small quantity generators (SQG) of hazardous waste are generators who generate greater than 100 kilograms but less than 1,000 kilograms of hazardous waste in a calendar month. Conditionally exempt small quantity generators (CESQG) are generators who generate less than 100 kilograms of hazardous waste per month. Please note that a generator status may change from month to month and that a notice of this change is usually required by the generator's state agency.

### **Accumulation Time for Hazardous Waste**

A LQG may accumulate hazardous waste on site for 90 days or less without a permit and without having interim status provided that such accumulation is in compliance with specifications in 40 CFR § 262.34. A SQG may accumulate hazardous waste on site for 180 days or less without a permit or without having interim status subject to the requirements of 40 CFR § 262.34(d). CESQG requirements are found in 40 CFR § 261.5. **NOTE:** The CESQG and SQG provisions of 40 CFR § 261.5, 262.20(e), 262.42(b) and 262.44 may not be recognized by some states (e.g. Rhode Island).

**State-specific regulations must be reviewed and understood prior to the generation of hazardous waste.**

### Satellite Accumulation of Hazardous Waste

Satellite accumulation (SAA) shall mean the accumulation of as much as fifty-five (55) gallons of hazardous waste, or the accumulation of as much as one quart of acutely hazardous waste, in containers at or near any point of generation where the waste initially accumulates, which is under the control of the operator of the process generating the waste, without a permit or interim status and without complying with the requirements of 40 CFR § 262.34(a) and without any storage time limit, provided that the generator complies with 40 CFR § 262.34(c)(1)(i).



Once more than 55 gallons of hazardous waste accumulates in SAA, the generator has three days to move this waste into storage.

Storage recommendations for hazardous waste include:

- Ignitable Hazardous wastes must be >50 feet from the property line per 40 CFR § 265.176 (LQG generators only).
- Hazardous waste must be stored on a concrete slab (asphalt is acceptable if there are no free liquids in the waste) per 40 CFR § 265.176.
- Drainage must be directed away from the accumulation area.
- Area must be properly vented.
- Area must be secure.

### **Drum/Container Labeling**

Drums will be labeled on both the side and lid of the drum using a permanent marking pen. Old drum labels must be removed to the extent possible, descriptions crossed out should any information remain, and new labels affixed on top of the old labels. Other containers used to store various types of waste (polyethylene tanks, roll-off boxes, end-dump trailers, etc.) will be labeled with an appropriate "Waste Container" or "Testing in Progress" label pending characterization. Drums and containers will be labeled as follows:

- Appropriate waste characterization label (Testing In Progress, Hazardous, or Non-Hazardous)
- Waste generator's name (e.g., client name)
- Project name
- Name and telephone number of ARCADIS project manager
- Composition of contents (e.g., used oil, acetone 40%, toluene 60%)
- Media (e.g., solid, liquid)
- Accumulation start date

- Drum number of total drums as reconciled with the Drum Inventory maintained in the field log book.

IDW containers will remain closed except when adding or removing waste. Immediately upon beginning to place waste into the drum/container, a "Waste Container" or "Testing in Progress" label will be filled out to include the information specified above, and affixed to the container. Once the contents of the container are identified as either non-hazardous or hazardous, the following additional labels will be applied. Containers with waste determined to be non-hazardous will be labeled with a green and white "Non-Hazardous Waste" label over the "Waste Container" label. Containers with waste determined to be hazardous will be stored in an onsite storage area and will be labeled with the "Hazardous Waste" label and affixed over the "Waste Container" label. The ACCUMULATION DATE for the hazardous waste is the date the waste is first placed in the container and is the same date as the date on the "Waste Container" label. DOT hazardous class labels must be applied to all hazardous waste containers for shipment offsite to an approved disposal or recycling facility. In addition a DOT proper shipping name shall be included on the hazardous waste label. The transporter should be equipped with the appropriate DOT placards. However, placarding or offering placards to the initial transporter is the responsibility of the generator per 40 CFR § 262.33.

### **Inspections and Documentation**

All IDW will be documented as generated on a Drum Inventory Log maintained in the field log book. The Drum Inventory will record the generation date, type, quantity, matrix and origin (e.g. Boring-1, Test Pit 3, etc) of materials in every drum, as well as a unique identification number for each drum. The drum inventory will be used during drum pickup to assist with labeling of drums. The drum storage area and any other areas of temporarily staged waste, such as soil/debris piles, will be inspected weekly. The weekly inspections will be recorded in the field notebook or on a Weekly Inspection Log. Digital photographs will be taken upon the initial generation and drumming/staging of waste, and final labeling after characterization to document compliance with labeling and storage protocols, and condition of the container. Evidence of damage, tampering or other discrepancy should be documented photographically.

### **Emergency Response and Notifications**

Specific procedures for responding to site emergencies will be detailed in the HASP. If the generator is designated as a LQG, a Contingency Plan will need to be prepared to include emergency response and notification procedures per 40 CFR § 265 Subpart D. In the event of a fire, explosion, or other release which could threaten human health

outside of the site or when Client or ARCADIS has knowledge of a spill that has reached surface water, Client or ARCADIS must immediately notify the National Response Center (800-424-8802) in accordance with 40 CFR § 262.34. Other notifications to state agencies may also be necessary.

### **Drilling Soil Cuttings and Muds**

Soil cuttings are solid to semi-solid soils generated during trenching activities, subsurface soil sampling, or installation of monitoring wells. Depending on the drilling method, drilling fluids known as "muds" may be used to remove soil cuttings. Drilling fluids flushed from the borehole must be directed into a settling section of a mud pit. This allows reuse of the decanted fluids after removal of the settled sediments. Soil cuttings will be labeled and stored in 55-gallon drums with bolt-sealed lids.

### **Excavated Solids**

Excavated solids may include, but are not limited to soil, fill and construction and demolition debris. Excavated solids may be temporarily stockpiled onsite as long as the material is a RCRA non-hazardous waste and the solids will be treated onsite pursuant to a certified, authorized, or permitted treatment method, or properly disposed off-site. Stockpiled materials characterized as hazardous must be immediately containerized and removed from the site within 90 days of generation (except for soils using satellite accumulation). Excavated solids should be stockpiled and maintained in a secure area onsite. At a minimum, the floor of the stockpile area will be covered with a 20-mil high density polyethylene liner that is supported by a foundation or at least a 60-mil high density polyethylene liner that is not supported by a foundation. The excavated material will not contain free liquids. The owner/operator will provide controls for windblown dispersion, run-on control, and precipitation runoff. The run-on control system will prevent flow onto the active portion of the pile during peak discharge from at least a 25-year storm and the run-off management system will collect and control at least the water volume resulting from a 24-hour, 25-year storm (EPA, 1992). Additionally, the stockpile area will be inspected on a weekly basis and after storm events. Individual states may require that the stockpile be inspected/certified by a licensed professional engineer. Stockpiled material will be covered with a 6-mil polyvinyl chloride (PVC) liner. The stockpile cover will be secured in place with appropriate material (concrete blocks, weights, etc.) to prevent the movement of the cover. Excavated solids may also be placed in roll off containers and covered with a 6-mil PVC liner pending results for waste characterization.

### **Decontamination Solutions**

Decontamination solutions are generated during the decontamination of personal protective equipment and sampling equipment. Decontamination solutions may range from detergents, organic solvents and acids used to decontaminate small field sampling equipment to steam cleaning rinsate used to wash heavy field equipment. These solutions are to be labeled and stored in 55-gallon drums with bolt-sealed lids.

### **Disposable Equipment**

Disposable equipment includes personal protective equipment (tyvek coveralls, gloves, booties and APR cartridges) and disposable sampling equipment such as trowels or disposable bailers. If the media sampled exhibits hazardous characteristics per results of waste characterization sampling, disposable equipment will also be disposed of as a hazardous waste. These materials will be stored onsite in labeled 55-gallon drums pending analytical results for waste characterization.

### **Purge Water**

Purge water includes groundwater generated during well development, groundwater sampling, or aquifer testing. The volume of groundwater generated will dictate the appropriate storage procedure. Monitoring well development and groundwater sampling may generate three well volumes of groundwater or more. This volume will be stored in labeled 55-gallon drums. Aquifer tests may generate significantly greater volumes of groundwater depending on the well yield and the duration of the test. Therefore, large-volume portable polyethylene tanks will be considered for temporary storage pending groundwater-waste characterization.

### **Purged Water Storage Tank Decontamination and Removal**

The following procedures will be used for inspection, cleaning, and offsite removal of storage tanks used for temporary storage of purge water. These procedures are intended to be used for rented portable tanks such as Baker Tanks or Rain for Rent containers. Storage tanks will be made of inert polyethylene materials.

The major steps for preparing a rented tank for return to a vendor include characterizing the purge water, disposing of the purge water, decontaminating the tank, final tank inspection, and mobilization. Decontamination and inspection procedures are describe in further detail below.

- Tank Cleaning: Most vendors require that tanks be free of any sediment and water before returning, a professional cleaning service may be required. Each

specific vendor should be consulted concerning specific requirements for returning tanks.

- Tank Inspection: After emptying the tank, purged water storage tanks should be inspected for debris, chemical staining, and physical damage. The vendors require that tanks be returned in the original condition (i.e., free of sediment, staining and no physical damage).

## **VII. Waste Characterization Sampling and Shipping**

### **Soil/Solids Characterization**

Waste characterization will be conducted in accordance with waste hauler, waste handling facility, and state/federal requirements. In general, RCRA hazardous wastes are those solid wastes determined by a Toxicity Characteristic Leaching Procedure (TCLP) test or to contain levels of certain toxic metals, pesticides, or other organic chemicals above specific federally regulated thresholds. If the one or more of 40 toxic compounds listed in Table I of 40 CFR § 261.24 are detected in the sample at levels above the maximum unregulated concentrations, the waste must be characterized as a toxic hazardous waste. Wastes can also be considered "listed" hazardous waste depending on site-specific processes.

Composite soil samples will be collected at a frequency of one sample per 10 cubic yard basis for stockpiled soil or one per 55-gallon drum for containerized. A four point composite sample will be collected per 10 cubic yards of stockpiled material and for each drum. Sample and composite frequencies may be adjusted in accordance with the waste handling facility's requirements. Waste characterization samples may be analyzed for the TCLP volatile organic compounds (VOCs), TCLP semi-volatile organic compounds (SVOCs), TCLP RCRA metals, and polychlorinated biphenyls, as well as corrosivity (pH), reactivity and flammability (flashpoint). Additional samples may be collected and analyzed by the laboratory on a contingency basis.

### **Wastewater Characterization**

Waste characterization will be conducted in accordance with the requirements of the waste hauler, waste handling facility, and state/federal governments. In general, purge water should be analyzed by methods appropriate for the known contaminants, if any, that have been historically detected in the monitoring wells. Samples will be collected and analyzed in accordance with the requirements of the waste disposal facility.

Wastewater characterization samples may be analyzed for TCLP volatile organic compounds (VOCs), TCLP semi-volatile organic compounds (SVOCs), TCLP RCRA

metals, and polychlorinated biphenyls, as well as corrosivity (pH), reactivity and flammability (flashpoint). Additional samples may be collected and analyzed by the laboratory on a contingency basis.

### Sample Handling and Shipping

All samples will be appropriately labeled, packed, and shipped, and the chain-of-custody will be filled out in accordance with the Chain-of-Custody SOP and Field Sampling Handling, Packing, and Shipping SOP and Hazardous Materials Packaging and Shipping SOP.

It should be noted that additional training is required for packaging and shipping of hazardous and/or dangerous materials. Please reference the following ARCADIS intranet team page for more information: <http://team/sites/hazmat/default.aspx>.

### Preparing Waste Shipment Documentation (Hazardous and Non-Hazardous)

Waste profiles will be prepared by the ARCADIS PM and forwarded, along with laboratory analytical data to the Client PM for approval/signature. The Client PM will then return the profile to ARCADIS who will then forward to the waste removal contractor for preparation of a manifest. The manifest will be reviewed by ARCADIS prior to forwarding to the Client PM for approval. Upon approval of the manifest, the Client PM will return the original signed manifest directly to the waste contractor or to the ARCADIS PM for forwarding to the waste contractor.

Final drum labeling and pickup will be supervised by an ARCADIS representative who is experienced with waste labeling procedures. The ARCADIS representative will have a copy of the drum inventory maintained in the field book and will reconcile the drum inventory with the profile numbers on the labels and on the manifest. Different profile numbers will be generated for different matrices or materials in the drums. For example, the profile number for drill cuttings will be different than the profile number for purge water. **When there are multiple profiles it is critical that the proper label, with the profile number appropriate to a specific material be affixed to the proper drums.** A copy of the ARCADIS drum inventory will be provided to the waste transporter during drum pickup and to the facility receiving the waste.

## VIII. Data Recording and Management

Waste characterization sample handling, packing, and shipping procedures will be documented in accordance with the *Quality Assurance Project Plan*, if one exists. Copies of the chains-of-custody forms will be maintained in the project file.

Following waste characterization, IDW containers will be re-labeled with the appropriate waste hazardous or non-hazardous waste labels and the client will initiate disposal at the appropriate waste disposal facility.

#### **IX. Quality Assurance**

The chain-of-custody and sample labels for waste characterization samples will be filled out in accordance with the *Quality Assurance Project Plan*.

#### **X. References**

United States Environmental Protection Agency (USEPA). 1992. Guide to Management of Investigation-Derived Wastes. Office of Remedial and Emergency Response. Hazardous Site Control Division. January 1992.

USEPA. 1991. *Guide to Discharging CERCLA Aqueous Wastes to Publicly Owned Treatment Works (POTWs)*. Office of Remedial and Emergency Response. Hazardous Site Control Division OS-220W. March 1991.

## **Field Log Book Entries**

Rev. #: 0

Rev Date: 11 August 2009



**Approval Signatures**

Prepared by: Andrew Kamik Date: 8/11/09

Reviewed by: Michael J. Giffell Date: 8/11/09  
(Technical Expert)

## **I. Scope and Application**

This ARCADIS Standard Operating Procedure covers the entries needed in a field log book for environmental investigations.

This SOP does not address all of the entries that may be needed for a specific project, and does not address health and safety, equipment decontamination, field parameter measurements, sample preservation, chain-of-custody, or laboratory analysis. For direction on requirements in these areas, refer to other ARCADIS SOPs, the project work plans including the quality assurance project plan, sampling plan, and health and safety plan, as appropriate.

## **II. Personnel Qualifications**

ARCADIS personnel participating in fieldwork and making entries into the field log book should have a minimum of one (1) year of field experience (or be under the supervision and accompanied in the field by someone who does) and current health and safety training including 40-hour HAZWOPER training, site supervisor training, site-specific training, first aid, and CPR, as needed. Field personnel will also be compliant with client-specific training requirements. In addition, ARCADIS field sampling personnel will be versed in the relevant SOPs and possess the required skills and experience necessary to successfully complete the desired field work.

## **III. Equipment List**

- Field Log Book
- Ball point (medium point) pen with blue or black ink (black preferred). A fine point Sharpie pen may be used if the ink does not bleed through the page and become visible on back side of the page. If weather conditions prevent the use of a pen, indicate so in the log and use an alternate writing instrument .
- Zip-lock baggie or other weather-proof container to protect the field log book from the elements.

## **IV. Cautions**

All entries in the field log must be legible and archivable. Do not leave the field log book exposed to the elements or other conditions that might moisten the pages and smear/dissolve the entries. When not in the field, the log book should be stored in a location that is easily accessible to field crews.

## **V. Health and Safety Considerations**

ARCADIS field personnel will be familiar and compliant with Client-specific health and safety requirements.

## VI. Procedure

- Print legibly. Do not use cursive writing.
- The name of the project, project number and project location should be written in indelible ink on the outside of the field log book.
- On the inside of the front cover, write "If Found, Please Return to ARCADIS" and include the appropriate address and phone number, the name of the person to which the book is assigned, and the name of the project manager.
- Reserve the first page of the book for a Table of Contents.
- Reserve the last five (5) pages of the book for important contacts, notes, reminders, etc.
- Each day of field work, the following should be recorded in the field log book as applicable:
  - a) Project Name
  - b) Date and time arrived
  - c) Work Site Location
  - d) Names of people on-site related to the project including ARCADIS employees, visitors, subcontractor employees, agency personnel, client representative, etc.
  - e) Describe the work to be performed briefly, and list the equipment on-site
  - f) Indicate the health and safety (H&S) level to be used
  - g) Record instrument calibrations and checks
  - h) Record time and general content of H&S briefing
  - i) Describe the weather conditions, including temperature, precipitation, and wind speed and direction
  - j) List periodic time entries in the far left hand column of each page
  - k) Minimize unused space on each page
- The tailgate meeting must be recorded in the log book and the tailgate form completed. If H&S monitoring is performed, record the time and results of initial and followup monitoring.

- Note factual observations including collection of QA/QC samples, delays, well damage, accidents, work plan deviations, instrument problems, and problem resolutions.
- Describe work performed and how documented such as photographs, sample core logs, water sampling logs, etc.
- Describe bases for field decisions including pertinent conversations with visitors, regulators, or project personnel.
- Note final instrument calibrations and checks.
- Sign the log book at the end of each day at a minimum. Draw a line to the end of the page to indicate no further entries on that page. Sign the bottom of each page if possible.
- If an entry to the log book is changed, strike out the deleted text or item with a single line such that the entry remains legible, and initial and date the change. Such changes should only be made by the same person that made the initial entry.
- Field log book entries must be made in the field at the site, not at a later time at a different location. Supplemental entries to the log book may be made at a later date. The supplemental entry must be clearly identified as such and the entry must be signed and dated as described in this SOP.
- Problems noted in the field log book must be brought to the attention of the project manager and task manager in a timely fashion. Problems may be reported in person, on the telephone, or in a written daily log form. If daily logs are prepared and you will not be able to personally give the daily log to the project manager, send the daily log via FAX or overnight courier to the project manager and task manager.

## **VII. Waste Management**

Investigation-derived waste will be managed as described in the Investigation-Derived Waste Handling and Storage SOP. A drum/waste inventory should be maintained on a pre-designated page in the field log book.

## **VIII. Data Recording and Management**

Each page of the field log book should be scanned for electronic/digital archiving at periodic intervals. This will ensure that copies of the field notes are available in the event the field book is lost or damaged, and that field data can be easily disseminated to others without the risk of physically sending the field log book. Field log books that are full should be archived with the project files, and readily retrievable.

**IX. Quality Assurance**

Be mindful that the field log book may be produced in court. All entries should be legible (as discussed above). Entries should also be in English, unless working in a country where English is not the predominant language or you are directed otherwise by the project manager.

**X. References**

Not Applicable

## **Measuring Basic Water Quality Parameters In-Situ**

Rev. #: 01

Rev Date: March 17, 2004

**Approval Signatures**

Prepared by: \_\_\_\_\_

Date: \_\_\_\_\_

Reviewed by: \_\_\_\_\_

Date: \_\_\_\_\_

## I. Scope and Application

This Standard Operating Procedure (SOP) describes the procedures for calibrating and operating a water quality meter. Temperature, pH, specific conductivity, dissolved oxygen, ORP, and turbidity of groundwater and surface water will be measured in-situ with a combination water quality meter (Horiba U22 or equivalent). This SOP describes equipment, field procedures, materials, and documentation procedures. Groundwater quality parameters will be measured in-situ during the collection of groundwater quality samples. This SOP should be followed in conjunction with the *Groundwater Monitoring Well Sampling Procedures SOP*.

This is a standard (i.e., typically applicable) operating procedure which may be varied or changed as required, dependent upon site conditions, equipment limitations, or limitations imposed by the procedure. The ultimate procedure employed will be documented in the work plans or reports.

## II. Personnel Qualifications

ARCADIS field sampling personnel will have current health and safety training including 40-hour HAZWOPER training, site supervisor training, site-specific training, first aid, and CPR, as needed. In addition, ARCADIS field sampling personnel will be versed in the relevant SOPs and possess the required skills and experience necessary to successfully complete the desired field work.

## III. Equipment List

The following materials, as required, shall be available during field measurement of water quality:

- Appropriate personal protective equipment as specified in the Site Health and Safety Plan
- Equipment decontamination supplies (See *Field Sampling Equipment Decontamination Procedures SOP*)
- Water quality meter, Horiba U22 or equivalent
- Replacement parts for the meter, including dissolved oxygen membrane
- Extra batteries



- Calibration/maintenance log(s)
- Calibration solutions
- Thermometer
- Distilled water
- Disposable plastic beakers
- Fine-end screw driver
- Field logbook.

#### **IV. Cautions**

Monitoring probes should not be placed in sample shipping containers to reduce the risk of contaminating a sample. A representative sub-sample should be used to measure the field water quality parameters.

Calibration standards must be stored properly. Check and replace all calibration standards per manufacturer suggestions to ensure accurate meter readings.

#### **V. Health and Safety Considerations**

Calibration solutions may contain hazardous chemicals. An MSDS should accompany all calibration solutions.

#### **VI. Procedure**

##### **Calibration Procedures**

The meter will be calibrated following the manufacturer's instructions. Calibration information will be recorded in the field logbook and a calibration log will be completed.

##### **Operation Procedures**

The meter will be operated following the manufacturer's instructions. Readings will be recorded in the field logbook.

## **Maintenance Procedures**

The meter will be maintained according to the manufacturer's instructions. Maintenance information will be recorded in the field notebook. A replacement meter and probes will be available on-site or ready for overnight shipment, as necessary.

## **VII. Waste Management**

Rinse water, PPE, and other residual material generated during the equipment decontamination will be placed in appropriate containers. Containerized waste and calibration solutions will be disposed of consistent with appropriate procedures as outlined in the *Handling and Storage of Investigation-Derived Waste SOP*.

## **VIII. Data Recording and Management**

Field parameters will be recorded on the Low Flow Groundwater Monitoring Purge Log and in the field logbook for three-volume groundwater sampling in accordance with the specifications outlined in the *Quality Assurance Project Plan*.

All readings taken, calibration procedures, calibration checks, and adjustments will be documented in the field logbook. In addition, a calibration log will be completed for each day in which these procedures were conducted. These logs will be filed in the Laboratory Calibration Log Book.

All readings taken and adjustments made during calibrations and calibration checks will be recorded in the field notebook, along with the date and time at which the procedure was completed. The serial number of the meter and calibration solutions shall be recorded if applicable.

## **IX. Quality Assurance**

Groundwater quality parameters should be measured prior to sample collection. If down-hole water quality meters are used, they will be decontaminated as specified in the *Field Sampling Equipment Decontamination Procedures SOP* (CalEPA, 1995).

## **X. References**

California Environmental Protection Agency (CalEPA). 1995. *Representative Sampling of Groundwater for Hazardous Substances*. Guidance Manual for Ground Water Investigations. July 1995.

# APPENDIX B

Field Notes



Site: Terminal Purna Project No. 63767 Location: Bayamon

Sampling Team: Fernando Colon / Mariamela Mercedes Burgos

Well ID: WWTP-2 Arrival Time: \_\_\_\_\_ Date: 1-junio-16

Well casing Dia.: 2" Weather: soleado Well Yield: \_\_\_\_\_

**Well Data** *(antes de desarrollo)*

Well Depth:	<u>19.00</u>	ft. TOC	Gallons per well casing
Depth to Water:	<u>9.54</u>	ft. TOC	(Well Volume): <u>1.6</u> gal
Depth to SPH:	<u>0</u>	ft. TOC	Three well volumes (x3): <u>4.82</u> gal
Water Column in Well:	<u>9.44</u>	ft.	Placement of Pump Intake: _____ ft. TOC (Approx.)
Gallons per foot:	<u>0.17</u>	gal	

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
11:00	9.54	<i>(antes de desarrollo)</i>							
11:09	<i>Comienzo desarrollo</i>								
11:15	<i>Se seco el pozo. Si lo extrajo 5 galones. Agua clara pero turbia.</i>								

**Sampling Data**

*Purging*  
 Sampling Method: Whaler pump Sampling Time: \_\_\_\_\_  
 Color: \_\_\_\_\_ Odor: NO  
 Visual Turbidity: X Clear X Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: \_\_\_\_\_  
 Sampler(s) Signature: *M. Burgos*

**WELL CASING VOLUMES (per foot of water column)**

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Terminal Puma Project No. B0063767 Location: Bayamon

Sampling Team: Marianela / Fernando  
 Well ID: WWTP-1 Arrival Time: \_\_\_\_\_ Date: 1-june-16  
 Well casing Dia.: 2" Weather: rainy cloudy Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>16.46</u>	ft. TOC	Gallons per well casing (Well Volume):	<u>1.6</u>	gal
Depth to Water:	<u>6.95</u>	ft. TOC	Three well volumes (x3):	<u>4.8</u>	gal
Depth to SPH:	<u>0</u>	ft. TOC	Placement of Pump Intake:	_____	ft. TOC (Approx.)
Water Column in Well:	<u>9.51</u>	ft.			
Gallons per foot:	<u>0.17</u>	gal			

Well Purging Information and Field Parameters

Well Purging Method:

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
<u>11:27</u>	<u>16.46</u>	<u>(antes del desarrollo)</u>							
<u>11:30</u>	<u>(comienzo desarrollo)</u>								
<u>11:46</u>	<u>Se seco el pozo.</u>								

Sampling Data

Purging  
 Sampling Method: Whaler pump Sampling Time: \_\_\_\_\_  
 Color: \_\_\_\_\_ Odor: mild  
 Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium X High

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: Sheeny  
 Sample(s) Signature: [Signature]

WELL CASING VOLUMES (per foot of water column)

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Site: Rio Terminal Project No. B0063767 Location: Bayamon

Sampling Team: Maiara / Fernando

Well ID: WWTP-2 Arrival Time: \_\_\_\_\_ Date: 2-jun-16

Well casing Dia.: 2" Weather: Soleado Well Yield: \_\_\_\_\_

**Well Data**

Well Depth: <u>19.00</u> ft. TOC	Gallons per well casing (Well Volume): <u>1.1</u> gal
Depth to Water: <u>9.72</u> ft. TOC	Three well volumes (x3): <u>3.43</u> gal
Depth to SPH: <u>NA</u> ft. TOC	Placement of Pump Intake: <u>13</u> ft. TOC (Approx.)
Water Column in Well: <u>6.74</u> ft.	
Gallons per foot: <u>0.17</u> gal	

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
<u>0838</u>	<u>9.72</u>								
<u>0925</u>	<u>10.27</u>			<u>6.43</u>	<u>28.99</u>	<u>175</u>	<u>7.7</u>	<u>1.275</u>	<u>1.12</u>
<u>0934</u>	<u>10.37</u>	<u>60ml/34seg.</u>		<u>6.64</u>	<u>29.60</u>	<u>152.5</u>	<u>7.0</u>	<u>1.277</u>	<u>0.71</u>
<u>0938</u>	<u>10.37</u>			<u>6.64</u>	<u>29.71</u>	<u>145.5</u>	<u>6.8</u>	<u>1.279</u>	<u>1.14</u>
<u>0941</u>	<u>10.55</u>			<u>6.65</u>	<u>30.01</u>	<u>144.9</u>	<u>6.6</u>	<u>1.279</u>	<u>1.09</u>
<u>0944</u>	<u>10.64</u>			<u>6.65</u>	<u>30.00</u>	<u>148.3</u>	<u>6.6</u>	<u>1.279</u>	<u>1.08</u>

**Sampling Data**

Sampling Method: peristaltic pump (low flow) Sampling Time: 10:17  
 Color: \_\_\_\_\_ Odor: no  
 Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: PID = 0 ppm + (Dup 1)  
 Sampler(s) Signature: Maiara

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Punta Terminal Project No. B0063767 Location: Bayamon

Sampling Team: Manuale / Fernando

Well ID: WWTP-1 Arrival Time: \_\_\_\_\_ Date: 2-junio-16

Well casing Dia.: 2" Weather: \_\_\_\_\_ Well Yield: \_\_\_\_\_

**Well Data**

Well Depth: <u>16.46</u> ft. TOC	Gallons per well casing (Well Volume): <u>1.6</u> gal
Depth to Water: <u>6.49</u> ft. TOC	Three well volumes (x3): <u>5</u> gal
Depth to SPH: <u>NA</u> ft. TOC	Placement of Pump Intake: <u>13</u> ft. TOC (Approx.)
Water Column in Well: <u>9.77</u> ft.	
Gallons per foot: <u>0.17</u> gal	

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1029	6.49								
1032	6.90	60 mL / 95 s		6.24	30.19	-64.6	38.6	0.479	0.73
1036	6.90			6.20	30.19	-65.4	28.0	0.482	1.01
1040	6.91			6.21	30.19	-65.9	29.4	0.484	1.04
1044	6.91			6.21	30.18	-65.7	30.0	0.487	1.09

**Sampling Data**

Sampling Method: peristaltic pump (4L) Sampling Time: 1130  
 Color: \_\_\_\_\_ Odor: Mild  
 Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: PID = 14 ppm

Sampler(s) Signature:  

WELL CASING VOLUMES (per foot of water column)

- 4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

ation of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Terminal Project No. B0063767 Location: Bayamon

Sampling Team: Marianela / Fernando  
 Well ID: EB-101 Arrival Time: \_\_\_\_\_ Date: 2-june-16-13  
 Well casing Dia.: 2" Weather: \_\_\_\_\_ Well Yield: 4 gpm

**Well Data**

Well Depth: <u>25.5</u> ft. TOC	Gallons per well casing (Well Volume): <u>3.5</u> gal
Depth to Water: <u>4.74</u> ft. TOC	Three well volumes (x3): <u>10.5</u> gal
Depth to SPH: <u>NA</u> ft. TOC	Placement of Pump Intake: <u>23</u> ft. TOC (Approx.)
Water Column in Well: <u>20.76</u> ft.	
Gallons per foot: <u>0.17</u> gal	

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
	<u>4.74</u>								
				<u>6.72</u>	<u>29.65</u>	<u>-80.3</u>	<u>1.2</u>	<u>0.352</u>	<u>0.96</u>
	<u>Comenzó a bajar fuerte.</u>								
<u>3:10</u> <u>0715</u>	<u>4.72</u>	<u>60 ml/15 seg.</u>		<u>6.80</u>	<u>27.86</u>	<u>-72.7</u>	<u>12.1</u>	<u>0.378</u>	<u>3.17</u>
<u>0718</u>	<u>4.84</u>			<u>6.86</u>	<u>27.87</u>	<u>-86.5</u>	<u>7.3</u>	<u>0.380</u>	<u>1.65</u>
<u>0721</u>	<u>4.89</u>			<u>6.85</u>	<u>27.91</u>	<u>-90</u>	<u>5.8</u>	<u>0.383</u>	<u>1.39</u>
<u>0724</u>	<u>4.92</u>			<u>6.84</u>	<u>27.91</u>	<u>-92</u>	<u>3.8</u>	<u>0.384</u>	<u>1.32</u>
				<u>6.84</u>	<u>27.91</u>	<u>-93</u>	<u>4.0</u>	<u>0.384</u>	<u>1.32</u>

**Sampling Data**

Sampling Method: peristaltic (low) Sampling Time: 0800  
 Color: \_\_\_\_\_ Odor: \_\_\_\_\_  
 Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: PID = 0ppm + MS/MSd - 1

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C



Site: Rung Terminal Project No. 30063767 Location: Bayamon  
 Sampling Team: Marianela / Fernan Jr  
 Well ID: B-1 Arrival Time: \_\_\_\_\_ Date: 3-june-16  
 Well casing Dia.: 2' Weather: \_\_\_\_\_ Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>14.07</u>	ft. TOC	Gallons per well casing (Well Volume):	<u>2</u>	gal
Depth to Water:	<u>2.03</u>	ft. TOC	Three well volumes (x3):	<u>6</u>	gal
Depth to SPH:	<u>NA</u>	ft. TOC	Placement of Pump Intake:	<u>13</u>	ft. TOC (Approx.)
Water Column in Well:	<u>12.04</u>	ft.			
Gallons per foot:	<u>0.17</u>	gal			

**Well Purging Information and Field Parameters**

Well Purging Method:

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
<u>0830</u>	<u>2.03</u>								
<u>0837</u>	<u>2.60</u>								
<u>0839</u>	<u>2.80</u>	<u>60 ml / 23 sec</u>							
<u>0840</u>	<u>3.12</u>			<u>6.87</u>	<u>29.16</u>	<u>-35</u>	<u>65.9</u>	<u>0.597</u>	<u>1.18</u>
<u>0843</u>	<u>3.49</u>			<u>6.73</u>	<u>28.85</u>	<u>-22.6</u>	<u>66.9</u>	<u>0.593</u>	<u>1.09</u>
<u>0846</u>	<u>3.69</u>			<u>6.72</u>	<u>28.84</u>	<u>-17</u>	<u>71</u>	<u>0.591</u>	<u>1.07</u>
<u>0849</u>	<u>3.79</u>			<u>6.72</u>	<u>28.85</u>	<u>-19</u>	<u>75</u>	<u>0.592</u>	<u>1.08</u>

**Sampling Data**

Sampling Method: peristaltic (low) Sampling Time: 0945  
 Color: \_\_\_\_\_ Odor: no  
 Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low  Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: PID = 0 ppm + Dup 2

Sampler(s) Signature: Marianela / Fernan Jr

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Terminal Puma Project No. B0063967 Location: Bayamon

Sampling Team: Marianela / Fernando  
 Well ID: 16C Arrival Time: \_\_\_\_\_ Date: 6-june-16  
 Well casing Dia.: 2" Weather: sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>61.03</u>	ft. TOC	Gallons per well casing
Depth to Water:	<u>6.84</u>	ft. TOC	(Well Volume): <u>9.2</u> gal
Depth to SPH:	<u>NA</u>	ft. TOC	Three well volumes (x3): <u>27</u> gal
Water Column in Well:	<u>54.17</u>	ft.	Placement of Pump Intake: <u>54</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.17</u>	gal	

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
<del>0825</del>	<del>6.84</del>								
0837	7.30	60 mL / 12 sec		11.94	29.03	-67.8	35.0	3.413	1.55
0840	7.31			11.94	28.88	-74.4	35.5	3.356	1.32
0844	7.31			11.93	28.75	-76.7	32.0	3.322	1.23
0847	7.30			11.92	29.0	-77.8	33.1	3.332	1.27
0900	7.30			11.92	29.1	-78.7	33.3	3.338	1.29

**Sampling Data**

Sampling Method: peristaltic (low) Sampling Time: 0915  
 Color: \_\_\_\_\_ Odor: no  
 Visual Turbidity: \_\_\_\_\_ Clear  \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: WCF 8 ppm  
 Sampler(s) Signature: Marianela / Fernando

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Terminal Project No. B006A67 Location: Bayamon  
 Sampling Team: Marianela / Fernando  
 Well ID: EB-102 Arrival Time: \_\_\_\_\_ Date: 6/16/14  
 Well casing Dia.: 2" Weather: sunny Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>27.95</u> ft. TOC	Gallons per well casing (Well Volume):	<u>3.4</u> gal
Depth to Water:	<u>7.68</u> ft. TOC	Three well volumes (x3):	<u>10</u> gal
Depth to SPH:	<u>NA</u> ft. TOC	Placement of Pump Intake:	<u>24</u> ft. TOC (Approx.)
Water Column in Well:	<u>20.27</u> ft.		
Gallons per foot:	<u>0.17</u> gal		

Well Purging Information and Field Parameters

Well Purging Method:

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
0922	7.68								
0923	8.29			5.37	29.61	180.8	0.5	0.876	0.97
0926	8.37	60ml/24sec.		5.35	29.59	188.1	2.0	0.875	0.95
0929	8.44			5.33	29.57	196.7	0.8	0.874	0.92
0932	8.46			5.36	29.34	191.8	1.0	0.876	0.87
0935	8.50			5.37	29.39	192.3	1.1	0.877	0.86

Sampling Data

Sampling Method: peristaltic (low) Sampling Time: 0946  
 Color: \_\_\_\_\_ Odor: no  
 Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: PID = 0ppm

Sampler(s) Signature: [Signature]

WELL CASING VOLUMES (per foot of water column)

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Site: Puma Terminal Project No. B0063767 Location: Bayamon

Sampling Team: Maniela / Fernando

Well ID: EB-103 Arrival Time: \_\_\_\_\_ Date: 6-6-14

Well casing Dia.: 2 Weather: Sunny Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>27.87</u> ft. TOC	Gallons per well casing	
Depth to Water:	<u>5.90</u> ft. TOC	(Well Volume):	<u>3.7</u> gal
Depth to SPH:	<u>NA</u> ft. TOC	Three well volumes (x3):	<u>11</u> gal
Water Column in Well:	<u>21.97</u> ft.	Placement of Pump Intake:	<u>25</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.17</u> gal		

Well Purging Information and Field Parameters

Well Purging Method:

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
<u>0955</u>	<u>27.87</u>	<u>5.90</u>							
<u>0959</u>	<u>5.92</u>			<u>5.28</u>	<u>29.86</u>	<u>101.8</u>	<u>2.0</u>	<u>1.624</u>	<u>0.94</u>
<u>1001</u>	<u>5.99</u>	<u>60ml/21 sec.</u>		<u>5.24</u>	<u>29.46</u>	<u>101.4</u>	<u>1.0</u>	<u>1.627</u>	<u>0.63</u>
<u>1005</u>	<u>6.09</u>			<u>5.22</u>	<u>29.43</u>	<u>101.5</u>	<u>0.9</u>	<u>1.626</u>	<u>0.63</u>
<u>1009</u>	<u>6.11</u>			<u>5.20</u>	<u>29.41</u>	<u>103.6</u>	<u>0.7</u>	<u>1.623</u>	<u>0.56</u>
<u>1012</u>	<u>6.14</u>			<u>5.19</u>	<u>29.41</u>	<u>104.0</u>	<u>0.7</u>	<u>1.622</u>	<u>0.54</u>

Sampling Data

Sampling Method: Peristaltic (low) Sampling Time: 1045  
 Color: \_\_\_\_\_ Odor: none  
 Visual Turbidity: \_\_\_\_\_ Clear X \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: PID = 0 ppm

Sampler(s) Signature: [Signatures]

WELL CASING VOLUMES (per foot of water column)

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Terminal Project No. B0063767 Location: Bayamón  
 Sampling Team: Marianela / Fernando  
 Well ID: B-104 Arrival Time: \_\_\_\_\_ Date: 6/6/14  
 Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>27.89</u> ft. TOC	Gallons per well casing (Well Volume):	<u>35</u> gal
Depth to Water:	<u>7.06</u> ft. TOC	Three well volumes (x3):	<u>10.6</u> gal
Depth to SPH:	<u>NA</u> ft. TOC	Placement of Pump Intake:	<u>24</u> ft. TOC (Approx.)
Water Column in Well:	<u>20.83</u> ft.		
Gallons per foot:	<u>0.17</u> gal		

**Well Purging Information and Field Parameters**

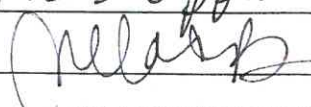

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
<u>1020</u>	<u>7.06</u>								
<u>1050</u>	<u>8.18</u>	<u>60ml/25sec.</u>		<u>5.65</u>	<u>28.81</u>	<u>53.1</u>	<u>79.4</u>	<u>2.235</u>	<u>0.84</u>
<u>1053</u>	<u>8.23</u>			<u>5.64</u>	<u>28.66</u>	<u>54.2</u>	<u>85</u>	<u>2.233</u>	<u>0.81</u>
<u>1054</u>	<u>8.49</u>			<u>5.62</u>	<u>28.58</u>	<u>56.3</u>	<u>58</u>	<u>2.231</u>	<u>0.67</u>
<u>1059</u>	<u>8.65</u>			<u>5.62</u>	<u>28.57</u>	<u>56.3</u>	<u>82</u>	<u>2.230</u>	<u>0.64</u>
<u>1100</u>	<u>8.76</u>			<u>5.62</u>	<u>28.50</u>	<u>56.4</u>	<u>84.2</u>	<u>2.230</u>	<u>0.59</u>
<u>1103</u>	<u>8.86</u>			<u>5.62</u>	<u>28.50</u>	<u>56.2</u>	<u>75.0</u>	<u>2.229</u>	<u>0.58</u>
<u>1106</u>	<u>9.02</u>			<u>5.63</u>	<u>28.50</u>	<u>56.2</u>	<u>86.5</u>	<u>2.229</u>	<u>0.58</u>

**Sampling Data**

Sampling Method: peristaltic (low) Sampling Time: 1200  
 Color: \_\_\_\_\_ Odor: no.  
 Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low  Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: PID = 0 ppm  
 Sampler(s) Signature:  / 

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06      1-1/2"=0.09      2"=0.16      2-1/2"=0.26      3"=0.37      3-1/2"=0.5      4"=0.65      6"=1.47

Stabilization of Parameters: D.O. -10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Juma Terminal Project No. B0063767 Location: Bayamon

Sampling Team: Marianela / Fernando  
 Well ID: BB-105 Arrival Time: \_\_\_\_\_ Date: 7-17-14  
 Well casing Dia.: 2 Weather: cloudy Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>22.82</u> ft. TOC	Gallons per well casing (Well Volume):	<u>205</u> gal
Depth to Water:	<u>8.08</u> ft. TOC	Three well volumes (x3):	<u>7.5</u> gal
Depth to SPH:	<u>NA</u> ft. TOC	Placement of Pump Intake:	<u>18</u> ft. TOC (Approx.)
Water Column in Well:	<u>14.74</u> ft.		
Gallons per foot:	<u>0.17</u> gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
<u>1048</u>	<u>8.08</u>								
<u>1050</u>	<u>9.16</u>	<u>60ml/20s</u>		<u>7.07</u>	<u>28.26</u>	<u>-113.6</u>	<u>10.7</u>	<u>1.488</u>	<u>0.83</u>
<u>1053</u>	<u>9.32</u>		<u>7.06</u>	<u>28.34</u>	<u>-114.6</u>	<u>9.9</u>	<u>1.484</u>	<u>0.82</u>	
<u>1056</u>	<u>9.47</u>		<u>7.05</u>	<u>28.38</u>	<u>-114.3</u>	<u>9.9</u>	<u>1.480</u>	<u>0.68</u>	
<u>1059</u>	<u>10.03</u>		<u>7.05</u>	<u>28.39</u>	<u>-113.7</u>	<u>8.0</u>	<u>1.477</u>	<u>0.66</u>	
<u>1102</u>	<u>10.09</u>		<u>7.05</u>	<u>28.52</u>	<u>-112.8</u>	<u>7.7</u>	<u>1.469</u>	<u>0.72</u>	
<u>1105</u>	<u>10.34</u>		<u>7.05</u>	<u>28.56</u>	<u>-112.8</u>	<u>2.9</u>	<u>1.460</u>	<u>0.61</u>	

**Sampling Data**

Sampling Method: peristaltic (low) Sampling Time: 1144  
 Color: \_\_\_\_\_ Odor: low  
 Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low  Medium \_\_\_\_\_ High \_\_\_\_\_

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: PID = 8ppm

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1 1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O. -10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Terminal Project No. B0003762 Location: Bayamon  
 Sampling Team: Yanuelita Mercado / Fernando Colon  
 Well ID: EB-106 Arrival Time: \_\_\_\_\_ Date: 7-june-16  
 Well casing Dia.: 2 Weather: cloudy/windy Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>22.90</u>	ft. TOC	Gallons per well casing	
Depth to Water:	<u>8.23</u>	ft. TOC	(Well Volume):	<u>2.5</u> gal
Depth to SPH:	<u>NA</u>	ft. TOC	Three well volumes (x3):	<u>7.5</u> gal
Water Column in Well:	<u>14.67</u>	ft.	Placement of Pump Intake:	<u>7.8</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.17</u>	gal		

Well Purging Information and Field Parameters

Well Purging Method:

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1200	8.23								
1203	8.58			6.47	28.33	20.4	21.7	1.916	1.61
1206	8.67	60 mL / 16.5 min		6.47	28.60	23.3	4.0	1.921	0.93
1209	8.66			6.47	28.45	22.2	1.7	1.921	1.00
1212	8.66			6.48	28.64	22.1	0.4	1.922	0.90
1215	8.67			6.48	28.62	21.7	1.2	1.921	0.82
1218	8.67			6.48	28.62	22.2	1.2	1.922	0.79

Sampling Data

Sampling Method: peristaltic (low) Sampling Time: 1243  
 Color: \_\_\_\_\_ Odor: none  
 Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low X Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: PID = 4ppm  
 Sampler(s) Signature: [Signature]

WELL CASING VOLUMES (per foot of water column)

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond.-3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma terminal Project No: B0063767 Location: Bayamon

Sampling Team: Marianela / Fernando

Well ID: 2-9 Arrival Time: \_\_\_\_\_ Date: 10-june-12

Well casing Dia.: 2 1/2 Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>15.17</u>	ft. TOC	Gallons per well casing (Well Volume):	<u>2.1</u>	gal
Depth to Water:	<u>2.53</u>	ft. TOC	Three well volumes (x3):	<u>6.4</u>	gal
Depth to SPH:	<u>N/A</u>	ft. TOC	Placement of Pump Intake:	<u>14</u>	ft. TOC (Approx.)
Water Column in Well:	<u>12-6.4</u>	ft.			
Gallons per foot:	<u>0.17</u>	gal			

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
0715	2.53								
0720	3.95	<u>60ml / 28sec</u>		<u>7.23</u>	<u>29.06</u>	<u>-130</u>	<u>12.3</u>	<u>0.486</u>	<u>1.19</u>
0723	4.22			<u>7.22</u>	<u>29.17</u>	<u>-129.3</u>	<u>12.1</u>	<u>0.481</u>	<u>1.06</u>
0726	4.37	<u>60ml / 32sec</u>		<u>7.20</u>	<u>29.26</u>	<u>-126.8</u>	<u>12.2</u>	<u>0.478</u>	<u>1.00</u>
0729	4.54			<u>7.20</u>	<u>29.38</u>	<u>-125.7</u>	<u>14.1</u>	<u>0.475</u>	<u>1.02</u>
0732	4.72			<u>7.18</u>	<u>29.57</u>	<u>-124.9</u>	<u>12.7</u>	<u>0.476</u>	<u>0.98</u>
0734	4.91			<u>7.18</u>	<u>29.74</u>	<u>-121.8</u>	<u>15.1</u>	<u>0.477</u>	<u>0.91</u>

**Sampling Data**

Sampling Method: peristaltic (low) Sampling Time: 0746  
 Color: \_\_\_\_\_ Odor: \_\_\_\_\_  
 Visual Turbidity:  Clear  Low  Medium  High

Analysis	Container Description	Preservative	Filtered y/n
<u>VOAS</u>	_____	_____	_____
<u>TRH'S</u>	_____	_____	_____
<u>PAH'S</u>	_____	_____	_____
<u>Metals</u>	_____	_____	_____

Remarks: PID = 0ppm

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47



Site: Puma Terminal Project No. 30063767 Location: Bayamón  
 Sampling Team: Marianela / Fernando  
 Well ID: 15B Arrival Time: \_\_\_\_\_ Date: 6/10/16  
 Well casing Dia.: 0.17 Weather: Sunny Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>52.65</u> ft. TOC	Gallons per well casing (Well Volume):	<u>7.7</u> gal
Depth to Water:	<u>7.30</u> ft. TOC	Three well volumes (x3):	<u>23</u> gal
Depth to SPH:	<u>NA</u> ft. TOC	Placement of Pump Intake:	<u>49</u> ft. TOC (Approx.)
Water Column in Well:	<u>45.35</u> ft.		
Gallons per foot:	<u>0.17</u> gal		

Well Purging Information and Field Parameters

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
0810	7.30								
0816	7.33	60 mL / 110 sec		6.71	28.12	60.9	62.7	0.896	2.82
0819	7.33		6.69	28.07	61.7	55.5	0.896	2.60	
0822	7.33		6.68	28.03	64.7	52.0	0.896	2.52	
0825	7.33		6.68	28.00	64.7	51.0	0.895	2.40	
0828	7.33		6.67	27.99	65.1	49.3	0.895	2.37	
0831	7.33		6.66	27.96	67.9	45.8	0.895	2.29	

Sampling Data

Sampling Method: Distilled (100) Sampling Time: 0843  
 Color: \_\_\_\_\_ Odor: none  
 Visual Turbidity: \_\_\_\_\_ Clear  \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
<u>NO3 + gro</u>	<u>(2) 2 vials</u>		
<u>TRHS</u>	<u>(2) 500 Amber</u>		
<u>PAHS</u>	<u>(2) 250 Amber</u>		
<u>metals</u>			

Remarks: PID = 0 ppm

Sampler(s) Signature: \_\_\_\_\_

WELL CASING VOLUMES (per foot of water column)

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Site: Puma Terminal Project No. 200603769 Location: Bayamon

Sampling Team: Manianela Herando / Fernando Colera

Well ID: 15B2 Arrival Time: \_\_\_\_\_ Date: 6/10/16

Well casing Dia.: 2 Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>50.00</u>	ft. TOC	Gallons per well casing	
Depth to Water:	<u>7.00</u>	ft. TOC	(Well Volume):	<u>7.4</u> gal
Depth to SPH:	<u>NA</u>	ft. TOC	Three well volumes (x3):	<u>22</u> gal
Water Column in Well:	<u>43.00</u>	ft.	Placement of Pump Intake:	<u>47</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.17</u>	gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
<u>0848</u>	<u>7.00</u>								
<u>0854</u>	<u>7.00</u>			<u>7.36</u>	<u>28.03</u>	<u>-6.8</u>	<u>25.9</u>	<u>0.776</u>	<u>4.54</u>
<u>0857</u>	<u>7.00</u>			<u>7.29</u>	<u>28.01</u>	<u>-24.9</u>	<u>20.5</u>	<u>0.776</u>	<u>3.02</u>
<u>0900</u>	<u>7.00</u>	<u>60ml/1058s</u>		<u>7.28</u>	<u>28.02</u>	<u>-52.7</u>	<u>17.3</u>	<u>0.777</u>	<u>3.01</u>
<u>0903</u>	<u>7.00</u>			<u>7.25</u>	<u>28.07</u>	<u>-58.8</u>	<u>12.4</u>	<u>0.781</u>	<u>1.65</u>
<u>0906</u>	<u>7.00</u>			<u>7.26</u>	<u>28.07</u>	<u>-60.3</u>	<u>10.3</u>	<u>0.783</u>	<u>1.68</u>
<u>0909</u>	<u>7.00</u>			<u>7.28</u>	<u>28.07</u>	<u>-62.5</u>	<u>12.6</u>	<u>0.784</u>	<u>1.70</u>

**Sampling Data**

Sampling Method: Peristaltic (low) Sampling Time: 0922  
 Color: \_\_\_\_\_ Odor: none  
 Visual Turbidity: X Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
<u>VOA + GAO</u>	<u>4 vials</u>		
<u>PPO TOPO</u>	<u>500 mL</u>		
<u>PAHS</u>	<u>250 mL</u>		
<u>Metals</u>	<u>plastic</u>		

Remarks: PID = 0ppm

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Site: Puma Terminal Project No. B00063767 Location: Bayamon

Sampling Team: Manuela / Fernando  
 Well ID: 15A Arrival Time: \_\_\_\_\_ Date: 6/10/16  
 Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>25.32</u> ft. TOC	Gallons per well casing (Well Volume):	<u>3.6</u> gal
Depth to Water:	<u>3.62</u> ft. TOC	Three well volumes (x3):	<u>11</u> gal
Depth to SPH:	<u>1.4</u> ft. TOC	Placement of Pump Intake:	<u>23</u> ft. TOC (Approx.)
Water Column in Well:	<u>21.7</u> ft.		
Gallons per foot:	<u>0.17</u> gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
0930	3.62	60ml / 165g							
0945	3.84		6.28	28.55	10.8	11.6	0.766	2.02	
0948	3.85		6.24	28.49	10.2	7.7	0.765	0.96	
0951	3.85		6.24	28.48	9.9	9.8	0.765	0.81	
0954	3.59		6.25	28.48	9.6	6.0	0.765	0.74	
0957	3.59		6.24	28.48	9.6	3.9	0.765	0.69	
1000	3.59		6.24	28.49	9.4	3.6	0.765	0.58	

**Sampling Data**

Sampling Method: Peristaltic (low) Sampling Time: 1000  
 Color: \_\_\_\_\_ Odor: none  
 Visual Turbidity: Y Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High \_\_\_\_\_

Analysis	Container Description	Preservative	Filtered y/n
<u>VOA + GW</u>	<u>4 metal</u>		
<u>PPO 1000</u>	<u>2 (500ML)</u>		
<u>metals</u>	<u>2 (250 ML)</u>		
	<u>1 plastic</u>		

Remarks: PID = 9ppm  
 Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Terminal Project No. B0063762 Location: Bayamon  
 Sampling Team: Mariaula / Fernando  
 Well ID: DP-5 Arrival Time: \_\_\_\_\_ Date: 6/10/14  
 Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>20.50</u> ft. TOC	Gallons per well casing	
Depth to Water:	<u>3.64</u> ft. TOC	(Well Volume):	<u>2.8</u> gal
Depth to SPH:	<u>NA</u> ft. TOC	Three well volumes (x3):	<u>8.5</u> gal
Water Column in Well:	<u>16.86</u> ft.	Placement of Pump Intake:	<u>18</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.17</u> gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
<u>1032</u>	<u>3.64</u>								
<u>1038</u>	<u>4.26</u>	<u>100 mL / 1.85 min</u>		<u>6.14</u>	<u>30.38</u>	<u>125.0</u>	<u>2.5</u>	<u>0.261</u>	<u>1.95</u>
<u>1041</u>	<u>4.28</u>			<u>5.95</u>	<u>30.18</u>	<u>132.2</u>	<u>1.7</u>	<u>0.257</u>	<u>1.67</u>
<u>1044</u>	<u>4.30</u>			<u>5.80</u>	<u>30.00</u>	<u>141.5</u>	<u>0.0</u>	<u>0.253</u>	<u>1.08</u>
<u>1047</u>	<u>4.31</u>			<u>5.75</u>	<u>29.96</u>	<u>141.1</u>	<u>-0.5</u>	<u>0.252</u>	<u>0.99</u>
<u>1050</u>	<u>4.33</u>			<u>5.75</u>	<u>30.00</u>	<u>141.5</u>	<u>-1.0</u>	<u>0.252</u>	<u>0.79</u>
<u>1053</u>	<u>4.34</u>			<u>5.76</u>	<u>29.99</u>	<u>141.6</u>	<u>-0.9</u>	<u>0.252</u>	<u>0.75</u>

**Sampling Data**

Sampling Method: Peristaltic (low) Sampling Time: 1116  
 Color: \_\_\_\_\_ Odor: none  
 Visual Turbidity: X Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: PID = 0ppm  
 Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Site: Puma Terminal Project No. B0063767 Location: Bayamón

Sampling Team: Marianela / Fernando

Well ID: MP-5A Arrival Time: \_\_\_\_\_ Date: 6/10/16

Well casing Dia.: 2 Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth: <u>64.45</u> ft. TOC	Gallons per well casing (Well Volume): <u>9.9</u> gal
Depth to Water: <u>5.80</u> ft. TOC	Three well volumes (x3): <u>30</u> gal
Depth to SPH: <u>NA</u> ft. TOC	Placement of Pump Intake: <u>61</u> ft. TOC (Approx.)
Water Column in Well: <u>58.65</u> ft.	
Gallons per foot: <u>0.17</u> gal	

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1120	5.80								
1123	5.83			6.94	29.59	-109.2	0.3	0.824	0.84
1126	5.81	<u>60ml / 1150s</u>		6.95	29.53	-109.7	0.0	0.824	0.80
1129	5.81			6.95	29.57	-110.2	-0.4	0.824	0.66
1132	5.82			6.95	29.55	-110.4	-0.4	0.824	0.61
1135	5.81			6.95	29.59	-110.8	-0.1	0.824	0.65

**Sampling Data**

Sampling Method: Peristaltic (low) Sampling Time: 1150

Color: \_\_\_\_\_ Odor: none

Visual Turbidity: ✓ Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: Pit = 0ppm

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Dona Bernal Project No. 130063767 Location: Cabo Norte Charca

Sampling Team: E. Wilson / M. Flores

Well ID: MW-MP 2 Arrival Time: 1405 Date: 06-15-14

Well casing Dia.: 1 1/2 Weather: Sunny Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>9.20</u> ft. TOC	Gallons per well casing	
Depth to Water:	<u>4.63</u> ft. TOC	(Well Volume):	<u>0.41</u> gal
Depth to SPH:	_____ ft. TOC	Three well volumes (x3):	<u>1.23</u> gal
Water Column in Well:	<u>4.57</u> ft.	Placement of Pump Intake:	<u>0.92</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.09</u> gal		

Well Purging Information and Field Parameters

Well Purging Method:

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal) ML	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1421	4.64								
1425	5.22	120	840	7.23	31.21	-98.6	10.9	0.765	1.40
1433	5.88	120	1,440	7.13	30.54	-82.9	8.2	0.758	1.63
1438	6.62	120	2,040	7.15	30.49	-73.2	2.7	0.744	1.32
1443	6.82	120	2,640	7.14	30.97	-62.6	19.4	0.743	1.49
1448	7.31	120	3,240	7.14	31.26	-55.3	13.1	0.745	1.87
1453	7.91	120	3,840	7.10	30.08	-44.4	5.0	0.722	1.08

Sampling Data

Sampling Method: LOW FLOW SYSTEM Sampling Time: 1524  
 Color: CLEAR Odor: NO  
 Visual Turbidity: \_\_\_\_\_ Clear X \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
<u>TPH, DIO, TPA, OPO</u>	<u>500ML LABAR ②</u>	<u>NONE</u>	<u>NO</u>
<u>PAAS</u>	<u>250ML LABAR ②</u>	<u>NONE</u>	<u>NO</u>
<u>URAC</u>	<u>250ML PLASTIC ①</u>	<u>HPO3</u>	<u>NO</u>
<u>BTEX, MTBE, CRU, TBO, CHLOR</u>	<u>470 ML</u>	<u>HCL</u>	<u>NO</u>

Remarks: Nota: No estabilizo se sugieren los 3 volúmenes

Sampler(s) Signature: [Signature]

WELL CASING VOLUMES (per foot of water column)

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Site: Puerto Terminal Project No. B0063767 Location: La Do Norte Charco

Sampling Team: F. Colon / M. Flores

Well ID: MW-DP1 Arrival Time: 12:35 Date: 06-15-16

Well casing Dia.: 1 1/2 Weather: Sunny Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>10.10</u> ft.	TOC	Gallons per well casing	
Depth to Water:	<u>4.45</u> ft.	TOC	(Well Volume):	<u>0.51</u> gal
Depth to SPH:	<u>5.65</u> ft.	TOC	Three well volumes (x3):	<u>1.53</u> gal
Water Column in Well:	<u>5.65</u> ft.		Placement of Pump Intake:	<u>7.30</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.09</u> gal			

Well Purging Information and Field Parameters

Well Purging Method:

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1259	4.44								
1304	4.85	200	1,000	7.50	31.54	-140.3	57.4	0.414	1.32
1309	5.15	200	2,000	7.30	31.34	-126.7	26.3	0.422	1.24
1314	7.05	160.0	2,800	7.28	31.34	-113.0	27.7	0.438	1.16
1319	7.65	160.	3,600	7.24	31.54	-94.8	157.4	6.444	1.34
1324	9.08	160	4,400	7.29	31.23	-125.8	102.3	0.023	1.44

Sampling Data

Sampling Method: Low Flow System Sampling Time: 1354  
 Color: limpio claro Odor: NO  
 Visual Turbidity: Clear  Low  Medium  High

Analysis	Container Description	Preservative	Filtered y/n
<u>TPA-DW, TPA-OP2</u>	<u>200ML Amber</u>	<u>NONE</u>	<u>2</u>
<u>PAHS</u>	<u>200ML Amber</u>	<u>NONE</u>	<u>2</u>
<u>LEADS</u>	<u>200ML Plastic</u>	<u>HNO3</u>	<u>2</u>
<u>MDE, PPE, TBA, GZA, Ethanol</u>	<u>400ML Vials</u>	<u>HCL</u>	<u>2</u>

Remarks: NOTA: NO SE ESTA LOGRADO SE FOR POR LOS 3 VOLUMENES

Sampler(s) Signature: [Signature]

WELL CASING VOLUMES (per foot of water column)

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Site: Puma Terminal Project No. B0063767 Location: Cabo Norte Etanol

Sampling Team: P. Colon / R. Flores

Well ID: MW-MPS Arrival Time: 0818 Date: 06-16-16

Well casing Dia.: 2 Weather: Sunny Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>26.10</u> ft. TOC	Gallons per well casing	
Depth to Water:	<u>7.24</u> ft. TOC	(Well Volume):	<u>3.02</u> gal
Depth to SPH:	_____ ft. TOC	Three well volumes (x3):	<u>9.06</u> gal
Water Column in Well:	<u>18.86</u> ft.	Placement of Pump Intake:	<u>16.67</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.16</u> gal		

Well Purging Information and Field Parameters

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal) <u>ML</u>	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
0834	7.20								
0841	9.14	120	840	6.54	28.40	135.7	-2.0	0.647	1.50
0846	9.78	120	1,440	6.52	28.39	137.3	-1.4	0.649	0.87
0851	10.79	120	2,040	6.55	28.51	135.4	-0.5	0.649	0.72
0854	11.61	120	2,640	6.56	28.45	134.4	-2.5	0.648	0.69
0901	12.39	120	3,240	6.54	28.75	133.9	-3.3	0.648	0.65
0906	13.26	96	3,720	6.60	28.93	134.7	-3.5	0.648	0.64
0911	13.94	96	4,200	6.60	29.27	134.1	-2.8	0.648	0.63
0916	14.43	96	4,680	6.61	29.51	133.8	-3.4	0.648	0.67
0921	14.56	96	5,160	6.61	29.70	133.8	-3.2	0.649	0.70
0926	14.61	96	5,640	6.61	29.75	133.9	-3.1	0.649	0.72

Sampling Data

Sampling Method: Low Flow System Sampling Time: 0945  
 Color: clear Odor: NO  
 Visual Turbidity: \_\_\_\_\_ Clear X \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
<u>TPA-DPO, TPA-ORO</u>	<u>① 500ML Amber</u>	<u>NONE</u>	<u>NO</u>
<u>PAHS</u>	<u>② 250ML Amber</u>	<u>NONE</u>	<u>NO</u>
<u>Lead</u>	<u>③ 250 ML PLASTIC</u>	<u>HNO3</u>	<u>NO</u>
<u>MIP, BTEX, TPA, GAO Ethanol</u>	<u>④ 40ML UBALS</u>	<u>HCL</u>	<u>NO</u>

Remarks: \_\_\_\_\_

Sampler(s) Signature: [Signature]

WELL CASING VOLUMES (per foot of water column)

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47



Site: Punta Bermejal Project No. B0063767 Location: Lado Norte Chacao

Sampling Team: F. Colon / M. Flores  
 Well ID: MW-mpa Arrival Time: 0950 Date: 06-16-16  
 Well casing Dia.: 1 1/2 Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth: <u>14.30</u> ft. TOC	Gallons per well casing
Depth to Water: <u>4.70</u> ft. TOC	(Well Volume): <u>0.864</u> gal
Depth to SPH: _____ ft. TOC	Three well volumes (x3): <u>2.592</u> gal
Water Column in Well: <u>9.60</u> ft.	Placement of Pump Intake: <u>9.50</u> ft. TOC (Approx.)
Gallons per foot: <u>0.09</u> gal	

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_


Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal) ML	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
0956	4.70								
1002	6.78	96	576	5.62	30.90	96.9	24.3	0.516	1.04
1007	6.50	96	1,056	5.46	30.48	107.5	44.3	0.511	0.71
1012	6.26	96	1,536	5.50	30.54	96.0	62.7	0.557	0.64
1017	6.24	96	2,016	5.55	30.54	78.2	36.5	0.653	0.55
1022	6.29	96	2,496	5.58	30.46	66.2	32.6	0.888	0.68
1027	6.34	96	2,976	5.59	30.22	66.4	37.2	1.192	0.58
1032	6.28	96	3,456	5.61	30.31	61.2	14.9	1.243	0.56
1037	6.23	96	3,936	5.60	30.81	63.2	15.7	1.439	0.54
1042	6.27	96	4,416	5.58	30.92	69.8	19.8	1.478	0.57

**Sampling Data**

Sampling Method: Low Flow System Sampling Time: 1058  
 Color: Clean Odor: NO  
 Visual Turbidity: \_\_\_\_\_ Clear  \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
<u>TPA-D10, TPA-D20</u>	<u>2 300 mL Amber</u>	<u>NONE</u>	<u>2/2</u>
<u>PAHs</u>	<u>2 250 mL Amber</u>	<u>NONE</u>	<u>2/2</u>
<u>LEAD</u>	<u>1 250 mL Plastic</u>	<u>HNO3</u>	<u>1/1</u>
<u>MIB3, BTEX, TBA, Gas, Ethanol</u>	<u>4 40 mL Vials</u>	<u>HCL</u>	<u>4/4</u>

Remarks: \_\_\_\_\_

Sampler(s) Signature: 

WELL CASING VOLUMES (per foot of water column)

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Site: Punta Terminal Project No. B0063767 Location: Cabo Norte Charca

Sampling Team: R. Colon / M. Flores

Well ID: MW-MP3 Arrival Time: 1154 Date: 06-16-16

Well casing Dia.: 1 1/2 Weather: SUNNY Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>14.54</u> ft. TOC	Gallons per well casing	<u>945</u>
Depth to Water:	<u>4.02</u> ft. TOC	(Well Volume):	<u>354</u> gal
Depth to SPH:	_____ ft. TOC	Three well volumes (x3):	<u>2.54</u> gal
Water Column in Well:	<u>10.50</u> ft.	Placement of Pump Intake:	<u>9.27</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.09</u> gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1209	4.02								
1216	4.84	80	560	5.89	31.49	11.7	18.6	0.733	1.30
1221	5.35	80	960	5.89	31.30	9.7	18.8	0.704	1.19
1226	6.04	80	1360	5.92	31.17	5.1	35.7	0.660	1.24
1231	6.73	80	1760	6.07	31.48	-4.4	41.8	0.654	1.12
1234	7.80	80	2,160	6.24	31.53	-20.1	37.2	0.679	1.57
1241	8.15	80	2,560	6.22	32.01	-35.2	37.3	0.682	1.58
1246	8.61	80	2,960	6.25	32.04	-13.4	24.3	0.684	2.20
1251	8.93	80	3,360	6.29	32.18	-18.5	34.4	0.684	3.10
1254	9.21	80	3,760	6.00	32.41	6.1	283.8	0.770	2.45
1301	8.47	80	4,160	5.94	32.82	25.0	212.6	0.783	1.99

**Sampling Data**

Sampling Method: Low Flow System Sampling Time: 1330

Color: \_\_\_\_\_ Odor: \_\_\_\_\_

Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
<u>TPH-DW, TPH-ORG</u>	<u>2 500ML Amber</u>	<u>NONE</u>	<u>N</u>
<u>PHS</u>	<u>2 250ML Amber</u>	<u>NONE</u>	<u>N</u>
<u>Lead</u>	<u>1 250ML Plastic</u>	<u>HNO3</u>	<u>N</u>
<u>Ni, DE, BTEX, TBA, GEA, Ethanol</u>	<u>4 40ML Vials</u>	<u>HCL</u>	<u>N</u>

Remarks: Nota! No estubo listo se subio el caudal para sacar los 3 volúmenes

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Site: Puma Terminal Project No. 130063707 Location: Lado Norte Chavica

Sampling Team: M. Flores / P. Colon  
 Well ID: WU-MF4 Arrival Time: 1103 Date: 06-16-16  
 Well casing Dia.: 1 1/2 Weather: SUNNY Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>11.00</u> ft. TOC	Gallons per well casing	
Depth to Water:	<u>7.07</u> ft. TOC	(Well Volume):	<u>.354</u> gal
Depth to SPH:	_____ ft. TOC	Three well volumes (x3):	<u>1.06</u> gal
Water Column in Well:	<u>3.93</u> ft.	Placement of Pump Intake:	<u>10.0</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.09</u> gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1126	7.07								
1136	9.20	96		6.44	31.44	-10.3	1.0	1.178	1.17
1141	9.80	96		6.48	31.23	13.5	7.8	1.125	1.09
1146	10.80	96		6.50	31.40	11.3	1.9	1.133	1.12
1150	11.09	96		<del>6.50</del>	<del>31</del>				
		Se Seco							
1205	10.72								
1220	10.49								
1235	10.28								
1250	9.93								
1425	9.08								
1441	- Se Seco								

**Sampling Data**

Sampling Method: LOW FLOW SYSTEM Sampling Time: 0754 / 0621-16  
 Color: \_\_\_\_\_ Odor: \_\_\_\_\_  
 Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
TPH-DRO, TPH-ORO	② 500ML Amber	NONE	2222
PAHS	② 250ML Amber	NONE	2222
LEAD	① 250ML Plastic	HNO3	2222
MIBB, BTEX, TBA, GAO, Ethanol	④ 40ML VIALS	HCL	2222

Remarks: NOTA: DIA DE MUESTRA 06-21-16 (MUESTRA DIRECTA)  
 Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Site: Puma Terminal Project No. 100063767 Location: Antiguo Almacén *Parcial de la zona*

Sampling Team: F. Cobos / M. Flores  
 Well ID: MW-76A Arrival Time: 1220 Date: 06-21-16  
 Well casing Dia.: \_\_\_\_\_ Weather: Sunny Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>89.60</u> ft. TOC	Gallons per well casing (Well Volume):	<u>8.02</u> gal
Depth to Water:	<u>9.50</u> ft. TOC	Three well volumes (x3):	<u>24.06</u> gal
Depth to SPH:	_____ ft. TOC	Placement of Pump Intake:	<u>22.0</u> ft. TOC (Approx.)
Water Column in Well:	<u>50.1</u> ft.		
Gallons per foot:	<u>0.16</u> gal		

Well Purging Information and Field Parameters

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1230	<u>9.50</u>								
1235	<u>9.53</u>	<u>200</u>	<u>1000</u>	<u>6.75</u>	<u>27.89</u>	<u>-20.2</u>	<u>-7.2</u>	<u>0.596</u>	<u>1.24</u>
1238	<u>9.53</u>	<u>200</u>	<u>1600</u>	<u>6.72</u>	<u>27.62</u>	<u>-29.2</u>	<u>-8.1</u>	<u>0.607</u>	<u>0.71</u>
1241	<u>9.52</u>	<u>200</u>	<u>2200</u>	<u>6.72</u>	<u>27.58</u>	<u>-33.5</u>	<u>-9.5</u>	<u>0.609</u>	<u>0.71</u>
1244	<u>9.52</u>	<u>200</u>	<u>2800</u>	<u>6.72</u>	<u>27.52</u>	<u>-37.4</u>	<u>-9.4</u>	<u>0.610</u>	<u>0.71</u>
1247	<u>9.52</u>	<u>200</u>	<u>3400</u>	<u>6.73</u>	<u>27.56</u>	<u>-41.1</u>	<u>-10.0</u>	<u>0.611</u>	<u>0.71</u>
1250	<u>9.52</u>	<u>200</u>	<u>4000</u>	<u>6.74</u>	<u>27.53</u>	<u>-41.2</u>	<u>-10.1</u>	<u>0.612</u>	<u>0.71</u>

Sampling Data

Sampling Method: Low Flow System Sampling Time: 1303  
 Color: Clear Odor: NO  
 Visual Turbidity: X Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High \_\_\_\_\_

Analysis	Container Description	Preservative	Filtered y/n
<u>TPA - DAW, ORP</u>	<u>500 ML Subsan</u>	<u>NONE</u>	<u>N</u>
<u>PAHS</u>	<u>250 ML Subsan</u>	<u>NONE</u>	<u>N</u>
<u>LEADS</u>	<u>250 ML PLASTIC</u>	<u>HNO3</u>	<u>N</u>
<u>MTOP, BTEX, TPA, GAO Ethanol</u>	<u>20 ML VIALS</u>	<u>HCL</u>	<u>N</u>

Remarks: \_\_\_\_\_  
 Sampler(s) Signature: [Signature]

WELL CASING VOLUMES (per foot of water column)

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Terminal Project No. B0063767 Location: PASADAL DOTRAS ANTIGUALMACEN

Sampling Team: R. Colon / M. Flores

Well ID: MW-7632 Arrival Time: 1116 Date: 00-21-16

Well casing Dia.: 2" Weather: SUNNY Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>1734</u> ft. TOC	Gallons per well casing	
Depth to Water:	<u>6.99</u> ft. TOC	(Well Volume):	<u>1.66</u> gal
Depth to SPH:	<u>10.35</u> ft. TOC	Three well volumes (x3):	<u>4.98</u> gal
Water Column in Well:	_____ ft.	Placement of Pump Intake:	<u>12.77</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.16</u> gal		

**Well Purging Information and Field Parameters**

Well Purging Method:

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1132	7.00								
1134	7.08	200	800	5.92	27.78	41.8	-1.8	0.468	1.27
1139	7.09	200	1400	5.89	27.39	37.5	-0.9	0.469	0.77
1142	7.11	200	2000	5.91	27.31	32.2	-2.2	0.467	0.68
1145	7.12	200	2600	5.94	27.24	27.1	-3.4	0.465	0.78
1148	7.13	200	3200	5.96	27.27	24.6	-2.5	0.465	0.59
1151	7.15	200	3800	5.96	27.22	22.5	-2.3	0.465	0.62
1154	7.15	200	4400	5.95	27.22	22.5	-2.1	0.465	0.51
1157	7.16	200	5000	5.83	27.22	22.7	-2.2	0.465	0.56

**Sampling Data**

Sampling Method: Low Flow System

Sampling Time: 1215

Color: CLEAR

Odor: NONE

Visual Turbidity: X Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
<u>TPA-DW, ORP</u>	<u>500ml Amber</u>	<u>NONE</u>	<u>N</u>
<u>PHS</u>	<u>250ml Amber</u>	<u>NONE</u>	<u>N</u>
<u>Lead</u>	<u>250ml Plastic</u>	<u>HNO3</u>	<u>N</u>
<u>Mn, Bi, T, Cd, Cr, Etanol</u>	<u>40ml Vials</u>	<u>HCl</u>	<u>N</u>

Remarks: \_\_\_\_\_

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Site: POMA Terminal Project No. 130063767 Location: \_\_\_\_\_

Sampling Team: F. Wilson / M. Flores

Well ID: MW-03108 Arrival Time: 0954 Date: 06-21-16

Well casing Dia.: 2" Weather: SOPNY Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>19.35</u> ft. TOC	Gallons per well casing	
Depth to Water:	<u>5.35</u> ft. TOC	(Well Volume):	<u>224</u> gal
Depth to SPH:	_____ ft. TOC	Three well volumes (x3):	<u>672</u> gal
Water Column in Well:	<u>13.97</u> ft.	Placement of Pump Intake:	<u>12.18</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.16</u> gal		

Well Purging Information and Field Parameters

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1011	5.40								
1017	5.43	200	1200	5.28	30.26	164.1	55.5	0.210	1.61
1020	5.43	200	1800	5.23	30.99	175.9	47.9	0.200	2.31
1023	5.43	200	2400	5.21	31.05	172.2	59.4	0.202	1.45
1024	5.43	200	3000	5.23	30.88	167.8	28.00	0.206	0.91
1029	5.43	200	3600	5.26	31.07	160.3	375.0	0.211	0.53
1032	5.43	200	4200	5.27	30.87	151.5	41.3	0.212	1.04
1035	5.43	200	4800	5.28	31.02	147.8	192.6	0.213	0.41
1038	5.43	200	5400	5.30	31.19	145.0	27.0	0.214	0.89
1041	5.43	200	6000	5.28	31.26	145.3	13.1	0.215	0.58
1044	5.43	200	6.00	5.30	31.32	144.2	20.5	0.215	0.35

Sampling Data

Sampling Method: Low Flow Suction Sampling Time: 1056  
 Color: CLEAN Odor: NONE  
 Visual Turbidity: Y Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High \_\_\_\_\_

Analysis	Container Description	Preservative	Filtered y/n
<u>TPH-DAG, ORO</u>	<u>250ml Amber</u>	<u>NONE</u>	<u>Y</u>
<u>PAHs</u>	<u>250ml Amber</u>	<u>NONE</u>	<u>Y</u>
<u>LEAD</u>	<u>DISONAL PLASTIC</u>	<u>HNO3</u>	<u>Y</u>
<u>MEB, BTEX, TBA, GAO, GMA</u>	<u>40ml Vials</u>	<u>HCL</u>	<u>Y</u>

Remarks: \_\_\_\_\_

Sampler(s) Signature: [Signature]

WELL CASING VOLUMES (per foot of water column)

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Site: Punta Remedial Project No. B0063267 Location: Cabo Rojo Chloro

Sampling Team: Fernando C. / Marcel R.

Well ID: MW-BB107 Arrival Time: 0848 Date: 06-21-16

Well casing Dia.: 2" Weather: Sunny/Cloudy Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>23.05</u> ft. TOC	Gallons per well casing	
Depth to Water:	<u>5.22</u> ft. TOC	(Well Volume):	<u>2.55</u> gal
Depth to SPH:	_____ ft. TOC	Three well volumes (x3):	<u>8.55</u> gal
Water Column in Well:	<u>17.83</u> ft.	Placement of Pump Intake:	<u>14.14</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.16</u> gal		

Well Purging Information and Field Parameters

Well Purging Method:

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal) <del>ml</del>	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
0908	<u>5.22</u>								
0913	<u>5.49</u>	<u>200</u>	<u>1,000</u>	<u>4.84</u>	<u>29.10</u>	<u>144.0</u>	<u>25.0</u>	<u>0.534</u>	<u>1.05</u>
0916	<u>5.51</u>	<u>200</u>	<u>2,000</u>	<u>4.75</u>	<u>29.44</u>	<u>151.5</u>	<u>25.9</u>	<u>0.535</u>	<u>1.01</u>
0919	<u>5.51</u>	<u>200</u>	<u>2,200</u>	<u>4.75</u>	<u>29.19</u>	<u>154.6</u>	<u>34.5</u>	<u>0.538</u>	<u>0.59</u>
0922	<u>5.53</u>	<u>200</u>	<u>2,400</u>	<u>4.77</u>	<u>29.24</u>	<u>150.1</u>	<u>19.4</u>	<u>0.548</u>	<u>0.52</u>
0925	<u>5.53</u>	<u>200</u>	<u>3,400</u>	<u>4.77</u>	<u>29.12</u>	<u>154.4</u>	<u>19.0</u>	<u>0.542</u>	<u>0.61</u>
0928	<u>5.54</u>	<u>200</u>	<u>4,000</u>	<u>4.78</u>	<u>29.22</u>	<u>154.2</u>	<u>19.0</u>	<u>0.542</u>	<u>0.52</u>

Sampling Data

Sampling Method: Low Flow System Sampling Time: 0939

Color: Clear Odor: None

Visual Turbidity: Y Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High \_\_\_\_\_

Analysis	Container Description	Preservative	Filtered y/n
<u>TPH, DR, ORP</u>	<u>250ml Amber</u>	<u>None</u>	<u>Y</u>
<u>PAHs</u>	<u>250ml Amber</u>	<u>None</u>	<u>Y</u>
<u>LEAD</u>	<u>250ml Plastic</u>	<u>HNO3</u>	<u>Y</u>
<u>MTBE, BTEX, TBA, GA Ethanol</u>	<u>40ml Vials</u>	<u>HCl</u>	<u>Y</u>

Remarks: \_\_\_\_\_

Sampler(s) Signature: [Signature]

WELL CASING VOLUMES (per foot of water column)

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Site: Puma Terminal Project No. B0063767 Location: Bayamo

Sampling Team: Fernando + Mariacela  
 Well ID: 65A Arrival Time: \_\_\_\_\_ Date: 6/22/16  
 Well casing Dia.: 4" Weather: Sunny Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>20.55</u> ft. TOC	Gallons per well casing	
Depth to Water:	<u>3.36</u> ft. TOC	(Well Volume):	<u>11</u> gal
Depth to SPH:	_____ ft. TOC	Three well volumes (x3):	<u>33</u> gal
Water Column in Well:	<u>17.19</u> ft.	Placement of Pump Intake:	<u>18</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.65</u> gal		

Well Purging Information and Field Parameters

Well Purging Method:

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
<del>0915</del>	<del>3.36</del>								
<del>0932</del>	<del>3.84</del>	<u>60ml/20sec</u>		<u>6.66</u>	<u>29.62</u>	<u>102.6</u>	<u>30.3</u>	<u>0.479</u>	<u>2.18</u>
<del>0935</del>	<del>4.00</del>			<u>6.66</u>	<u>29.60</u>	<u>105.3</u>	<u>29.5</u>	<u>0.477</u>	<u>1.71</u>
<del>0938</del>	<del>4.20</del>	<u>60ml/20sec</u>		<u>6.65</u>	<u>29.61</u>	<u>109.3</u>	<u>23.7</u>	<u>0.474</u>	<u>1.83</u>
<del>0941</del>	<del>4.29</del>			<u>6.65</u>	<u>29.60</u>	<u>110.5</u>	<u>17.0</u>	<u>0.473</u>	<u>1.89</u>
<del>0944</del>	<del>4.33</del>			<u>6.65</u>	<u>29.67</u>	<u>110.4</u>	<u>24.5</u>	<u>0.473</u>	<u>1.90</u>
<del>0947</del>	<del>4.37</del>			<u>6.65</u>	<u>29.72</u>	<u>110.8</u>	<u>24.0</u>	<u>0.473</u>	<u>1.92</u>

Sampling Data

Sampling Method: Denitrific (low) Sampling Time: 1015  
 Color: \_\_\_\_\_ Odor: None  
 Visual Turbidity: X Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: PID = 0ppm VOC + MS/MSD-65A

Sampler(s) Signature: Mariacela

WELL CASING VOLUMES (per foot of water column)

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C



Site: Puma Terminal Project: Oil

Sampling Team: Marcos

Well ID: 87A Arrival Time: \_\_\_\_\_

Well casing Dia.: 2" Weather: \_\_\_\_\_

Well Depth:	<u>22.27</u>	ft.
Depth to Water:	<u>14.74</u>	ft.
Depth to SPH:	<u>—</u>	ft.
Water Column in Well:	<u>7.53</u>	ft.
Gallons per foot:	<u>0.17</u>	gal

Well Purging

Well Purging Method:

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (g)
<u>11:05</u>	<u>14.74</u>		
<u>11:15</u>	<u>14.78</u>	<u>60ml / 12 sec</u>	
<u>11:18</u>	<u>14.78</u>		
<u>11:21</u>	<u>14.78</u>		
<u>11:24</u>	<u>14.78</u>		
<u>11:27</u>	<u>14.79</u>		
<u>11:30</u>	<u>14.79</u>		
<u>11:33</u>	<u>14.79</u>		

Sampling Method: Peristaltic Pump

Color: \_\_\_\_\_

Visual Turbidity: X Clear \_\_\_\_\_

Analysis Container Description: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Remarks: PID = 0

Sampler(s) Signature: \_\_\_\_\_

WELL CASING: 2"  
 1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.25

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit

Site: Puma Terminal Project No. B0013767 Location: Bayamon

Sampling Team: Miranda + Fernando  
 Well ID: 87A Arrival Time: \_\_\_\_\_ Date: 11/22/16  
 Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>22.77</u> ft. TOC	Gallons per well casing (Well Volume):	<u>1.2</u> gal
Depth to Water:	<u>14.74</u> ft. TOC	Three well volumes (x3):	<u>3.8</u> gal
Depth to SPH:	_____ ft. TOC	Placement of Pump Intake:	<u>20</u> ft. TOC (Approx.)
Water Column in Well:	<u>7.53</u> ft.		
Gallons per foot:	<u>0.17</u> gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
11:05	14.74								
11:15	14.78	60ml / 12 sec		7.01	20.14	93.7	-18.5	0.641	2.47
11:18	14.78		7.01	29.99	98.4	-3.8	0.630	2.38	
11:21	14.78			7.02	29.98	97.6	-3.6	0.624	2.32
11:24	14.78			7.02	29.84	100.4	-3.2	0.621	2.31
11:27	14.79			7.01	29.89	101.7	-8.3	0.619	2.19
11:30	14.79			7.02	29.96	102.3	-5.3	0.618	2.16
11:33	14.79			6.99	29.97	104.5	-9.3	0.617	2.18

**Sampling Data**

Sampling Method: Peristaltic (low) Sampling Time: 11:58  
 Color: \_\_\_\_\_ Odor: none  
 Visual Turbidity: X Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: PID = O ppm VOC

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Site: Puma Terminal Project No. B0063767 Location: Bayamon

Sampling Team: Fernando + Mariacela  
 Well ID: SUA Arrival Time: \_\_\_\_\_ Date: 6/22/16  
 Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>24.05</u> ft. TOC	Gallons per well casing (Well Volume):	<u>3.3</u> gal
Depth to Water:	<u>4.24</u> ft. TOC	Three well volumes (x3):	<u>10</u> gal
Depth to SPH:	_____ ft. TOC	Placement of Pump Intake:	<u>22</u> ft. TOC (Approx.)
Water Column in Well:	<u>19.81</u> ft.		
Gallons per foot:	<u>0.17</u> gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
0800	4.24	<u>60ml / 20sec</u>							
0810	4.64		6.33	28.92	-51.9	25.3	1.436	1.26	
0814	4.68		6.30	29.13	-42.7	4.5	1.476	0.72	
0816	4.71		6.27	29.14	-41.6	0.7	1.503	0.75	
0819	4.67		6.26	29.18	-39.7	-1.1	1.529	0.60	
0821			6.25	29.20	-36.9	-0.9	1.543	0.63	

**Sampling Data**

Sampling Method: Peristaltic (low) Sampling Time: 0900  
 Color: \_\_\_\_\_ Odor: None  
 Visual Turbidity: X Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: PID = 2.7 ppm VOC + Dup 3

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Site: Puma Terminal Project No. B0063907 Location: Bayamon

Sampling Team: Mananile + fernandez  
 Well ID: 99A Arrival Time: \_\_\_\_\_ Date: 6/23/16  
 Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>17.62</u> ft. TOC	Gallons per well casing (Well Volume):	<u>0.9</u> gal
Depth to Water:	<u>17.38</u> ft. TOC	Three well volumes (x3):	<u>2.6</u> gal
Depth to SPH:	_____ ft. TOC	Placement of Pump Intake:	<u>15</u> ft. TOC (Approx.)
Water Column in Well:	<u>5.24</u> ft.		
Gallons per foot:	<u>0.17</u> gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1326	12.38	<u>10 ml/30 sec</u>							
1329	12.75		5.39	31.79	207.6	-1.0	0.205	3.09	
1332	12.82		5.31	31.70	203.4	-4	0.206	2.90	
1337	12.85		5.30	31.69	202.1	-10.8	0.206	2.89	
1342	12.89		5.30	31.68	200.3	-11.3	0.206	2.87	
1346	12.91		5.30	31.68	200.1	-12.5	0.206	2.86	

**Sampling Data**

Sampling Method: Peristaltic (ev) Sampling Time: 1432  
 Color: \_\_\_\_\_ Odor: none  
 Visual Turbidity: 4 Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: PID = 0 ppm VOC

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Terminal Project No. B0063767 Location: Bayama  
 Sampling Team: Maiaraub + Fernando  
 Well ID: 98A Arrival Time: \_\_\_\_\_ Date: 6/23/16  
 Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>16.99</u> ft. TOC	Gallons per well casing (Well Volume):	<u>1.5</u> gal
Depth to Water:	<u>7.99</u> ft. TOC	Three well volumes (x3):	<u>4.5</u> gal
Depth to SPH:	<u>NA</u> ft. TOC	Placement of Pump Intake:	<u>13</u> ft. TOC (Approx.)
Water Column in Well:	<u>9.0</u> ft.		
Gallons per foot:	<u>0.17</u> gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
<u>1240</u>	<u>8.47</u>	<u>100ml/2.54'</u>		<u>5.66</u>	<u>31.21</u>	<u>61.2</u>	<u>72.0</u>	<u>0.834</u>	<u>1.30</u>
<u>1244</u>	<u>8.50</u>	<u>100ml/2.54'</u>		<u>5.66</u>	<u>31.29</u>	<u>62.2</u>	<u>17.7</u>	<u>0.833</u>	<u>1.29</u>
<u>1248</u>	<u>8.56</u>	<u>100ml/3.0'</u>		<u>5.66</u>	<u>31.29</u>	<u>62.3</u>	<u>17.6</u>	<u>0.832</u>	<u>1.31</u>
<u>1252</u>	<u>8.59</u>	<u>100ml/3.0'</u>		<u>5.66</u>	<u>31.32</u>	<u>62.4</u>	<u>18.1</u>	<u>0.832</u>	<u>1.29</u>
<u>1256</u>	<u>8.62</u>	<u>100ml/3.0'</u>		<u>5.65</u>	<u>31.32</u>	<u>63.4</u>	<u>16.2</u>	<u>0.832</u>	<u>1.28</u>
<u>1260</u>	<u>8.68</u>			<u>5.65</u>	<u>31.32</u>	<u>63.7</u>	<u>16.1</u>	<u>0.832</u>	<u>1.28</u>
<u>1255</u>	<u>8.72</u>			<u>5.65</u>	<u>31.32</u>	<u>63.9</u>	<u>16.0</u>	<u>0.832</u>	<u>1.27</u>

**Sampling Data**

Sampling Method: Distalatic (low) Sampling Time: 1310  
 Color: \_\_\_\_\_ Odor: None  
 Visual Turbidity: X Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: Pit = 0 ppm VOC  
 Sampler(s) Signature: (Signature)

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65

Site: Puma Terminal Project No. B0063767 Location: Bayamon

Sampling Team: Mariauel + Armando  
 Well ID: 88A Arrival Time: \_\_\_\_\_ Date: 6/24/16  
 Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>17.46</u> ft. TOC	Gallons per well casing (Well Volume):	<u>1.9</u> gal
Depth to Water:	<u>6.01</u> ft. TOC	Three well volumes (x3):	<u>5.8</u> gal
Depth to SPH:	_____ ft. TOC	Placement of Pump Intake:	<u>14</u> ft. TOC (Approx.)
Water Column in Well:	<u>11.45</u> ft.		
Gallons per foot:	<u>0.17</u> gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
	<del>17.46</del>								
0807	6.01	100ml / 30s		5.61	29.71	74.5	26.0	1.244	1.52
0825	6.42		5.60	29.75	75.0	17.9	1.245	1.30	
0810	6.55		5.59	29.84	78.2	12.9	1.244	1.27	
0813	6.65		5.59	29.82	79.5	15.6	1.246	1.23	
0816	6.74		5.59	30.01	78.1	13.7	1.246	1.24	
0820	6.86		5.58	30.10	81.8	12.7	1.245	1.27	

**Sampling Data**

Sampling Method: pneumatic (cow) Sampling Time: 0900  
 Color: \_\_\_\_\_ Odor: none  
 Visual Turbidity: X Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: PID = 9ppm VOC

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Site: Puma Terminal Project No. B0063707 Location: Bayamon  
 Sampling Team: Marianela + Fernando  
 Well ID: P-120 Arrival Time: \_\_\_\_\_ Date: 6/24/14  
 Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>20.24</u> ft. TOC	Gallons per well casing (Well Volume):	_____ gal
Depth to Water:	<u>18.36</u> ft. TOC	Three well volumes (x3):	_____ gal
Depth to SPH:	_____ ft. TOC	Placement of Pump Intake:	<u>23</u> ft. TOC (Approx.)
Water Column in Well:	_____ ft.		
Gallons per foot:	<u>0.17</u> gal		

Well Purging Information and Field Parameters

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1100	18.36	<u>60ml/30s</u>							
1120	18.57		6.97	30.07	108.1	14.7	0.830	1.02	
1125	18.57		6.95	30.14	107.3	12.4	0.829	1.09	
1130	18.57		6.95	30.26	108.1	13.2	0.829	1.02	
1135	18.57		6.90	30.35	107.8	9.5	0.829	1.09	
1140	18.57		6.93	30.44	106.5	8.7	0.828	0.99	
1145	18.57		6.92	30.47	108.4	8.2	0.828	0.97	
1150	18.57		6.92	30.50	107.3	8.5	0.828	0.97	
1200	18.57		6.91	30.52	108.2	9.0	0.828	0.96	

Sampling Data

Sampling Method: Repetitive (low) Sampling Time: 1230  
 Color: \_\_\_\_\_ Odor: none  
 Visual Turbidity: ✓ Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: DID = 0 PPM VOC

Sampler(s) Signature: Melato

WELL CASING VOLUMES (per foot of water column)

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Site: Puma Terminal Project No. B0063907 Location: Bayamon

Sampling Team: Marianela + Fernandes  
 Well ID: 18D Arrival Time: \_\_\_\_\_ Date: 6/24/16  
 Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth: <u>47.70</u> ft. TOC	Gallons per well casing (Well Volume): <u>4.7</u> gal
Depth to Water: <u>15.04</u> ft. TOC	Three well volumes (x3): <u>14.1</u> gal
Depth to SPH: _____ ft. TOC	Placement of Pump Intake: <u>34</u> ft. TOC (Approx.)
Water Column in Well: <u>27.66</u> ft.	
Gallons per foot: <u>0.17</u> gal	

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
<del>0946</del>	<u>15.04</u>								
<del>0949</del>	<u>16.34</u>	<u>60ml / 12 sec</u>		<u>6.81</u>	<u>29.59</u>	<u>57.0</u>	<u>7.4</u>	<u>1.000</u>	<u>1.51</u>
<del>0952</del>	<u>16.32</u>			<u>6.82</u>	<u>29.76</u>	<u>65</u>	<u>-7.1</u>	<u>1.004</u>	<u>1.45</u>
<del>0956</del>	<u>16.30</u>			<u>6.83</u>	<u>29.74</u>	<u>66.8</u>	<u>-9.2</u>	<u>1.006</u>	<u>1.37</u>
<del>0959</del>	<u>16.28</u>	<u>60ml / 18 sec</u>		<u>6.83</u>	<u>29.81</u>	<u>69.7</u>	<u>-9.1</u>	<u>1.007</u>	<u>1.32</u>
<del>1006</del>	<u>16.26</u>			<u>6.83</u>	<u>29.91</u>	<u>74.0</u>	<u>1.5</u>	<u>1.009</u>	<u>1.00</u>
<del>1004</del>	<u>16.24</u>			<u>6.83</u>	<u>30.00</u>	<u>73.9</u>	<u>-1.7</u>	<u>1.008</u>	<u>0.99</u>
<del>1007</del>	<u>16.22</u>			<u>6.86</u>	<u>30.05</u>	<u>73.4</u>	<u>-1.8</u>	<u>1.008</u>	<u>0.95</u>

**Sampling Data**

Sampling Method: peristaltic (low) Sampling Time: 1037  
 Color: \_\_\_\_\_ Odor: none  
 Visual Turbidity:  Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: VOC = 9 ppm

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47



Site: Puma Terminal Project No. B0063907 Location: Bayamón

Sampling Team: Mariana + Fernando  
 Well ID: AD-3 Arrival Time: \_\_\_\_\_ Date: 6/27/14  
 Well casing Dia.: 2" Weather: sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>15.27</u> ft. TOC	Gallons per well casing (Well Volume):	<u>1.3</u> gal
Depth to Water:	<u>7.54</u> ft. TOC	Three well volumes (x3):	<u>4</u> gal
Depth to SPH:	_____ ft. TOC	Placement of Pump Intake:	<u>11.5</u> ft. TOC (Approx.)
Water Column in Well:	<u>7.68</u> ft.		
Gallons per foot:	<u>0.17</u> gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1040	7.54	<u>60ml / 27 sec</u>							
1045	8.00		5.76	30.11	155.6	18.5	0.280	3.56	
1048	8.17		5.71	30.02	166.0	17.2	0.288	3.59	
1051	8.29		5.71	30.01	173.3	15.3	0.288	3.49	
1054	8.37		5.70	30.00	175.3	17.9	0.288	3.41	
1057	8.46		5.70	30.00	176.7	18.4	0.287	3.47	
1100	8.54		5.70	29.98	177.7	19.6	0.287	3.45	
1103	8.62		5.69	29.94	182.4	20.0	0.287	3.35	

**Sampling Data**

Sampling Method: quasi-static (flow) Sampling Time: 1137  
 Color: \_\_\_\_\_ Odor: none  
 Visual Turbidity: X Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: VOC = 0 ppm  
 Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Site: Turkey Terminal Project No. B0063767 Location: Bayamón

Sampling Team: Marianela + Fernando  
 Well ID: AD-4 Arrival Time: \_\_\_\_\_ Date: 6/27/16  
 Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>19.99</u> ft. TOC	Gallons per well casing (Well Volume):	<u>1.8</u> gal
Depth to Water:	<u>9.29</u> ft. TOC	Three well volumes (x3):	<u>5.4</u> gal
Depth to SPH:	_____ ft. TOC	Placement of Pump Intake:	<u>15</u> ft. TOC (Approx.)
Water Column in Well:	<u>10.7</u> ft.		
Gallons per foot:	<u>0.17</u> gal		

Well Purging Information and Field Parameters

Well Purging Method:

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
<u>0910</u>	<u>9.29</u>								
<u>0920</u>	<u>9.55</u>	<u>60ml/285s</u>		<u>5.76</u>	<u>29.40</u>	<u>25.5</u>	<u>-19.7</u>	<u>0.315</u>	<u>1.58</u>
<u>0923</u>	<u>9.65</u>		<u>5.59</u>	<u>29.26</u>	<u>100.8</u>	<u>5.0</u>	<u>0.307</u>	<u>1.48</u>	
<u>0926</u>			<u>5.56</u>	<u>29.31</u>	<u>72.7</u>		<u>0.305</u>		
<u>0929</u>	<u>(discharged battery: changing) (YSI).</u>								
<u>0934</u>	<u>9.78</u>			<u>5.46</u>	<u>29.36</u>	<u>96.5</u>	<u>4.3</u>	<u>0.300</u>	<u>1.23</u>
<u>0940</u>	<u>9.82</u>			<u>5.43</u>	<u>29.28</u>	<u>100.8</u>	<u>4.2</u>	<u>0.299</u>	<u>1.30</u>
<u>0945</u>	<u>9.93</u>			<u>5.42</u>	<u>29.39</u>	<u>104.3</u>	<u>1.4</u>	<u>0.299</u>	<u>1.34</u>

Sampling Data

Sampling Method: peristaltic (low) Sampling Time: 1028  
 Color: \_\_\_\_\_ Odor: None  
 Visual Turbidity:  Clear  Low  Medium  High

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: WOC = 13.4 ppm  
 Sampler(s) Signature: Melatts

WELL CASING VOLUMES (per foot of water column)

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Site: Puma Terminal Project No. B0063767 Location: Bayamón

Sampling Team: Marianela + Fernando  
 Well ID: 33A Arrival Time: \_\_\_\_\_ Date: 6/27/14  
 Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>26.54</u> ft. TOC	Gallons per well casing (Well Volume):	<u>3.2</u> gal
Depth to Water:	<u>7.71</u> ft. TOC	Three well volumes (x3):	<u>9</u> gal
Depth to SPH:	_____ ft. TOC	Placement of Pump Intake:	<u>22</u> ft. TOC (Approx.)
Water Column in Well:	<u>18.83</u> ft.		
Gallons per foot:	<u>0.17</u> gal		

Well Purging Information and Field Parameters

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
<u>0750</u>	<u>7.71</u>	<u>60ml / 2090</u>							
<u>0825</u>	<u>9.34</u>		<u>6.57</u>	<u>27.96</u>	<u>-87</u>	<u>-7.5</u>	<u>0.288</u>	<u>1.14</u>	
<u>0830</u>	<u>9.56</u>		<u>6.55</u>	<u>27.91</u>	<u>-89.7</u>	<u>-8.1</u>	<u>0.285</u>	<u>1.20</u>	
<u>0833</u>	<u>10.51</u>		<u>6.54</u>	<u>27.97</u>	<u>-88.7</u>	<u>-0.3</u>	<u>0.281</u>	<u>1.00</u>	
<u>0836</u>	<u>10.90</u>		<u>6.54</u>	<u>27.99</u>	<u>-91.4</u>	<u>1.3</u>	<u>0.281</u>	<u>0.99</u>	
<u>0839</u>	<u>11.22</u>		<u>6.54</u>	<u>28.00</u>	<u>-91.9</u>	<u>9.1</u>	<u>0.279</u>	<u>0.89</u>	

Sampling Data

Sampling Method: Peristaltic (low) Sampling Time: 0901  
 Color: \_\_\_\_\_ Odor: NONE  
 Visual Turbidity: X Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: VOC = 0ppm  
 Sampler(s) Signature: [Signature]

WELL CASING VOLUMES (per foot of water column)

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Site: Puma Terminal Project No. B01163767 Location: Bayamon

Sampling Team: Mariana + Arnoldo  
 Well ID: AD-1 Arrival Time: \_\_\_\_\_ Date: 6/27/16  
 Well casing Dia.: 2 Weather: Sunny Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>15.32</u> ft. TOC	Gallons per well casing (Well Volume):	<u>1.8</u> gal
Depth to Water:	<u>4.72</u> ft. TOC	Three well volumes (x3):	<u>5.4</u> gal
Depth to SPH:	_____ ft. TOC	Placement of Pump Intake:	<u>13</u> ft. TOC (Approx.)
Water Column in Well:	<u>10.6</u> ft.		
Gallons per foot:	<u>0.17</u> gal		

Well Purging Information and Field Parameters

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1248	4.72	<u>100ml/2850s</u>							
1254	6.31		6.45	31.72	-82.4	-0.5	0.700	1.41	
1257	6.37		6.45	31.69	-84.6	-2.6	0.703	0.92	
1300	6.53		6.46	31.77	-87.6	-2.0	0.704	0.77	
1304	6.65		6.47	31.76	-89.4	-2.2	0.705	0.78	
1307	6.76		6.47	31.77	-89.9	-2.5	0.705	0.79	
1310	6.85		6.47	31.77	-90.8	-2.3	0.706	0.72	
1314	6.97		6.48	31.76	-91.2	-2.1	0.706	0.70	

Sampling Data

Sampling Method: peristaltic (low) Sampling Time: 1338  
 Color: \_\_\_\_\_ Odor: Mild  
 Visual Turbidity: 0 Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: NOC = 38.4  
 Sampler(s) Signature: [Signature]

WELL CASING VOLUMES (per foot of water column)

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Site: Puma Terminal Project No. B0063967 Location: Bayamon

Sampling Team: Mariana + Fernando  
 Well ID: 57A Arrival Time: \_\_\_\_\_ Date: 6/27/14  
 Well casing Dia.: 4" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>20.43</u> ft. TOC	Gallons per well casing (Well Volume):	<u>9.8</u> gal
Depth to Water:	<u>5.28</u> ft. TOC	Three well volumes (x3):	<u>29.5</u> gal
Depth to SPH:	_____ ft. TOC	Placement of Pump Intake:	<u>18</u> ft. TOC (Approx.)
Water Column in Well:	<u>15.15</u> ft.		
Gallons per foot:	<del>MWB 9.89</del> <u>0.65</u> gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1150	<u>5.28</u>	<u>60ml / 20 sec</u>							
1210	<u>5.67</u>		<u>6.04</u>	<u>31.01</u>	<u>-45.3</u>	<u>-10.1</u>	<u>0.260</u>	<u>0.67</u>	
1214	<u>5.72</u>		<u>6.05</u>	<u>31.22</u>	<u>-39.5</u>	<u>-9.2</u>	<u>0.260</u>	<u>0.64</u>	
1218	<u>6.72</u>		<u>6.06</u>	<u>31.41</u>	<u>-40.2</u>	<u>-8.5</u>	<u>0.260</u>	<u>0.62</u>	
1222	<u>5.72</u>		<u>6.06</u>	<u>31.51</u>	<u>-38.4</u>	<u>-9.1</u>	<u>0.260</u>	<u>0.60</u>	
1225	<u>5.92</u>		<u>6.04</u>	<u>31.53</u>	<u>-37.1</u>	<u>-9.9</u>	<u>0.260</u>	<u>0.61</u>	
1228	<u>5.72</u>		<u>6.06</u>	<u>31.55</u>	<u>-36.7</u>	<u>-9.8</u>	<u>0.260</u>	<u>0.62</u>	

**Sampling Data**

Sampling Method: Peristaltic (low) Sampling Time: 1242  
 Color: \_\_\_\_\_ Odor: \_\_\_\_\_  
 Visual Turbidity: X (first) Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ X (first) High

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: WOC = 0 ppm  
 Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Terminal Project No. B0063967 Location: Bayamón

Sampling Team: Marianela + Arnoldo  
 Well ID: AD-2 Arrival Time: \_\_\_\_\_ Date: 6/28/16  
 Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>14.41</u> ft. TOC	Gallons per well casing	
Depth to Water:	<u>5.35</u> ft. TOC	(Well Volume):	<u>1.5</u> gal
Depth to SPH:	_____ ft. TOC	Three well volumes (x3):	<u>4.6</u> gal
Water Column in Well:	<u>9.06</u> ft.	Placement of Pump Intake:	<u>12</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.17</u> gal		

Well Purging Information and Field Parameters

Well Purging Method:

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
0910	5.35								
0925	5.37			6.98	31.28	-112.9	20.3	0.510	0.89
0928	5.38			7.00	31.22	-116.1	17.9	0.512	0.76
0931	5.37			7.03	31.43	-121.0	15.2	0.512	0.66
0934	5.37			7.04	31.43	+22.1	14.3	0.513	0.74
0937	5.37			7.06	31.55	-124.2	13.9	0.514	0.74
0940	5.37			7.07	31.58	-126.2	13.3	0.514	0.74

*Handwritten note: 60ml / 30 sec*

Sampling Data

Sampling Method: peristaltic (low) Sampling Time: 1002  
 Color: \_\_\_\_\_ Odor: mild  
 Visual Turbidity: \_\_\_\_\_ Clear X Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: VOC = 19.2 ppm

Sampler(s) Signature: [Signature]

WELL CASING VOLUMES (per foot of water column)

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Site: Puma Terminal Project No. B0063767 Location: Bayamón

Sampling Team: Mariaela + Fernando  
 Well ID: 83A Arrival Time: \_\_\_\_\_ Date: 2/28/14  
 Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>15.27</u> ft. TOC	Gallons per well casing (Well Volume):	<u>1.6</u> gal
Depth to Water:	<u>5.52</u> ft. TOC	Three well volumes (x3):	<u>5</u> gal
Depth to SPH:	_____ ft. TOC	Placement of Pump Intake:	<u>12</u> ft. TOC (Approx.)
Water Column in Well:	<u>9.7</u> ft.		
Gallons per foot:	<u>0.17</u> gal		

Well Purging Information and Field Parameters

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1015	5.52	<u>60 ml/min</u>							
1024	5.72		6.67	30.96	79.6	34.3	0.708	0.79	
1027	6.00		6.67	30.96	80.1	39.2	0.706	0.76	
1030	6.05		6.67	30.97	81.8	49.6	0.705	0.78	
1033	6.08		6.67	30.97	82.1	46.1	0.705	0.94	
1036	6.11		6.66	30.96	83.1	44.8	0.704	1.07	
1039	6.18		6.66	30.96	84.0	46.8	0.702	0.98	
1042	6.24		6.65	30.96	85	40.9	0.701	0.89	

Sampling Data

Sampling Method: peristaltic (low) Sampling Time: 1110  
 Color: \_\_\_\_\_ Odor: none  
 Visual Turbidity: \_\_\_\_\_ Clear X \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: WC = 13.9 ppm  
 Sampler(s) Signature: [Signature]

WELL CASING VOLUMES (per foot of water column)

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Site: Puma Terminal Project No. B0003107 Location: Bayamon

Sampling Team: Marianela + Fernando  
 Well ID: 83B2 Arrival Time: \_\_\_\_\_ Date: 6/28/16  
 Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>64.02</u> ft. TOC	Gallons per well casing (Well Volume):	<u>9.7</u> gal
Depth to Water:	<u>6.57</u> ft. TOC	Three well volumes (x3):	<u>29</u> gal
Depth to SPH:	_____ ft. TOC	Placement of Pump Intake:	<u>60</u> ft. TOC (Approx.)
Water Column in Well:	<u>57.4</u> ft.		
Gallons per foot:	<u>0.17</u> gal		

Well Purging Information and Field Parameters

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1115	6.57	60ml / 2465							
1122	6.58		7.46	28.86	88.2	2.2	0.742	3.07	
1125	6.58		7.43	28.90	89.9	2.6	0.742	2.75	
1128	6.58		7.42	28.98	90.2	2.5	0.741	2.72	
1130	6.58		7.30	29.25	91.2	-0.5	0.742	1.77	
1132	6.58		7.29	29.35	91.2	1.4	0.751	1.53	
1135	6.58		7.30	29.45	91.1	0.8	0.756	1.50	
1137	6.58		7.30	29.52	91.2	0.2	0.759	1.49	
1140	6.58		7.29	29.52	91.1	-0.6	0.761	1.48	

Sampling Data

Sampling Method: peristaltic (low) Sampling Time: 1200  
 Color: \_\_\_\_\_ Odor: none  
 Visual Turbidity: 0 Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: UOC = 1.2 ppm  
 Sampler(s) Signature: [Signature]

WELL CASING VOLUMES (per foot of water column)

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47



Site: Puma Terminal Project No. B00063767 Location: Bayamon  
 Sampling Team: Maiacela + Arnaldo  
 Well ID: P-118 Arrival Time: \_\_\_\_\_ Date: 6/28/16  
 Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth: <u>17.21</u> ft. TOC	Gallons per well casing (Well Volume): <u>1.4</u> gal
Depth to Water: <u>8.90</u> ft. TOC	Three well volumes (x3): <u>4.2</u> gal
Depth to SPH: _____ ft. TOC	Placement of Pump Intake: <u>13</u> ft. TOC (Approx.)
Water Column in Well: <u>8.31</u> ft.	
Gallons per foot: <u>0.17</u> gal	

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
<u>1215</u>	<u>8.90</u>	<u>20ml/2250g</u>							
<u>1226</u>	<u>8.98</u>		<u>5.58</u>	<u>32.12</u>	<u>203.4</u>	<u>0.6</u>	<u>0.258</u>	<u>1.19</u>	
<u>1229</u>	<u>8.98</u>		<u>5.40</u>	<u>32.25</u>	<u>225.4</u>	<u>-0.2</u>	<u>0.255</u>	<u>1.33</u>	
<u>1231</u>	<u>8.98</u>		<u>5.33</u>	<u>32.29</u>	<u>239.4</u>	<u>-0.2</u>	<u>0.253</u>	<u>0.97</u>	
<u>1234</u>	<u>8.98</u>		<u>5.18</u>	<u>32.34</u>	<u>253.2</u>	<u>-0.8</u>	<u>0.258</u>	<u>1.04</u>	
<u>1237</u>	<u>8.98</u>		<u>5.15</u>	<u>32.32</u>	<u>266.7</u>	<u>-0.9</u>	<u>0.249</u>	<u>1.03</u>	
<u>1240</u>	<u>8.98</u>		<u>5.14</u>	<u>32.21</u>	<u>271.5</u>	<u>-1.1</u>	<u>0.249</u>	<u>1.03</u>	
<u>1243</u>	<u>8.98</u>		<u>5.12</u>	<u>32.20</u>	<u>281.3</u>	<u>-1.3</u>	<u>0.246</u>	<u>1.06</u>	

**Sampling Data**

Sampling Method: Peristaltic (low) Sampling Time: 1305  
 Color: \_\_\_\_\_ Odor: \_\_\_\_\_

Visual Turbidity: X Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High \_\_\_\_\_

Analysis	Container Description	Preservative	Filtered y/n

Remarks: voc = 0 ppm

Sampler(s) Signature: Maiacela

**WELL CASING VOLUMES (per foot of water column)**

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Site: Puma Terminal Project No. B0063767 Location: Bayamon

Sampling Team: Marianela + Fernando

Well ID: P-119 Arrival Time: \_\_\_\_\_ Date: 6/30/16

Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

25.4 UM Well Data

Well Depth:	<u>14.60</u> ft. TOC	Gallons per well casing (Well Volume):	<u>1.8</u> gal
Depth to Water:	<u>14.60</u> ft. TOC	Three well volumes (x3):	<u>5.5</u> gal
Depth to SPH:	_____ ft. TOC	Placement of Pump Intake:	<u>23</u> ft. TOC (Approx.)
Water Column in Well:	<u>10.08</u> ft.		
Gallons per foot:	<u>0.17</u> gal		

Well Purging Information and Field Parameters

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
0905	14.60								
0920	15.57			4.58	30.30	324.1	1.5	0.283	1.84
0923	15.69			4.57	30.34	324.9	0.9	0.283	1.81
0925	15.78			4.56	30.37	325.9	0.1	0.283	1.82
0928	15.86			4.57	30.41	326.2	0.5	0.283	1.80
0931	15.97			4.57	30.41	327.0	0.3	0.283	1.78
0934	16.09			4.55	30.43	327.4	-0.1	0.283	1.77
0937	16.12			4.57	30.44	327.5	-0.2	0.283	1.78
0940	16.22			4.53	30.49	327.5	0.3	0.284	1.90

Sampling Data

Sampling Method: peristaltic (low) Sampling Time: 1005  
 Color: \_\_\_\_\_ Odor: None  
 Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: VOC =

Sampler(s) Signature: [Signature]

WELL CASING VOLUMES (per foot of water column)

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Punta Terminal Project No. B0063707 Location: Bayamón

Sampling Team: Marianela + fernando  
 Well ID: P-121 Arrival Time: \_\_\_\_\_ Date: 12/30/16  
 Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>42.71</u> ft. TOC	Gallons per well casing (Well Volume):	<u>1.2</u> gal
Depth to Water:	<u>35.56</u> ft. TOC	Three well volumes (x3):	<u>3.6</u> gal
Depth to SPH:	<u>7.15</u> ft.	Placement of Pump Intake:	<u>38</u> ft. TOC (Approx.)
Water Column in Well:	<u>7.15</u> ft.		
Gallons per foot:	<u>0.17</u> gal		

Well Purging Information and Field Parameters

Well Purging Method:

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
10:12									
10:34									
10:37									
10:40									
10:43									
10:47									
10:50									
(cambio de bomba a <del>Wanson</del> <u>whaler</u> <u>barlow</u> )									

Sampling Data

Sampling Method: peristaltic (low) Sampling Time: 11:23  
 Color: \_\_\_\_\_ Odor: none  
 Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: VOC = 0 ppm

Sampler(s) Signature: [Signature]

WELL CASING VOLUMES (per foot of water column)

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Site: Puma Terminal Project No. B0003767 Location: Bayamon

Sampling Team: Mariaela + Fernando

Well ID: P-124 Arrival Time: \_\_\_\_\_ Date: 6/30/16

Well casing Dia.: 2" Weather: sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>45.50</u> ft. TOC	Gallons per well casing (Well Volume):	<u>1.7</u> gal
Depth to Water:	<u>35.31</u> ft. TOC	Three well volumes (x3):	<u>5</u> gal
Depth to SPH:	<u>_____</u> ft. TOC	Placement of Pump Intake:	<u>_____</u> ft. TOC (Approx.)
Water Column in Well:	<u>10.19</u> ft.		
Gallons per foot:	<u>0.17</u> gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)

(Se cambio a bomba ~~de agua~~ ~~Thompson~~ Baker)

**Sampling Data**

Sampling Method: Disinfective (DW) Sampling Time: 1232  
 Color: \_\_\_\_\_ Odor: \_\_\_\_\_  
 Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: WC = 0ppm

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

1-1/4"=0.06	1-1/2"=0.09	<u>2"=0.16</u>	2-1/2"=0.26	3"=0.37	3-1/2"=0.5	4"=0.65	6"=1.47
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Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Terminal Project No. B0063768 Location: Bayamón  
 Sampling Team: Mauaule + Serrano  
 Well ID: P-123 Arrival Time: \_\_\_\_\_ Date: 5-jul-16  
 Well casing Dia.: 2" Weather: Sunny/humid Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>26.20</u>	ft. TOC	Gallons per well casing	<u>22</u>
Depth to Water:	<u>12.98</u>	ft. TOC	(Well Volume):	_____ gal
Depth to SPH:	_____	ft. TOC	Three well volumes (x3):	<u>6.7</u> gal
Water Column in Well:	<u>13.22</u>	ft.	Placement of Pump Intake:	_____ ft. TOC (Approx.)
Gallons per foot:	<u>0.17</u>	gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)

**Sampling Data**

Sampling Method: Bailer Sampling Time: 0835  
 Color: \_\_\_\_\_ Odor: \_\_\_\_\_  
 Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: VOC = 0 ppm  
 Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Terminal Project No. B0063768 Location: Mayamaón

Sampling Team: Mauanula + Fernando

Well ID: P-122 Arrival Time: \_\_\_\_\_ Date: 5-julio-16

Well casing Dia.: 2" Weather: Sunny / humid Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>26.17</u> ft. TOC	Gallons per well casing	
Depth to Water:	<u>16.40</u> ft. TOC	(Well Volume):	<u>1.6</u> gal
Depth to SPH:	_____ ft. TOC	Three well volumes (x3):	<u>5</u> gal
Water Column in Well:	<u>9.77</u> ft.	Placement of Pump Intake:	_____ ft. TOC (Approx.)
Gallons per foot:	<u>0.17</u> gal		

Well Purging Information and Field Parameters

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)

Sampling Data

Sampling Method: bailer Sampling Time: 0928  
 Color: \_\_\_\_\_ Odor: \_\_\_\_\_  
 Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: WOC = 0ppm

Sampler(s) Signature: (Signature)

WELL CASING VOLUMES (per foot of water column)

1-1/4"=0.06	1-1/2"=0.09	<u>2"=0.16</u>	2-1/2"=0.26	3"=0.37	3-1/2"=0.5	4"=0.65	6"=1.47
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Stabilization of Parameters: D.O. -10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Terminal Project No. BW63767 Location: Bayamon  
 Sampling Team: Marianela + Fernando  
 Well ID: P-114 Arrival Time: \_\_\_\_\_ Date: 7/5/14  
 Well casing Dia.: 2" Weather: Sunny/humid Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>14.18</u> ft. TOC	Gallons per well casing	
Depth to Water:	<u>4.05</u> ft. TOC	(Well Volume):	<u>1.7</u> gal
Depth to SPH:	_____ ft. TOC	Three well volumes (x3):	<u>5.1</u> gal
Water Column in Well:	<u>10.13</u> ft.	Placement of Pump Intake:	<u>12</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.17</u> gal		

Well Purging Information and Field Parameters

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1041	4.05								
1052	4.58	60 ml / 25 sec		6.62	29.85	130.7	34.4	0.814	2.87
1055	4.60		6.61	29.94	133.1	47.2	0.813	2.40	
1059	4.58		6.62	30.33	136.6	38.8	0.813	2.51	
1105	4.54	60 ml / 32 sec		6.60	30.57	137.7	20.8	0.813	2.35
1108	4.58		6.60	30.69	138.2	37.9	0.812	2.45	
1112	4.57		6.61	30.80	138.6	21.8	0.811	2.39	
1116	4.50			6.61	30.86	138.3	20.5	0.811	2.38
1120	4.50			6.62	31.00	138.4	15.2	0.810	2.37
1124	4.49			6.62	31.06	138.7	15.3	0.810	2.39

Sampling Data

Sampling Method: Pushbutton (low) Sampling Time: 1150  
 Color: \_\_\_\_\_ Odor: None  
 Visual Turbidity: X Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High \_\_\_\_\_

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: WC = 0ppm

Sampler(s) Signature: [Signature]

WELL CASING VOLUMES (per foot of water column)

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Site: Puma Terminal Project No. B0063707 Location: Bayamón

Sampling Team: Marianela + Fernando  
 Well ID: R117 Arrival Time: \_\_\_\_\_ Date: 7/5/14  
 Well casing Dia.: 2" Weather: sunny humid Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>14.28</u> ft. TOC	Gallons per well casing	<u>1.6</u> gal
Depth to Water:	<u>4.74</u> ft. TOC	(Well Volume):	<u>5</u> gal
Depth to SPH:	_____ ft. TOC	Three well volumes (x3):	<u>12</u> ft. TOC (Approx.)
Water Column in Well:	<u>9.54</u> ft.	Placement of Pump Intake:	_____
Gallons per foot:	<u>0.17</u> gal		

Well Purging Information and Field Parameters

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
<u>1155</u>	<u>4.74</u>								
<u>1207</u>	<u>5.29</u>			<u>5.63</u>	<u>29.82</u>	<u>287.3</u>	<u>247.3</u>	<u>0.415</u>	<u>2.83</u>
<u>1210</u>	<u>5.42</u>	<u>60ml/20"</u>		<u>5.44</u>	<u>29.73</u>	<u>310.6</u>	<u>205.4</u>	<u>0.412</u>	<u>2.26</u>
<u>1213</u>	<u>5.47</u>			<u>5.40</u>	<u>29.71</u>	<u>315.2</u>	<u>103.9</u>	<u>0.409</u>	<u>2.14</u>
<u>1214</u>	<u>5.50</u>			<u>5.41</u>	<u>29.60</u>	<u>320.1</u>	<u>100.2</u>	<u>0.409</u>	<u>2.05</u>
<u>1219</u>	<u>5.54</u>			<u>5.41</u>	<u>29.61</u>	<u>323.1</u>	<u>99.3</u>	<u>0.409</u>	<u>2.01</u>
<u>1222</u>	<u>5.61</u>			<u>5.41</u>	<u>29.63</u>	<u>340.2</u>	<u>98.4</u>	<u>0.409</u>	<u>2.04</u>

Sampling Data

Sampling Method: peristaltic (low) Sampling Time: 1240  
 Color: \_\_\_\_\_ Odor: none  
 Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: VOC = 0 ppm

Sampler(s) Signature: [Signature]

WELL CASING VOLUMES (per foot of water column)

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47



Site: Puma Terminal Project No. B0063767 Location: Bayamon

Sampling Team: Marianela + Fernando

Well ID: 13A Arrival Time: \_\_\_\_\_ Date: 7/16/14

Well casing Dia.: 2" Weather: cloudy Well Yield: \_\_\_\_\_

Well Data

Well Depth:	<u>18.25</u>	ft. TOC	Gallons per well casing	<u>1.5</u>	gal
Depth to Water:	<u>8.90</u>	ft. TOC	(Well Volume):	<u>4.7</u>	gal
Depth to SPH:	<u>9.35</u>	ft. TOC	Three well volumes (x3):	<u>14</u>	ft. TOC (Approx.)
Water Column in Well:	<u>9.35</u>	ft.	Placement of Pump Intake:	<u>14</u>	ft. TOC (Approx.)
Gallons per foot:	<u>0.17</u>	gal			

Well Purging Information and Field Parameters

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
0805	8.90	cont. 1/4" / 1/8"							
0816	9.20		6.05	28.31	-72.9	2.4	1.108	1.005	
0819	9.29		6.05	28.31	-72.7	4.3	1.106	0.99	
0821	9.33		6.03	28.31	-71.7	3.6	1.100	0.96	
0824	9.37		6.02	28.25	-71.8	3.2	1.084	0.91	
0827	9.43		6.01	28.22	-71.3	1.5	1.058	0.88	
0830	9.48		6.00	28.19	-71.2	2.0	1.033	0.89	
0833	9.50		6.00	28.21	-71.4	0.9	1.000	0.93	
0836	9.54		6.00	28.22	-71.5	0.7	0.995	0.91	
0839	9.59		5.99	28.19	-71.7	0.1	0.972	0.90	

Sampling Data

Sampling Method: Peristaltic (low) Sampling Time: 1900  
 Color: \_\_\_\_\_ Odor: mild  
 Visual Turbidity:  Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: WC = 0ppm

Sampler(s) Signature: Marianela

WELL CASING VOLUMES (per foot of water column)

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Site: Puma Terminal Project No. B00137167 Location: Bayamon

Sampling Team: Maicuel + Anadri

Well ID: 48B Arrival Time: \_\_\_\_\_ Date: 7/6/16

Well casing Dia.: 4" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>15.64</u> ft. TOC	Gallons per well casing	
Depth to Water:	<u>7.03</u> ft. TOC	(Well Volume):	_____ gal
Depth to SPH:	_____ ft. TOC	Three well volumes (x3):	_____ gal
Water Column in Well:	_____ ft.	Placement of Pump Intake:	_____ ft. TOC (Approx.)
Gallons per foot:	<u>0.65</u> gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)

**Sampling Data**

Sampling Method: Bailer Sampling Time: 1222

Color: \_\_\_\_\_ Odor: none

Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low X Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: VOC = 0 ppm + Dup 5

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Calibration of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Terminal Project No. B0063767 Location: Bayamon  
 Sampling Team: Mariana + Arnold  
 Well ID: 13B2 Arrival Time: \_\_\_\_\_ Date: 7/6/14  
 Well casing Dia.: 2" Weather: cloudy Well Yield: \_\_\_\_\_

**Well Data**

Well Depth: <u>54.55</u> ft. TOC	Gallons per well casing (Well Volume): <u>7</u> gal
Depth to Water: <u>13.44</u> ft. TOC	Three well volumes (x3): <u>21</u> gal
Depth to SPH: <u>—</u> ft. TOC	Placement of Pump Intake: _____ ft. TOC (Approx.)
Water Column in Well: _____ ft.	
Gallons per foot: <u>0.17</u> gal	

**Well Purging Information and Field Parameters**

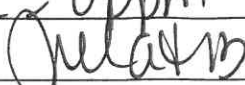
Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
	<u>13.44</u>								

**Sampling Data**

Sampling Method: Bailer Sampling Time: 1005  
 Color: \_\_\_\_\_ Odor: \_\_\_\_\_  
 Visual Turbidity: X Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: VOC = 0 ppm + Dup 4  
 Sampler(s) Signature: 

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Terminal Project No. B0063767 Location: Bayamon  
 Sampling Team: Marianela + Arnold  
 Well ID: 04B2 Arrival Time: \_\_\_\_\_ Date: 7/6/16  
 Well casing Dia.: 2" Weather: sunny humid Well Yield: \_\_\_\_\_

**Well Data**

Well Depth: <u>18.50</u> ft. TOC	Gallons per well casing (Well Volume): <u>2.2</u> gal
Depth to Water: <u>5.04</u> ft. TOC	Three well volumes (x3): <u>6.8</u> gal
Depth to SPH: _____ ft. TOC	Placement of Pump Intake: _____ ft. TOC (Approx.)
Water Column in Well: <u>13.46</u> ft.	
Gallons per foot: <u>0.17</u> gal	

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)

**Sampling Data**

Sampling Method: Bailer Sampling Time: 1110  
 Color: \_\_\_\_\_ Odor: \_\_\_\_\_  
 Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: WC = 0ppm  
 Sampler(s) Signature: Marianela

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Terminal Project No. B006326 Location: Bayamon

Sampling Team: F. Colon / A. Colon

Well ID: MW-91A Arrival Time: 0803 Date: 07/12/16

Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>17.40</u>	ft. TOC	Gallons per well casing	
Depth to Water:	<u>7.93</u>	ft. TOC	(Well Volume):	<u>1.51</u> gal
Depth to SPH:	<u>7.93</u>	ft. TOC	Three well volumes (x3):	<u>4.54</u> gal
Water Column in Well:	<u>9.47</u>	ft.	Placement of Pump Intake:	<u>15</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.16</u>	gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal) ml	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
0835	<u>AC 8.47</u>	200	Initial	5.81	30.82	-10.3	~0.5	0.483	1.29
0840	8.52	200	400 ml	5.80	30.90	-11.3	~1.0	0.481	1.33
0845	8.58	200	600 ml	5.80	31.02	-10.0	~0.9	0.479	1.10
0850	8.63	200	800 ml	5.81	31.25	-4.3	~1.0	0.489	0.90

**Sampling Data**

Sampling Method: peristaltic Sampling Time: 0930

Color: clear Odor: None

Visual Turbidity: ✓ Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: VOC 168 PPM

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.4

Site: Puma Terminal Project No. B006376 Location: Bayamon

Sampling Team: F. Colon / A. Colon

Well ID: MW-42B Arrival Time: \_\_\_\_\_ Date: 07/12/16

Well casing Dia.: 4" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth: _____ ft. TOC	Gallons per well casing
Depth to Water: <u>24.57</u> ft. TOC	(Well Volume): _____ gal
Depth to SPH: <u>24.54</u> ft. TOC	Three well volumes (x3): _____ gal
Water Column in Well: _____ ft.	Placement of Pump Intake: _____ ft. TOC (Approx.)
Gallons per foot: _____ gal	

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)

**Sampling Data**

Sampling Method: \_\_\_\_\_ Sampling Time: \_\_\_\_\_

Color: \_\_\_\_\_ Odor: \_\_\_\_\_

Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: Products libre

Sampler(s) Signature: *[Signature]*

**WELL CASING VOLUMES (per foot of water column)**

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Site: Puma Terminal Project No. B0063767 Location: Bayamon

Sampling Team: F. Colon / A. Colon

Well ID: MW-109-A Arrival Time: 1010 Date: 05/12/16

Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>12.30</u> ft. TOC	Gallons per well casing	
Depth to Water:	<u>AC-6-42 10.09</u> ft. TOC	(Well Volume):	<u>1.15</u> gal
Depth to SPH:	_____ ft. TOC	Three well volumes (x3):	<u>3.46</u> gal
Water Column in Well:	<u>5.21</u> ft.	Placement of Pump Intake:	<u>15</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.16</u> gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1030	10.47	200 ml	Initial	7.03	31.30	108.9	25.7	0.352	4.25
1035	10.50	200 ml	400 ml	7.04	31.24	110.4	25.6	0.352	4.17
1040	10.52	200 ml	600 ml	7.04	31.22	111.6	26.0	0.351	4.11
1045	10.54	200 ml	800 ml	7.05	31.30	113.6	24.0	0.350	4.10

**Sampling Data**

Sampling Method: Peristaltic pump Sampling Time: 1117  
 Color: clear Odor: None  
 Visual Turbidity:  Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: vac ppm

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Terminal Project No. 80063767 Location: Bayamon

Sampling Team: F. Colon / A. Colon

Well ID: MW-15B Arrival Time: 0832 Date: 07/13/16

Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>56.25</u>	ft. TOC	Gallons per well casing
Depth to Water:	<u>2.42</u>	ft. TOC	(Well Volume): <u>11.81</u> gal
Depth to SPH:	<u>      </u>	ft. TOC	Three well volumes (x3): <u>35.43</u> gal
Water Column in Well:	<u>53.83</u>	ft.	Placement of Pump Intake: _____ ft. TOC (Approx.)
Gallons per foot:	<u>0.16</u>	gal	

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)

**Sampling Data**

Sampling Method: Peristaltic pump ~~to~~ Bailer Sampling Time: 0858

Color: clear Odor: NME

Visual Turbidity:  Clear  Low  Medium  High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: VOC 43.9

Sampler(s) Signature: 

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C



Site: Puma Terminal Project No. B0063067 Location: Boyanon

Sampling Team: F  
 Well ID: MW-37A Arrival Time: 1030 Date: 07/13/16  
 Well casing Dia.: 2" Weather: cloud Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>27.20</u>	ft. TOC	Gallons per well casing	
Depth to Water:	<u>10.49</u>	ft. TOC	(Well Volume):	<u>2.67</u> gal
Depth to SPH:	<u>/</u>	ft. TOC	Three well volumes (x3):	<u>8.02</u> gal
Water Column in Well:	<u>16.71</u>	ft.	Placement of Pump Intake:	<u>25</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.16</u>	gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1044	11.83	200 ml	initial	6.52	28.32	-110.5	30.3	0.607	1.29
1049	11.95	200 ml	400 ml	6.54	28.35	-110.5	31.6	0.608	1.51
1054	12.02	200 ml	600 ml	6.54	28.32	-111.1	31.9	0.608	1.53
1059	12.05	200 ml	800 ml	6.55	28.32	-111.8	30.4	0.609	1.41
<i>[Handwritten signature]</i>									

**Sampling Data**

Sampling Method: Peristaltical pump Sampling Time: 1120  
 Color: Clear Odor: yes  
 Visual Turbidity:  Clear  Low  Medium  High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: voc 5.1

Sampler(s) Signature: *[Signature]*

**WELL CASING VOLUMES (per foot of water column)**

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Anna Terminal Project No. B0063267 Location: Bayamon

Sampling Team: AC A. Colon / P. Colon

Well ID: MW-68A Arrival Time: 1128 Date: 07/13/16

Well casing Dia.: 63A 4" Weather: cloud Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>20.42</u>	ft. TOC	Gallons per well casing
Depth to Water:	<u>8.15</u>	ft. TOC	(Well Volume): <u>7.97</u> gal
Depth to SPH:	<u>      </u>	ft. TOC	Three well volumes (x3): <u>23.92</u> gal
Water Column in Well:	<u>12.27</u>	ft.	Placement of Pump Intake: <u>18</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.65</u>	gal	

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal) <small>ml</small>	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1133	8.54	200 ml	initia	5.03	27.51	298.9	15.5	0.286	1.42
1138	8.58	200 ml	400 ml	4.81	27.46	313.3	9.4	0.285	1.22
1143	8.62	200 ml	600 ml	4.80	27.31	318.4	4.3	0.279	1.22
1148	8.66	200 ml	800 ml	4.80	26.80	320.1	7.5	0.275	1.23

**Sampling Data**

Sampling Method: peristaltic pump Sampling Time: 1214  
 Color: clear Odor: none  
 Visual Turbidity:  Clear  Low  Medium  High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: 0.0 voc

Sampler(s) Signature: 

**WELL CASING VOLUMES (per foot of water column)**

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Prima Terminal Project No. B006376 Location: Bayama

Sampling Team: A.C. FC

Well ID: MW-97B Arrival Time: \_\_\_\_\_ Date: 07/15/16

Well casing Dia.: 2' Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>101 +</u>	ft. TOC	Gallons per well casing	
Depth to Water:	<u>1.29</u>	ft. TOC	(Well Volume):	<u>14.99</u> gal
Depth to SPH:	<u>      </u>	ft. TOC	Three well volumes (x3):	<u>44.98</u> gal
Water Column in Well:	<u>93.11</u>	ft.	Placement of Pump Intake:	_____ ft. TOC (Approx.)
Gallons per foot:	<u>0.16</u>	gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)

**Sampling Data**

Sampling Method: Boyle Sampling Time: 1010  
 Color: \_\_\_\_\_ Odor: None  
 Visual Turbidity:  Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: VOC 0.0

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH-0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Pura Terminal Project No. B0063 (76) Location: Bayamon

Sampling Team: A.C. / F.C.

Well ID: MW-38A Arrival Time: 0735 Date: 01/14/16

Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>25.30</u>	ft. TOC	Gallons per well casing (Well Volume):	<u>3.12</u>	gal
Depth to Water:	<u>5.76</u>	ft. TOC	Three well volumes (x3):	<u>9.37</u>	gal
Depth to SPH:	_____	ft. TOC	Placement of Pump Intake:	<u>23</u>	ft. TOC (Approx.)
Water Column in Well:	<u>19.54</u>	ft.			
Gallons per foot:	<u>0.16</u>	gal			

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
0745	<u>7.22</u>	<u>200 mL</u>	<u>initial</u>	<u>5.39</u>	<u>27.04</u>	<u>139.2</u>	<u>2.6</u>	<u>0.209</u>	<u>1.83</u>
0750	<u>7.45</u>	<u>200 mL</u>	<u>400 mL</u>	<u>5.38</u>	<u>27.02</u>	<u>140.1</u>	<u>2.4</u>	<u>0.209</u>	<u>1.60</u>
0755	<u>7.58</u>	<u>200 mL</u>	<u>600 mL</u>	<u>5.37</u>	<u>27.02</u>	<u>144.2</u>	<u>2.0</u>	<u>0.209</u>	<u>1.49</u>
0800	<u>7.68</u>	<u>200 mL</u>	<u>800 mL</u>	<u>5.37</u>	<u>27.05</u>	<u>144.2</u>	<u>2.7</u>	<u>0.209</u>	<u>1.45</u>

**Sampling Data**

Sampling Method: peristaltic pump Sampling Time: 0826  
 Color: clear Odor: none  
 Visual Turbidity:  Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: 0.0 voc

Sampler(s) Signature: 

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Terminal Project No. B0063767 Location: Boyanon

Sampling Team: A.C. / F.C.

Well ID: MW-84A Arrival Time: 0841 Date: 07/14/16

Well casing Dia.: 2" Weather: \_\_\_\_\_ Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>54.86</u>	ft. TOC	Gallons per well casing
Depth to Water:	<u>4.95</u>	ft. TOC	(Well Volume):
Depth to SPH:	<u>✓</u>	ft. TOC	<u>1.98</u> gal
Water Column in Well:	<u>49.91</u>	ft.	Three well volumes (x3):
Gallons per foot:	<u>0.16</u>	gal	<u>23.95</u> gal
			Placement of Pump Intake: _____ ft. TOC (Approx.)

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)

**Sampling Data**

Sampling Method: Boiler peristaltic pump Sampling Time: 0859  
 Color: non clear Odor: none  
 Visual Turbidity: clear Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High \_\_\_\_\_

Analysis	Container Description	Preservative	Filtered y/n

Remarks: VOC 0.0 ppm

Sampler(s) Signature: MM

**WELL CASING VOLUMES (per foot of water column)**

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Pura Terminal Project No. B0063767 Location: Boyanm

Sampling Team: A.C. / FC

Well ID: MW-21A Arrival Time: 1020 Date: 05/14/16

Well casing Dia.: 2" Weather: cloud Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>68.08</u>	ft. TOC	Gallons per well casing	
Depth to Water:	<u>12.0</u>	ft. TOC	(Well Volume):	<u>8.91</u> gal
Depth to SPH:	<u>7</u>	ft. TOC	Three well volumes (x3):	<u>26.91</u> gal
Water Column in Well:	<u>56.08</u>	ft.	Placement of Pump Intake:	_____ ft. TOC (Approx.)
Gallons per foot:	<u>0.16</u>	gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)

**Sampling Data**

Sampling Method: Boyer Sampling Time: 1130  
 Color: clear Odor: None  
 Visual Turbidity:  Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: 0.0 vol

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Terminal Project No. 80063169 Location: Bayamon  
 Sampling Team: A.C. F.C. E.D  
 Well ID: MW-20B Arrival Time: 1015 Date: 08/10/16  
 Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>98.15</u> ft. TOC	Gallons per well casing	
Depth to Water:	<u>7.61</u> ft. TOC	(Well Volume):	<u>1446</u> gal
Depth to SPH:	<u>      </u> ft. TOC	Three well volumes (x3):	<u>43.45</u> gal
Water Column in Well:	<u>90.54</u> ft.	Placement of Pump Intake:	<u>      </u> ft. TOC (Approx.)
Gallons per foot:	<u>0.16</u> gal		

**Well Purging Information and Field Parameters**


Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)

**Sampling Data**

Sampling Method: Boyer Sampling Time: 15 1916  
 Color: Clear Odor: None  
 Visual Turbidity: Clear  Low        Medium        High  

Analysis	Container Description	Preservative	Filtered y/n

 Remarks: MS-MW20B / MSD-MW20B VOC 0.0 PPR  
 Sampler(s) Signature: 

**WELL CASING VOLUMES (per foot of water column)**

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Project No. B0063767 Location: Boyomon

Sampling Team: A.C. / E.C. / E.D

Well ID: MN-114A Arrival Time: 0830 Date: 08/11/14

Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>14.30</u>	ft. TOC	Gallons per well casing	
Depth to Water:	<u>2.98</u>	ft. TOC	(Well Volume):	<u>1.81</u> gal
Depth to SPH:	<u>/</u>	ft. TOC	Three well volumes (x3):	<u>5.43</u> gal
Water Column in Well:	<u>11.32</u>	ft.	Placement of Pump Intake:	<u>12</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.16</u>	gal		

**Well Purging Information and Field Parameters**

Well Purging Method:

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1014	2.98	200 mL	initial	<del>6.31</del>					
1023	3.48	200 mL	1000 mL	6.31	28.63	2.3	39.3	2.958	1.43
1028	3.68	200 mL	2000 mL	6.22	28.30	8.5	51.8	2.906	1.08
1033	3.77	200 mL	3000 mL	6.28	27.74	8.2	39.1	2.627	.87
1038	3.77	200 mL	4000 mL	6.33	27.77	8.4	20.8	2.521	.61
1043	3.84	200 mL	5000 mL	6.35	27.79	9.0	9.9	2.500	.65
1048	3.89	200 mL	6000 mL	6.42	27.50	9.7	0.0	2.428	.58

**Sampling Data**

Sampling Method: Peristaltic pump Sampling Time: 1102

Color: clear Odor: None

Visual Turbidity:  Clear  Low  Medium  High

Analysis	Container Description	Preservative	Filtered y/n
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks: KAC 0.0 ppm

Sampler(s) Signature: 

**WELL CASING VOLUMES (per foot of water column)**

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47



Site: Puma Project No. 80063167 Location: Bayamo

Sampling Team: A.C. F.C. E.D

Well ID: MW-111A Arrival Time: 1200 Date: 08/11/16

Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>15.11</u>	ft. TOC	Gallons per well casing	
Depth to Water:	<u>11.42</u>	ft. TOC	(Well Volume):	<u>0.91</u> gal
Depth to SPH:	<u>5.89</u>	ft. TOC	Three well volumes (x3):	<u>2.75</u> gal
Water Column in Well:	<u>5.89</u>	ft.	Placement of Pump Intake:	<u>15</u> ft. TOC (Approx.)
Gallons per foot:	<u>0.16</u>	gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal) ml	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1303	9.59	200 ml	Initial						
1309	9.81	200 ml	1000 ml	6.58	28.60	-119.9	6.2	3.480	1.28
1314	9.94	200 ml	2000 ml	6.48	27.72	-121.9	-0.0	4.021	0.90
1318	10.03	200 ml	3000 ml	6.49	27.72	-150.5	<del>0.0</del>	3.980	0.91
1324	10.13	200 ml	4000 ml	6.50	27.79	-156.5	0.0	3.944	0.30
1329	10.22	200 ml	5000 ml	6.49	27.66	-161.2	0.0	3.940	0.30
1334	10.29	200 ml	6000 ml	6.50	27.44	-160.0	0.0	3.940	0.29
M									

**Sampling Data**

Sampling Method: Peristaltic pump Sampling Time: 1352  
 Color: clear Odor: medium  
 Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: VOC 0.0 PPM

Sampler(s) Signature: M

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Project No. B0063767 Location: Bayamon

Sampling Team: A.L. F.L. E.D.

Well ID: MW-110AD Arrival Time: 1359 Date: 08/11/16

Well casing Dia.: 2 Weather: cloud Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>16.06</u>	ft. TOC	Gallons per well casing (Well Volume):	<u>1.29</u>	gal
Depth to Water:	<u>7.98</u>	ft. TOC	Three well volumes (x3):	<u>3.87</u>	gal
Depth to SPH:	<u>✓</u>	ft. TOC	Placement of Pump Intake:	<u>14</u>	ft. TOC (Approx.)
Water Column in Well:	<u>8.08</u>	ft.			
Gallons per foot:	<u>0.16</u>	gal			

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_


Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)
1400	<u>7.98</u>	<u>OPR</u>							
1405	<u>7.99</u>	<u>200</u>	<u>1000</u>	<u>7.02</u>	<u>27.43</u>	<u>-79</u>	<u>0.0</u>	<u>3.795</u>	<u>1.94</u>
1410	<u>7.99</u>	<u>200</u>	<u>2000</u>	<u>6.69</u>	<u>27.03</u>	<u>-113.4</u>	<u>0.0</u>	<u>3.439</u>	<u>0.73</u>
1415	<u>7.99</u>	<u>200</u>	<u>3000</u>	<u>6.65</u>	<u>27.11</u>	<u>-106.6</u>	<u>0.0</u>	<u>3.300</u>	<u>0.54</u>
1420	<u>7.99</u>	<u>200</u>	<u>4000</u>	<u>6.63</u>	<u>27.16</u>	<u>-103.3</u>	<u>0.0</u>	<u>3.240</u>	<u>0.51</u>
1425	<u>7.99</u>	<u>200</u>	<u>5000</u>	<u>6.63</u>	<u>27.14</u>	<u>-101.9</u>	<u>0.0</u>	<u>3.225</u>	<u>0.48</u>

**Sampling Data**

Sampling Method: peristaltic pump Sampling Time: 1448  
 Color: clear Odor: medium  
 Visual Turbidity: \_\_\_\_\_ Clear \_\_\_\_\_ Low \_\_\_\_\_ Medium \_\_\_\_\_ High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: 0.0 vol ppm

Sampler(s) Signature: 

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Project No. BO063769 Location: Bayamon

Sampling Team: A.C. F.C.

Well ID: MW-08B Arrival Time: 1032 Date: 08/15/16

Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>84.50</u>	ft. TOC	Gallons per well casing	
Depth to Water:	<u>4.24</u>	ft. TOC	(Well Volume):	<u>12.84</u> gal
Depth to SPH:	<u>      </u>	ft. TOC	Three well volumes (x3):	<u>38.52</u> gal
Water Column in Well:	<u>80.26</u>	ft.	Placement of Pump Intake:	<u>      </u> ft. TOC (Approx.)
Gallons per foot:	<u>0.16</u>	gal		

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)

**Sampling Data**

Sampling Method: Bayler Sampling Time: 1320  
 Color: N. clear Odor: None  
 Visual Turbidity: Clear Low        Medium        High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: FB-081516 1320

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Project No. 80063067 Location: Bayamo

Sampling Team: A.C. F.C.

Well ID: MW-11002 Arrival Time: 1015 Date: 08/16/16

Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>91.72</u>	ft. TOC	Gallons per well casing (Well Volume):	<u>13.65</u>	gal
Depth to Water:	<u>6.37</u>	ft. TOC	Three well volumes (x3):	<u>40.96</u>	gal
Depth to SPH:	<u>          </u>	ft. TOC	Placement of Pump Intake:	<u>          </u>	ft. TOC (Approx.)
Water Column in Well:	<u>85.35</u>	ft.			
Gallons per foot:	<u>0.16</u>	gal			

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)

*Barker*

**Sampling Data**

Sampling Method: Bayler Sampling Time: 1216

Color: clear Odor: none

Visual Turbidity:  Clear  Low  Medium  High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: FB-081616

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

- 1-1/4"=0.06
- 1-1/2"=0.09
- 2"=0.16
- 2-1/2"=0.26
- 3"=0.37
- 3-1/2"=0.5
- 4"=0.65
- 6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

Site: Puma Project No. 000 63161 Location: Bayamon

Sampling Team: A.C. / F.C.

Well ID: MW-17B Arrival Time: 0139 Date: 08/16/16

Well casing Dia.: 2" Weather: Sunny Well Yield: \_\_\_\_\_

**Well Data**

Well Depth:	<u>56.48</u>	ft. TOC	Gallons per well casing	<u>8.31</u>	gal
Depth to Water:	<u>4.12</u>	ft. TOC	(Well Volume):	<u>25.13</u>	gal
Depth to SPH:	<u>          </u>	ft. TOC	Three well volumes (x3):	<u>          </u>	gal
Water Column in Well:	<u>52.36</u>	ft.	Placement of Pump Intake:	<u>          </u>	ft. TOC (Approx.)
Gallons per foot:	<u>0.17</u>	gal			

**Well Purging Information and Field Parameters**

Well Purging Method: \_\_\_\_\_

Time	Depth to Groundwater (ft)	Flow Rate (ml/min)	Cumulative Volume (gal)	pH	Temp. (C)	ORP mV	Turbidity (NTU)	Cond. (mS/cm)	D.O. (mg/L)

**Sampling Data**

Sampling Method: Byler Sampling Time: 0928  
 Color: clear Odor: None  
 Visual Turbidity: Clear  Low  Medium  High

Analysis	Container Description	Preservative	Filtered y/n

Remarks: EB-081616

Sampler(s) Signature: [Signature]

**WELL CASING VOLUMES (per foot of water column)**

1-1/4"=0.06    1-1/2"=0.09    2"=0.16    2-1/2"=0.26    3"=0.37    3-1/2"=0.5    4"=0.65    6"=1.47

Stabilization of Parameters: D.O.-10%; Cond. -3%; pH -0.1pH unit; ORP - 10mV; Turb. (NTU) - 10%; temp. -0.2C

## Site Specific Health and Safety Plan

Revision 13b, 3/9/2016

Project Name: RCRA REL - USEPA PUMA

Project Number: B0063764  
Client Name: Puma Energy Caribe, LLC  
Date: 3/23/2016  
HASP Expires: 3/23/2017  
Revision: 0

Approvals:

HASP Developer: Marianela Mercado-Burgos

Project Manager: Efraín Calderón

HASP Reviewer: X Gisela H'dy

Signed by: gisela.hernandezrivera@arcadis-us.com

Drafty HASP  
(LMP)

# Emergency Information

**Site Address:** Puma Energy Caribe, LLC Terminal  
Road # 28, Km 2.0, Luchetti Industrial Park,  
Bayamón, PR 00965

## Emergency Phone Numbers:

Emergency (fire, police, ambulance)	<u>911</u>
Emergency (facility specific, if applicable): <b>Hospital HIMA San Pablo</b>	<u>787-620-4747</u>
Emergency Other (specify) _____	<u>911</u>
Client Contact <u>Brenda Toraño</u>	<u>787-966-7331</u>
WorkCare (non-life-threatening injury/illness)	<u>1-888-449-7787</u>
Project H&S <u>Gisela Hernández</u>	<u>787-378-9430</u>
Task Manager _____	_____
Project Manager <u>Efraín Calderón</u>	<u>787-397-2245</u>
Corporate H&S Specialist <u>Sharon Lingle</u>	<u>864-331-9940</u>
Corporate H&S Director <u>Denis Balcer</u>	<u>614-778-9171</u>

**Hospital Name and Address:** Hospital HIMA San Pablo  
70 Calle Santa Cruz  
Bayamón, Puerto Rico  
00959

Hospital Phone Number: 787-620-4747

## Incident Notification Process

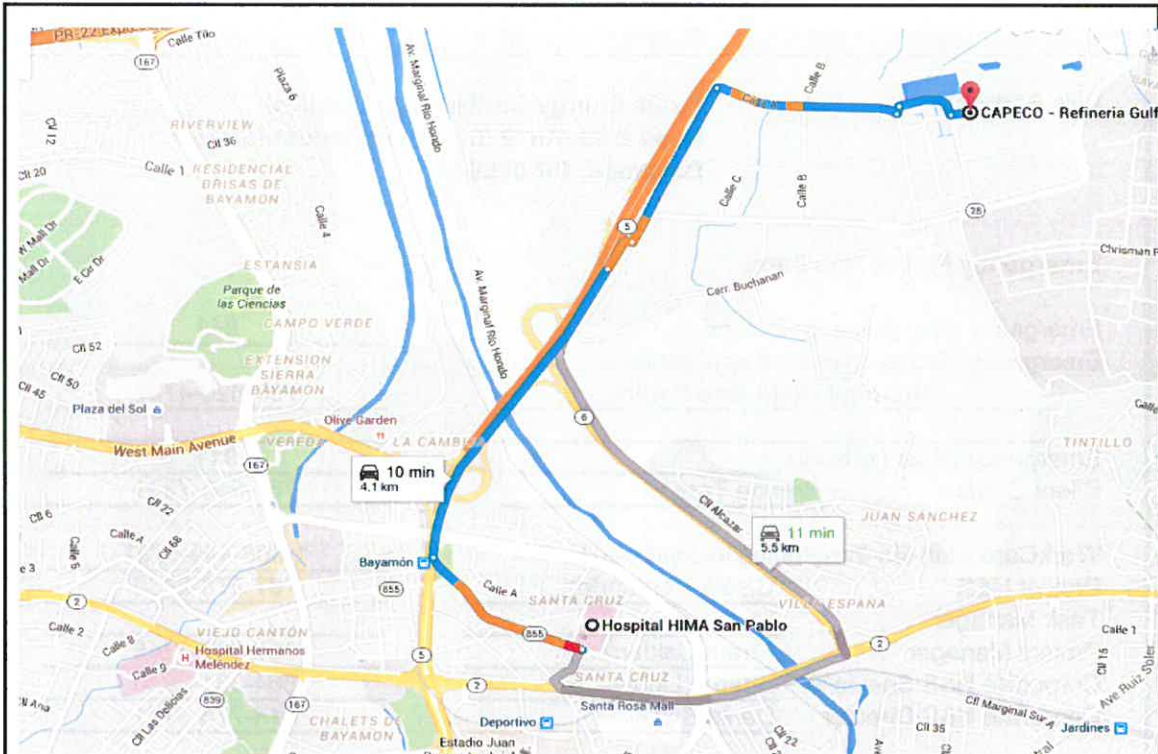
- 1 Dial 911/Facility Emergency Number/WorkCare as applicable
- 2 Contact PM/Supervisor Efraín Calderón
- 3 Contact Corporate H&S Denis Balcer
- 4 Contact Client Brenda Toraño

Complete below, as applicable, or clear cell contents:

Location of Assembly Area(s): To be determined on Site, follow Site directions

Nearest AED location: To be determined on Site: *office building*  
Nearest Storm Shelter: To be determined on Site: *Cars, canopy, office*

## Route to the Hospital



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🚝
🚶
⋮
✕

📍
CAPECO - Refineria Gulf, Juan Sánchez
↕

📍
Hospital HIMA San Pablo, 70 Calle San
↕

+
Salir ahora ▾
OPCIONES

Enviar indicaciones a tu teléfono

por Expreso Río Hondo/Puerto Rico 5 11 min  
 9 min sin tráfico 4.8 km

[DETALLES](#)

por CII San Jose/PR-6 12 min  
 10 min sin tráfico 5.6 km



## General Information

### Site Type (select all applicable where work will be conducted):

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Active           | <input type="checkbox"/> Railroad   |
| <input type="checkbox"/> Bridge                      | <input checked="" type="checkbox"/> Remote Area   |
| <input type="checkbox"/> Buildings                   | <input type="checkbox"/> Residential  |
| <input type="checkbox"/> Commercial                  | <input type="checkbox"/> Retail   |
| <input type="checkbox"/> Construction                | <input type="checkbox"/> Roadway (public, including right-of-way)                           |
| <input type="checkbox"/> Military Installation       | <input type="checkbox"/> Water Treatment Plant (former)                                     |
| <input type="checkbox"/> Inactive Industrial         | <input checked="" type="checkbox"/> Unknown   |
| <input type="checkbox"/> Active Industrial           | <input type="checkbox"/> Security Risk Site/Location  |
| <input checked="" type="checkbox"/> Landfill         | <input type="checkbox"/> Utility  |
| <input type="checkbox"/> Marine                      | <input checked="" type="checkbox"/> Other (specify): <u>Storage and Distribution Center</u> |
| <input type="checkbox"/> Mining                      | <input checked="" type="checkbox"/>   |
| <input type="checkbox"/> Parking Lot/Private Roadway |   |
| <input type="checkbox"/>                             |   |

If a lone worker is used on the project, additional communication and emergency action planning for lone worker required.

### Surrounding Area and Topography (select one):

Surrounding area and topography are presented in the project work plan

Surrounding area and topography (*briefly describe*):

- Topography varies approx. from 2- 40 ft amsl decreasing from south to
- north. The northern area includes a wetland. There are two creeks crossing the property visible at the wetland (Diego and Las Lajas creeks). Another creek (Sta. Catalina) is located at the east of the property.

### Simultaneous Operations (SimOps)

Not applicable

SimOps will exist on this project

- Normal operations of client. Possibility of other contractors to be working on
- Site

### Site Background (select one):

Site background is presented in the project work plan

Site background (*briefly describe*):

- The Site is the main hydrocarbon fuel storage of Puma Energy Caribe in the Puerto Rico dedicated to storage and distribution. Distribution include
- transportation of fuels via pipelines and trucks. Fuels include: Jet Fuel, Diesel, Gasoline, Ethanol, Propane and Butane Gas. The Site has been under federal and local environmental investigation including the monitoring of contaminants in soil and water.

**Project Tasks**

The following tasks are identified for this project:

*Examples: "Drilling/soil sampling", "Surveying", "General Inspections", "Construction Management/Inspections"*

- 1 Soil Sampling
- 2 Well Installation
- 3 Utility Clearance
- 4 Groundwater Sampling/purging
- 5 Mobilization/Demobilization
- 6 Vegetation Clearance

<input checked="" type="checkbox"/> Subcontractor H&S information is attached	<input type="checkbox"/> The following H&S Standards are attached:
<input checked="" type="checkbox"/> Utility clearance required.	<i>Not applicable</i>
<input type="checkbox"/> Journey Management Plan attached	<i>Not applicable</i>
<input type="checkbox"/> State specific H&S required:	
Comments:	



**Roles and Responsibilities**

Name	Role	Additional Responsibilities (Describe)
1 Efraín Calderón	PM	
2 Antonio Perez	SSO	Field technician/Field Lead
3 Marianela Mercado Burgos	SSO	Geologist/Field Lead
4 Eliot Delgado	SSO	Field technician/Field Lead
5 Andres Colom	SSO	Field technician/Field Lead
6 Fernando Colom	SSO	Field technician/Field Lead

**Training**

<p><i>All Arcadis employees are required to have the following training to be on site:</i></p> <ul style="list-style-type: none"> <li>H&amp;S Program Orientation</li> <li>HAZCOM GHS/EAP</li> <li>Defensive Driving - Smith On-Line</li> <li>Hazwoper 40 Hour</li> <li>Hazwoper 8-Hour Annual Refresher</li> <li>BBP (Bloodborne Pathogens)</li> <li>First Aid/CPR</li> <li>DOT HazMat #1</li> <li>None</li> <li>None</li> <li>None</li> <li>None</li> <li>None</li> <li>None</li> <li>Client specific:</li> <li><b>API Work Safe</b></li> <li>Other:</li> <li><b>General Puma Terminal Orientation</b></li> </ul>	<p><i>Selected Arcadis employees are required to have the following additional training:</i></p> <p style="text-align: right;">Names or Numbers from above</p> <table border="0"> <tr> <td>Fire Extinguisher</td> <td>MM/ED/AP/FC/AC</td> </tr> <tr> <td>Benzene - General Awareness</td> <td>_____</td> </tr> <tr> <td></td> <td>_____</td> </tr> <tr> <td></td> <td>_____</td> </tr> <tr> <td></td> <td>_____</td> </tr> <tr> <td></td> <td>_____</td> </tr> <tr> <td></td> <td>_____</td> </tr> <tr> <td>None</td> <td>_____</td> </tr> <tr> <td>None</td> <td>_____</td> </tr> <tr> <td>None</td> <td>_____</td> </tr> <tr> <td>None</td> <td>_____</td> </tr> <tr> <td>None</td> <td>_____</td> </tr> <tr> <td>None</td> <td>_____</td> </tr> <tr> <td>None</td> <td>_____</td> </tr> <tr> <td>None</td> <td>_____</td> </tr> <tr> <td>None</td> <td>_____</td> </tr> <tr> <td>Other:</td> <td>_____</td> </tr> </table>	Fire Extinguisher	MM/ED/AP/FC/AC	Benzene - General Awareness	_____		_____		_____		_____		_____		_____	None	_____	None	_____	None	_____	None	_____	None	_____	None	_____	None	_____	None	_____	None	_____	Other:	_____
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Hazard Analysis

Risk Assessment Matrix		Likelihood Ratings** (likelihood that inc		
Consequences Ratings*		A	B	C
People	Property	0 Almost impossible	1 Possible but unlikely	2 Likely to happen
1 - Slight or no health	Slight or no damage	0 - Low	1 - Low	2 - Low
2 - Minor health effect	Minor damage	0 - Low	2 - Low	4 - Medium
3 - Major health effect	Local damage	0 - Low	3 - Low	6 - High
4 - Fatalities	Major damage	0 - Low	4 - Medium	8 - High

Business Li		
Environment		All Categories

**Task 1: Soil Sampling**

**Hazardous Activity #1**

Field-Contaminated media (contact with impacted soil, water, air, sediment, etc)

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):				Suggested FHSB Ref: III E, III F, III AH			
Biological	M	Chemical	H	Driving	H	Electrical	H
Environmental	M	Gravity	H	Mechanical	H	Motion	H
Personal Safety	M	Pressure	L	Radiation	H	Sound	H

Overall Unmitigated Risk: **High** Mitigated Risk: **Low** if utilizing:  
**Controls that should be Considered:** Primary: TRACK JSAs Engineering Controls (specify below) Secondary: H&S Standards HASP Admin. Controls (specify below) HAZWOPER Training PPE (see HASP "PPE" section)

**Enter Required Controls:** Refer to list of considered controls as required. Use appropriate tools for tasks, use appropriate gloves to handle bottles and samples, SWA.

**Hazardous Activity #2**

Field-Ambient environment - exposure heat, cold, sun, weather, etc

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):				Suggested FHSB Ref: III I, III M			
Biological	M	Chemical	H	Driving	M	Electrical	H
Environmental	L	Gravity	H	Mechanical	H	Motion	H
Personal Safety	M	Pressure	L	Radiation	H	Sound	H

Overall Unmitigated Risk: **Medium** Mitigated Risk: **Medium** if utilizing:  
**Controls that should be Considered:** Primary: TRACK Field H&S Handbook (see ref. above) Secondary: H&S Standards Engineering Controls (specify below) Admin. Controls (specify below) Specialized Equipment (specify below) PPE (see HASP "PPE" section)

**Enter Required Controls:** Refer to list of considered controls as required. Take rest time as needed, hydrate properly, SWA.

**Hazardous Activity #3**

Field-Sampling - sample cooler preparation

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):				Suggested FHSB Ref: III AD, III AF			
Biological	-	Chemical	M	Driving	-	Electrical	-
Environmental	-	Gravity	M	Mechanical	L	Motion	L
Personal Safety	M	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: **Medium** Mitigated Risk: **Low** if utilizing:  
**Controls that should be Considered:** Primary: TRACK JSAs Engineering Controls (specify below) See HASP "Monitoring" section Secondary: Job Briefing/Site Awareness Admin. Controls (specify below) Work Plan PPE (see HASP "PPE" section)

**Enter Required Controls:** Refer to list of considered controls as required. Use two persons for lifting heavy equipment/coolers, use appropriate gloves to handle bottles and samples, SWA.

**Hazardous Activity #4**

Field-Sampling - manual soil sampling (hand auger, trowel, etc)

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):				Suggested FHSB Ref: III F, III AF, III AN			
Biological	-	Chemical	M	Driving	-	Electrical	-
Environmental	L	Gravity	M	Mechanical	-	Motion	M
Personal Safety	-	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: **Medium** Mitigated Risk: **Low** if utilizing:  
**Controls that should be Considered:** Primary: TRACK JSAs Job Rotation Job Briefing/Site Awareness Secondary: Inspections Specialized Equipment (specify below) PPE (see HASP "PPE" section)

**Enter Required Controls:** Refer to list of considered controls as required. Use appropriate gloves to handle samples and handauger, SWA.

Task 2: Well Installation								
<b>Hazardous Activity #1</b>								
Field-Drilling - Mechanical method (drill rig, DPT, etc)								
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):								
Biological <table border="1"><tr><td>3</td></tr></table>	3	Chemical <table border="1"><tr><td>1</td></tr></table>	1	Driving <table border="1"><tr><td>1</td></tr></table>	1	Electrical <table border="1"><tr><td>1</td></tr></table>	1	Suggested FHSB Ref: III E, III F, III AD, III AN
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Personal Safety <table border="1"><tr><td>2</td></tr></table>	2	Pressure <table border="1"><tr><td>1</td></tr></table>	1	Radiation <table border="1"><tr><td>1</td></tr></table>	1	Sound <table border="1"><tr><td>1</td></tr></table>	1	
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Overall Unmitigated Risk: <table border="1"><tr><td>High</td></tr></table>	High	Mitigated Risk: <table border="1"><tr><td>Medium</td></tr></table> if utilizing:	Medium	Primary: TRACK Engineering Controls (specify below) Admin. Controls (specify below) JSAs Inspections Secondary: Job Briefing/Site Awareness H&S Standards Cont./Emerg. Planning PPE (see HASP "PPE" section)				
High								
Medium								
<b>Controls that should be Considered:</b>								
<b>Enter Required Controls:</b>	Refer to list of considered controls as required. Use appropriate hearing protection, SWA.							
<b>Hazardous Activity #2</b>								
Field-Tools, hand - use of hammers, screwdrivers, wrenches, etc								
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):								
Biological <table border="1"><tr><td>-</td></tr></table>	-	Chemical <table border="1"><tr><td>-</td></tr></table>	-	Driving <table border="1"><tr><td>-</td></tr></table>	-	Electrical <table border="1"><tr><td>-</td></tr></table>	-	Suggested FHSB Ref: III AD
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Overall Unmitigated Risk: <table border="1"><tr><td>Medium</td></tr></table>	Medium	Mitigated Risk: <table border="1"><tr><td>Low</td></tr></table> if utilizing:	Low	Primary: TRACK JSAs Engineering Controls (specify below) Inspections Secondary: H&S Standards Job Briefing/Site Awareness Admin. Controls (specify below) Specialized Equipment (specify below) Site AwarenessPPE (see HASP "PPE" section)				
Medium								
Low								
<b>Controls that should be Considered:</b>								
<b>Enter Required Controls:</b>	Refer to list of considered controls as required. Use appropriate gloves and tools for task, SWA.							
<b>Hazardous Activity #3</b>								
Field - Well installation or Abandonment (all types)								
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):								
Biological <table border="1"><tr><td>L</td></tr></table>	L	Chemical <table border="1"><tr><td>L</td></tr></table>	L	Driving <table border="1"><tr><td>-</td></tr></table>	-	Electrical <table border="1"><tr><td>L</td></tr></table>	L	Suggested FHSB Ref: III F, III S, III AF
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Overall Unmitigated Risk: <table border="1"><tr><td>Medium</td></tr></table>	Medium	Mitigated Risk: <table border="1"><tr><td>Low</td></tr></table> if utilizing:	Low	Primary: TRACK JSAs Secondary: PPE (see HASP "PPE" section)				
Medium								
Low								
<b>Controls that should be Considered:</b>								
<b>Enter Required Controls:</b>	Refer to list of considered controls as required. Use appropriate tools for task use dust mask when handling cement or other small particle materials, SWA.							
<b>Hazardous Activity #4</b>								
General-Pinch points - moving parts from doors, closures, rotating devices, falling objects, well covers, manholes, etc								
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):								
Biological <table border="1"><tr><td>-</td></tr></table>	-	Chemical <table border="1"><tr><td>-</td></tr></table>	-	Driving <table border="1"><tr><td>-</td></tr></table>	-	Electrical <table border="1"><tr><td>-</td></tr></table>	-	Suggested FHSB Ref: III AF
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Overall Unmitigated Risk: <table border="1"><tr><td>Low</td></tr></table>	Low	Mitigated Risk: <table border="1"><tr><td>Low</td></tr></table> if utilizing:	Low	Primary: TRACK JSAs Engineering Controls (specify below) Secondary: Admin. Controls (specify below) Job Briefing/Site Awareness Inspections PPE (see HASP "PPE" section)				
Low								
Low								
<b>Controls that should be Considered:</b>								
<b>Enter Required Controls:</b>	Refer to list of considered controls as required. Use appropriate gloves and tools for task, SWA.							

<b>Task 3: Utility Clearance</b>																									
<b>Hazardous Activity #1</b>																									
Field-Utilities - drilling, digging or excavating in the vicinity of subsurface utilities																									
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):	Suggested FHSB Ref: III AN																								
<table style="width:100%; border: none;"> <tr> <td style="border: 1px solid black; padding: 2px;">Biological</td><td style="border: 1px solid black; padding: 2px; text-align: center;">3</td> <td style="border: 1px solid black; padding: 2px;">Chemical</td><td style="border: 1px solid black; padding: 2px; text-align: center;">1</td> <td style="border: 1px solid black; padding: 2px;">Driving</td><td style="border: 1px solid black; padding: 2px; text-align: center;">1</td> <td style="border: 1px solid black; padding: 2px;">Electrical</td><td style="border: 1px solid black; padding: 2px; text-align: center;">1</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">Environmental</td><td style="border: 1px solid black; padding: 2px; text-align: center;">1</td> <td style="border: 1px solid black; padding: 2px;">Gravity</td><td style="border: 1px solid black; padding: 2px; text-align: center;">1</td> <td style="border: 1px solid black; padding: 2px;">Mechanical</td><td style="border: 1px solid black; padding: 2px; text-align: center;">1</td> <td style="border: 1px solid black; padding: 2px;">Motion</td><td style="border: 1px solid black; padding: 2px; text-align: center;">1</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">Personal Safety</td><td style="border: 1px solid black; padding: 2px; text-align: center;">2</td> <td style="border: 1px solid black; padding: 2px;">Pressure</td><td style="border: 1px solid black; padding: 2px; text-align: center;">1</td> <td style="border: 1px solid black; padding: 2px;">Radiation</td><td style="border: 1px solid black; padding: 2px; text-align: center;">1</td> <td style="border: 1px solid black; padding: 2px;">Sound</td><td style="border: 1px solid black; padding: 2px; text-align: center;">1</td> </tr> </table>	Biological	3	Chemical	1	Driving	1	Electrical	1	Environmental	1	Gravity	1	Mechanical	1	Motion	1	Personal Safety	2	Pressure	1	Radiation	1	Sound	1	1
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Personal Safety	2	Pressure	1	Radiation	1	Sound	1																		
Overall Unmitigated Risk: <b>High</b>	Mitigated Risk: <b>Medium</b> if utilizing:																								
<b>Controls that should be Considered:</b>	Primary: TRACK H&S Standards Engineering Controls (specify below) Admin. Controls (specify below) Inspections Specialized Equipment (specify below) Secondary: JSAs Field H&S Handbook (see ref. above) Job Briefing/Site Awareness Cont./Emerg. Planning Engineering Controls (specify below) Admin. Controls (specify below)																								
<b>Enter Required Controls:</b>	Refer to list of considered controls as required. Use appropriate tools, minimum of 3 lines of evidence, look for overhead utilities presence or not, use appropriate barricade, SWA.																								
<b>Hazardous Activity #2</b>																									
Field-Survey - Geophysical																									
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):	Suggested FHSB Ref: III E, III F																								
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Overall Unmitigated Risk: <b>Medium</b>	Mitigated Risk: <b>Low</b> if utilizing:																								
<b>Controls that should be Considered:</b>	Primary: TRACK JSAs Engineering Controls (specify below) Specialized Equipment (specify below) Inspections Secondary: Job Rotation Job Briefing/Site Awareness Admin. Controls (specify below) PPE (see HASP "PPE" section)																								
<b>Enter Required Controls:</b>	Refer to list of considered controls as required. Use appropriate tools, minimum of 3 lines of evidence, look for overhead utilities presence or not, use appropriate barricade, SWA.																								
<b>Hazardous Activity #3</b>																									
Field-Utilities - equipment working in the vicinity of aboveground utilities																									
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):	Suggested FHSB Ref: III AN																								
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<b>Enter Required Controls:</b>	Refer to list of considered controls as required. Use appropriate tools, minimum of 3 lines of evidence, look for overhead utilities presence or not, use appropriate barricade, SWA.																								
<b>Hazardous Activity #4</b>																									
Field-Walking - uneven or slippery terrain																									
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):	Suggested FHSB Ref: III E, III F																								
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Overall Unmitigated Risk: <b>Medium</b>	Mitigated Risk: <b>Medium</b> if utilizing:																								
<b>Controls that should be Considered:</b>	Primary: TRACK Secondary: Housekeeping PPE (see HASP "PPE" section)																								
<b>Enter Required Controls:</b>	Refer to list of considered controls as required. Use appropriate steel toe boots covering ankle, identify uneven surfaces and establish a distance or mark them, SWA.																								

<b>Task 4: Groundwater Sampling/purging</b>								
<b>Hazardous Activity #1</b>								
Field-Measurement - water levels and well sounding								
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):								
Biological <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">-</td></tr></table>	-	Chemical <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">H</td></tr></table>	H	Driving <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">-</td></tr></table>	-	Electrical <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">-</td></tr></table>	-	Suggested FHSB Ref: III E, III F
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Overall Unmitigated Risk: <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">Low</td></tr></table>		Low	Mitigated Risk: <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">Low</td></tr></table> if utilizing:		Low			
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<b>Controls that should be Considered:</b>		Primary: TRACK JSAs Secondary: Job Briefing/Site Awareness PPE (see HASP "PPE" section)						
<b>Enter Required Controls:</b>		Refer to list of considered controls as required. Use appropriate gloves, safety glasses and ergonomics, SWA.						
<b>Hazardous Activity #2</b>								
Chemical-Flammables/Combustibles - used or stored at a site								
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):								
Biological <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">-</td></tr></table>	-	Chemical <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">H</td></tr></table>	H	Driving <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">-</td></tr></table>	-	Electrical <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">-</td></tr></table>	-	Suggested FHSB Ref: III AG
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Overall Unmitigated Risk: <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">High</td></tr></table>		High	Mitigated Risk: <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">Medium</td></tr></table> if utilizing:		Medium			
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<b>Controls that should be Considered:</b>		Primary: TRACK JSAs Engineering Controls (specify below) Secondary: Hazcom Training MSDS/SDS (see also HASP Hazcom/GHS section) Job Briefing/Site Awareness Cont./Emerg. Planning Admin. Controls (specify below) Specialized Equipment (specify below) Housekeeping PPE (see HASP "PPE" section)						
<b>Enter Required Controls:</b>		Refer to list of considered controls as required. Prohibited the use of gasoline cars/trucks at the Site, non smoking procedures, SWA.						
<b>Hazardous Activity #3</b>								
Field-Sampling - monitoring well sampling with electric, pneumatic or other non-manual pump								
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):								
Biological <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">-</td></tr></table>	-	Chemical <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">L</td></tr></table>	L	Driving <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">-</td></tr></table>	-	Electrical <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">L</td></tr></table>	L	Suggested FHSB Ref: III F, III AB, III AF
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Overall Unmitigated Risk: <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">Low</td></tr></table>		Low	Mitigated Risk: <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">Low</td></tr></table> if utilizing:		Low			
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<b>Controls that should be Considered:</b>		Primary: TRACK JSAs Engineering Controls (specify below) Inspections Secondary: Job Briefing/Site Awareness PPE (see HASP "PPE" section)						
<b>Enter Required Controls:</b>		Refer to list of considered controls as required. Use appropriate gloves, safety glasses and ergonomics, SWA.						
<b>Hazardous Activity #4</b>								
Field-Ambient environment - exposure heat, cold, sun, weather, etc								
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):								
Biological <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">-</td></tr></table>	-	Chemical <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">-</td></tr></table>	-	Driving <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">M</td></tr></table>	M	Electrical <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">L</td></tr></table>	L	Suggested FHSB Ref: III I, III M
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<b>Controls that should be Considered:</b>		Primary: TRACK Field H&S Handbook (see ref. above) Secondary: H&S Standards Engineering Controls (specify below) Admin. Controls (specify below) Specialized Equipment (specify below) PPE (see HASP "PPE" section)						
<b>Enter Required Controls:</b>		Refer to list of considered controls as required. Take rest time as needed, hydrate properly, SWA.						

Task 5: Mobilization/Demobilization							
<b>Hazardous Activity #1</b>							
Field-Mobilization/Demobilization - from a site							
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): <span style="float: right;">Suggested FHSB Ref: III V</span>							
Biological <table border="1"><tr><td>-</td></tr></table>	-	Chemical <table border="1"><tr><td>L</td></tr></table>	L	Driving <table border="1"><tr><td>M</td></tr></table>	M	Electrical <table border="1"><tr><td>-</td></tr></table>	-
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Overall Unmitigated Risk: <b>Medium</b>		Mitigated Risk: <b>Low</b> if utilizing:					
<b>Controls that should be Considered:</b>		Primary: TRACK Field H&S Handbook (see ref. above) Engineering Controls (specify below) Secondary: JSAs Job Briefing/Site Awareness PPE (see HASP "PPE" section) Admin. Controls (specify below)					
<b>Enter Required Controls:</b>		Refer to list of considered controls as required. Properly accommodate equipment on cars/trucks, use SmithDriving techniques, SWA.					
<b>Hazardous Activity #2</b>							
General-Lifting and movement of equipment of varying weights at varying frequencies by manual methods							
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): <span style="float: right;">Suggested FHSB Ref: III AF</span>							
Biological <table border="1"><tr><td>-</td></tr></table>	-	Chemical <table border="1"><tr><td>-</td></tr></table>	-	Driving <table border="1"><tr><td>-</td></tr></table>	-	Electrical <table border="1"><tr><td>-</td></tr></table>	-
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Overall Unmitigated Risk: <b>High</b>		Mitigated Risk: <b>Medium</b> if utilizing:					
<b>Controls that should be Considered:</b>		Primary: TRACK Engineering Controls (specify below) Job Rotation Secondary: JSAs Job Briefing/Site Awareness Specialized Equipment (specify below) Admin. Controls (specify below) Engineering Controls (specify below)					
<b>Enter Required Controls:</b>		Refer to list of considered controls as required. Take rest time as needed, hydrate properly, use two persons when lifting heavy equipment/coolers, SWA.					
<b>Hazardous Activity #3</b>							
Chemical-Corrosives - working with or exposure to corrosives in laboratory work, sample bottle preservatives, decon chemicals, etc							
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): <span style="float: right;">Suggested FHSB Ref: III AG</span>							
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Overall Unmitigated Risk: <b>Medium</b>		Mitigated Risk: <b>Low</b> if utilizing:					
<b>Controls that should be Considered:</b>		Primary: TRACK JSAs Engineering Controls (specify below) Secondary: H&S Standards Job Briefing/Site Awareness Hazcom Training MSDS/SDS (see also HASP Hazcom/GHS section) Admin. Controls (specify below) Specialized Equipment (specify below) Housekeeping PPE (see HASP "PPE" section)					
<b>Enter Required Controls:</b>		Refer to list of considered controls as required. Use appropriate tools for tasks, use appropriate gloves to handle bottles and samples, SWA.					
<b>Hazardous Activity #4</b>							
Field-Biological - insects, spiders, snakes, etc							
Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): <span style="float: right;">Suggested FHSB Ref: III N</span>							
Biological <table border="1"><tr><td>M</td></tr></table>	M	Chemical <table border="1"><tr><td>-</td></tr></table>	-	Driving <table border="1"><tr><td>-</td></tr></table>	-	Electrical <table border="1"><tr><td>-</td></tr></table>	-
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Environmental <table border="1"><tr><td>-</td></tr></table>	-	Gravity <table border="1"><tr><td>-</td></tr></table>	-	Mechanical <table border="1"><tr><td>-</td></tr></table>	-	Motion <table border="1"><tr><td>-</td></tr></table>	-
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Personal Safety <table border="1"><tr><td>-</td></tr></table>	-	Pressure <table border="1"><tr><td>-</td></tr></table>	-	Radiation <table border="1"><tr><td>-</td></tr></table>	-	Sound <table border="1"><tr><td>-</td></tr></table>	-
-							
-							
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-							
Overall Unmitigated Risk: <b>Medium</b>		Mitigated Risk: <b>Medium</b> if utilizing:					
<b>Controls that should be Considered:</b>		Primary: TRACK Engineering Controls (specify below) Secondary: JSAs HASP Job Briefing/Site Awareness PPE (see HASP "PPE" section) Housekeeping					
<b>Enter Required Controls:</b>		Refer to list of considered controls as required. Use of insect repellents, caution if spotted an animal with unexpected behavior and avoid contact, SWA.					

**Hazard Communication (HazCom)/Global Harmonization System (GHS)**

HAZCOM/GHS for this project is managed by the client or general contractor

List the chemicals anticipated to be used by Arcadis on this project per HazCom/GHS requirements.  
(Modify quantities as needed)

Preservatives	Qty	Decontamination	Qty	Calibration	Qty.
<input type="checkbox"/> Not applicable		<input type="checkbox"/> Not applicable		<input type="checkbox"/> Not applicable	
<input checked="" type="checkbox"/> Hydrochloric acid	<500 ml	<input checked="" type="checkbox"/> Alconox	≤ 5 lbs	<input checked="" type="checkbox"/> Isobutylene/air	1 cyl
<input type="checkbox"/> Nitric acid	<500 ml	<input type="checkbox"/> Liquinox	≤ 1 gal	<input checked="" type="checkbox"/> Methane/air	1 cyl
<input type="checkbox"/> Sulfuric acid	<500 ml	<input type="checkbox"/> Acetone	≤ 1 gal	<input checked="" type="checkbox"/> Pentane/air	1 cyl
<input type="checkbox"/> Sodium hydroxide	<500 ml	<input type="checkbox"/> Methanol	≤ 1 gal	<input checked="" type="checkbox"/> Hydrogen/air	1 cyl
<input type="checkbox"/> Zinc acetate	<500 ml	<input type="checkbox"/> Hexane	≤ 1 gal	<input checked="" type="checkbox"/> Propane/air	1 cyl
<input type="checkbox"/> Ascorbic acid	<500 ml	<input type="checkbox"/> Isopropyl alcohol	≤ 4 gal	<input type="checkbox"/> Hydrogen sulfide/air	1 cyl
<input type="checkbox"/> Acetic acid	<500 ml	<input type="checkbox"/> Nitric acid	≤ 1 L	<input type="checkbox"/> Carbon monoxide/air	1 cyl
<input type="checkbox"/> Isopropyl alcohol	< 4 gal.	<input type="checkbox"/> Other:		<input checked="" type="checkbox"/> pH standards (4,7,10)	≤ 1 gal
<input type="checkbox"/> Formalin (<10%)	< 4 gal.	_____		<input type="checkbox"/> Conductivity standards	≤ 1 gal
<input type="checkbox"/> Methanol	<500 ml	_____		<input type="checkbox"/> Other:	
<input type="checkbox"/> Sodium bisulfate	<500 ml	_____		<input checked="" type="checkbox"/>	

Fuels	Qty.	Kits	Qty.
<input type="checkbox"/> Not applicable		<input type="checkbox"/> Not applicable	
<input type="checkbox"/> Gasoline	≤ 5 gal	<input checked="" type="checkbox"/> Hach (specify):	_____ 1 kit
<input checked="" type="checkbox"/> Diesel	≤ 5 gal	<input type="checkbox"/> DTECH (specify):	_____ 1 kit
<input checked="" type="checkbox"/> Kerosene	≤ 5 gal	<input type="checkbox"/> Other:	_____ 1 kit
<input type="checkbox"/> Propane	1 cyl	<input type="checkbox"/>	
<input type="checkbox"/> Other:		_____	
<input checked="" type="checkbox"/> Jet Fuel, Ethanol		_____	

Remediation	Qty.	Other:	Qty.	DOT(1):	Qty.
<input type="checkbox"/> Not applicable		<input type="checkbox"/> Not applicable		<input type="checkbox"/> MOT eligible soils	
<input checked="" type="checkbox"/> _____		<input type="checkbox"/> Spray paint	≤ 6 cans	<input type="checkbox"/> MOT eligible water	
<input type="checkbox"/> _____		<input type="checkbox"/> WD-40	≤ 1 can	<input type="checkbox"/> MOT eligible solids	
<input type="checkbox"/> _____		<input checked="" type="checkbox"/> Pipe cement	≤ 1 can	<input type="checkbox"/> MOT eligible liquids	
<input type="checkbox"/> _____		<input type="checkbox"/> Pipe primer	≤ 1 can	_____	
<input type="checkbox"/> _____		<input type="checkbox"/> Mineral spirits	≤ 1 gal	_____	
<input type="checkbox"/>		<input type="checkbox"/>		_____	

Attach applicable Materials of Trade (MOT) generic shipping determination. SDS not generally applicable to this category.  
Safety Data Sheets (SDSs) must be available to field staff. Indicate below how SDS information will be provided:

- |  |   |
|--|---|
| <input type="checkbox"/> Not applicable  | <input type="checkbox"/> Contractor SDSs are not applicable           |
| <input type="checkbox"/> Printed copy in company vehicle                                       | <input type="checkbox"/> Contractor SDSs are attached                 |
| <input type="checkbox"/> Printed copy in the project trailer/office                            | <input type="checkbox"/> Contractor SDSs will be on site and located: |
| <input type="checkbox"/> Printed copy attached   | _____   |
| <input type="checkbox"/> Electronic copy on field computer                                     | <input type="checkbox"/>  |
| <input checked="" type="checkbox"/> Bulk quantities of the following materials will be stored: | _____   |

Contact the project H&S contact for information in determining code and regulatory requirements associated with bulk storage of materials.



**Monitoring**

Chemical air monitoring is not required for this project or is the responsibility of contractor.

For projects requiring air monitoring, list the relevant constituents representing a hazard to site workers.

Constituent	Max. Conc.	Units	TWA	STEL	IDLH	LEL/UEL	VD	VP	IP
			Units	Units	Units	(%)	Air=1	(mm Hg)	(eV)
Gasoline	>2000	ppm	30 p,A	500	NA	-	1.4/7.6	0 NA	38-300 NA
Diesel	>2000	ppm	100 m,s	NA	NA	-	NA	0 NA	NA NA
Ethanol			1000 p,N	1000	3300	p,N	3.3/19	0 NA	44 10.47
None			9999 -	0	0	-	0	0 0	0 0
None			9999 -	0	0	-	0	0 0	0 0
None			9999 -	0	0	-	0	0 0	0 0

Notes: TWAs are ACGIH 8 hr.-TLVs unless noted.

p-ppm m-mg/m3 c2- ceiling (2 hr.) se-sensitizer A - Arcadis specific TWA\*  
s- skin c-ceiling "9999" - NA O-OSHA PEL "#N/A"-Manually enter  
r- respirable i-inhalable N-NIOSH 10 hr. REL information

**Monitoring Equipment and General Protocols**

Air monitoring is required for any task or activity where employees have potential exposure to vapors or particulates above the TWA. Action levels below are appropriate for most situations. Contact the project H&S contact for all stop work situations. Select monitoring frequency and instruments to be used.

Monitoring Frequency: **Continuously**  
Indicator Tube/Chip Frequency: **Indicator tube/chip monitoring not required**

Instrument	Action Levels	Actions
<input checked="" type="checkbox"/> Photoionization Detector Lamp (eV): <b>10.6</b>	< 22.930 22.930 - 45.860 > 45.860	Continue work Sustained >5 min. continuous monitor, review eng. controls and PPE, proceed with caution Sustained >5 min. stop work, contact SSO
<input type="checkbox"/> Flame Ionization Detector (FID)	< 0.0 0.0 - 0.0 > 0.0	Continue work Sustained >5 min. continuous monitor, review eng. controls and PPE, use caution Sustained >5 min. stop work, contact SSO
<input checked="" type="checkbox"/> LEL/O2 Meter	0-5% LEL >5-10% LEL >10% LEL 19.5%-23.5% O2 <19.5% O2 >23.5% O2	Continue work Continuous monitor, review eng. controls, proceed with caution Stop work, evacuate, contact SSO Normal, continue work O2 deficient, stop work, evacuate, cont. SSO O2 enriched, stop work, evacuate, contact SSO
Indicator: tube chip	≤PEL/TLV >PEL/TLV	Continue work Stop work, review eng. controls and PPE, contact SSO
Compound(s):		
<input type="checkbox"/> Particulate Monitor (mists, aerosols, dusts in mg/m <sup>3</sup> )	< 1.5 1.5 - 3.000 > 3.000	Continue work Use engineering controls, monitor continuously Stop work, review controls, contact SSO
<input type="checkbox"/> Other:	Specify: CO , H2S	Specify: For H2S ≤ 0.5 ppm - Continue work > 0.5 ppm - Stop Work For CO ≤ 10 ppm - Continue Work > 10 ppm - Stop Work
<input checked="" type="checkbox"/>	One or more constituents above is listed with a skin notation. Avoid conditions where dusts, mists, or aerosols are created. Avoid skin contact with impacted media. *The TWA for gasoline is an Arcadis administrative action level for use with PID or FID. Use of this administrative action level will ensure worker exposure to benzene will be below 0.5 ppm. Compound specific monitoring for benzene will not be required for gasoline vapor monitoring on this project.	



**Personal Protective Equipment (PPE)**

**See JSA or Permit for the task being performed for required PPE.** If work is not conducted under a JSA or Permit, refer to the governing document for PPE requirements. At a minimum, the following checked PPE is required for all tasks during field work (outside of field office trailers and vehicles) not covered by a JSA or Permit on this project:

Minimum PPE required to be worn by all staff on project:

<input checked="" type="checkbox"/> Hard hat	<input type="checkbox"/> Snake chaps/guards	Coveralls:	Specify Type: _____
<input checked="" type="checkbox"/> Safety glasses	<input type="checkbox"/> Leather chaps	Aluminum:	_____
<input checked="" type="checkbox"/> Safety goggles	<input type="checkbox"/> Chainsaw chaps	Chem. resistant gloves:	nitrile
<input type="checkbox"/> Face shield	<input type="checkbox"/> Sturdy boot	Gloves other:	cut resistant, leather
<input type="checkbox"/> Hearing protection	<input type="checkbox"/> Steel or comp. toe boot	Chemical boot:	_____
<input type="checkbox"/> Rain suit	<input checked="" type="checkbox"/> Metatarsal boot	Boot other:	_____
<input type="checkbox"/> Other:	<input type="checkbox"/> _____	Traffic vest, shirt or coat:	Class II
<input type="checkbox"/> _____	<input type="checkbox"/> _____	Life vest:	_____
<input type="checkbox"/> _____			

Task specific PPE: **Hearing protection for Drilling Activities / Knee pads for well purging/sampling**

Comments:

**Medical Surveillance (check all that apply)**

Medical Surveillance is not required for this project.

HAZWOPER medical surveillance applies to all Arcadis site workers on the project.

- HAZWOPER medical surveillance applies to all subcontractors on the project.
- HAZWOPER medical surveillance applies to all site workers on the project except:
- 
- 

Other medical surveillance required (describe type and who is required to participate):

- Client drug and/or alcohol testing required.

**Hazardous Materials Shipping and Transportation (check all that apply)**

Not applicable, no materials requiring a Shipping Determination (SD) will be transported or shipped

A SD has been reviewed and provided to field staff

A SD is attached (1 for water / 1 for soil samples)

- All HazMat will be transported under Materials of Trade by Arcadis (see generic MOT SD Form)
- Other (specify):
- 

**roadway Work Zone Safety (check all that apply)**

- Not applicable for this project
- All or portions of the work conducted under a TCP
- All or portions of the work conducted under a STAR Plan
- TCP or STAR Plan provided to field staff

- TCP or STAR Plan attached
- Other (specify):

**Arcadis Commercial Motor Vehicles (CMVs)**

This section is applicable to Arcadis operated vehicles only

- This project will **not** utilize CMV drivers
- This project will utilize CMV drivers

**Site Control (check all that apply)**

- Not applicable for this project.
- Site control protocols are addressed in JSA or other supporting document (attach)
- Maintain an exclusion zone of 5 ft. around the active work area
- Site control is integrated into the STAR Plan or TCP for the project
- Level C site control - refer to Level C Supplement attached
- Other (specify):

**Decontamination (check all that apply)**

- Not applicable for this project.
- Decontamination protocols are addressed in JSA or other governing document (attach)
- Wash hands and face prior to consuming food, drink or tobacco.
- Remove gloves and coveralls and contain, wash hands and face prior to consuming food, drink or tobacco. Ensure footwear is clean of site contaminants
- Respiratory protection- refer to the Level C supplement attached.
- Other (specify):
- 

**Sanitation (check all that apply)**

- Mobile operation with access to off-site restrooms and potable water
- Restroom facilities on site provided by client or other contractor
- Project to provide portable toilets (1 per 20 workers)
- Potable water available on site
- Project to provide potable water (assume 1 gal./person/day)
- Project requires running water (hot and cold, or tepid) with soap and paper towels
- 

**Safety Briefings (check all that apply)**

- Safety briefing required daily
- Safety briefing required twice a day
- Safety briefings required at the following frequency: \_\_\_\_\_
- Subcontractors to participate in Arcadis safety briefings
- Arcadis to participate in client/contractor safety briefings
- Other (specify):
- 
- 

**Safety Equipment and Supplies**

**Safety equipment/supply requirements are addressed in the JSA or Permit for the task being performed. If work is not performed under a JSA or Permit, the following safety equipment is required to be present on site in good condition (Check all that apply):**

- |  |   |
|--|---|
| <input type="checkbox"/> First aid kit                         | <input type="checkbox"/> Insect repellent         |
| <input type="checkbox"/> Bloodborne pathogens kit              | <input type="checkbox"/> Sunscreen                |
| <input type="checkbox"/> Fire extinguisher                     | <input checked="" type="checkbox"/> Air horn      |
| <input checked="" type="checkbox"/> Eyewash (ANSI compliant)   | <input checked="" type="checkbox"/> Traffic cones |
| <input type="checkbox"/> Eyewash (bottle)                      | <input checked="" type="checkbox"/> 2-way radios  |
| <input checked="" type="checkbox"/> Drinking water             | <input type="checkbox"/> Heat stress monitor      |
| <input type="checkbox"/> Other:                                | <input checked="" type="checkbox"/> _____         |
| <input checked="" type="checkbox"/> <u>Flags, caution tape</u> | <input checked="" type="checkbox"/> _____         |

**International Travel**

- This project does not involve international travel
- This project involves international travel

**Behavior Based Safety Program (check all that apply)**

- TIP required at the following frequency on this project:  
 Select One: \_\_\_\_\_ mhrs 2 time(s) \_\_\_\_\_ Define: \_\_\_\_\_
- H&S Field Assessment required at the following frequency on this project:  
 Select One: \_\_\_\_\_ mhrs \_\_\_\_\_ time(s) \_\_\_\_\_ Define: \_\_\_\_\_
- Other (specify): \_\_\_\_\_

**Signatures**

I have read, understand and agree to abide by the requirements presented in this health and safety plan. I understand that I have the absolute right to stop work if I recognize an unsafe condition affecting my work until corrected.

Printed Name	Signature	Date
<u>Fernando Merado Buzo</u>	<u>[Signature]</u>	<u>11-4-16</u>
<u>FERNANDO Colon</u>	<u>[Signature]</u>	<u>5-5-16</u>
<u>Marcial Flores</u>	<u>[Signature]</u>	<u>06-15-16</u>
<u>Andrés Colon</u>	<u>[Signature]</u>	<u>7-12-16</u>
<u>Eliot Delgado</u>	<u>[Signature]</u>	<u>Aug-08-2016</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Add additional sheets if necessary

**You have an absolute right to STOP WORK if unsafe conditions exist!**

**Attachments**







## Job Safety Analysis

### General

JSA ID	6004	Status	(2) Review
Job Name	Environmental-Groundwater Sampling and free product recovery	Created Date	9/26/2011
Task Description	Groundwater Sampling	Completed Date	
Template	False	Auto Closed	False

### Client / Project

Client	PUMA ENERGY CARIBE, LLC
Project Number	B00457070000
Project Name	ESA AND PHASE II AT RETAIL SS
PIC	ALONSO, JOHN
Project Manager	CALDERON, EFRAIN

### User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Lewis, Bianca	11/7/2011	10/17/2011	Quiles Greo, Zaymar	<input checked="" type="checkbox"/>
HASP Reviewer	Sprick, Grant	10/31/2011		Taylor, Gregson William	<input checked="" type="checkbox"/>

### Job Steps

Job Step No.	Job Step Description	Potential Hazard	Critical Action	H&S Reference
1	Stage at pre-determined sampling location and set up work zone and sampling equipment	1 personnel could be hit by vehicular traffic.	Set-up cones and establish work area. Position vehicle so that field crew is protected from site traffic. Unload as close to work area as safely possible.	
		2 Sampling equipment, tools and monitoring well covers can cause tripping hazard	Keep equipment picked up and use TRACK to assess and changes	
2	Open wells to equilibrate and gauge wells	1 When squatting down, personnel can be difficult to see by vehicular traffic.	Wear Class II traffic vest if wells are located proximal to vehicular traffic. Use tall cones and the buddy system if practicable.	
		2 pinchpoints on well vault can pinch or lacerate fingers	Use correct tools to open well vault/cap. Wear leather gloves when removing well vault lids, and chemical protective gloves while gauging. Wear proper PPE including safety boots, knee pads and safety glasses.	
		3 Lifting sampling equipment can cause muscle strain	Unload as close to work area as safely possible; use proper lifting and reaching techniques and body positioning; don't carry more than you can handle, and get help moving heavy or awkward objects.	
		4 Pressure can build up inside well causing cap to release under pressure	Keep head away from well cap when removing. If pressure relief valves are on well use prior to opening well	
3	Begin Purging Well and Collecting Parameter Measurements	1 Electrical shock can occur when connecting/disconnecting pump from the battery.	Make sure equipment is turned off when connecting/disconnecting. Wear leather gloves. Use GFCIs when using powered tools and pumps. Do not use in the rain or run electrical cords through wet areas.	
		2 purge water can spill or leak from equipment	Stop purging activities immediately, stop leakage and block any drainage grate with sorbent pads. Call PM to notify them of any reportable spill.	
		3 Water spilling on the ground can cause muddy/slippery conditions	Be careful walking in work area when using plastic around well to protect from spillage	
		4 lacerations can occur when cutting materials such as plastic tubing	When cutting tubing, use tubing cutter. No open fixed blades should ever be used. When possible wear work gloves, leather type.	
		5 purge water can splash into eyes	Pour water slowly into buckets/drums to minimize splashing. Wear safety glasses	
4	Collect GW or Free Product Sample	1 Working with bailer rope can cause rope burns on hands.	Slowly raise and lower the rope or string for the bailer. Wear appropriate gloves for the task.	

4	Collect GW or Free Product Sample	2	sample containers could break or leak preservative	Discard any broken sampleware or glass properly. Do not overtighten sample containers. Wear chemical protective gloves
5	Recovery of Free Product from well	1	exposure to free product	Additional chemical protection may be necessary based on the type of product. Additionally, safety goggles, a faceshield, or respiratory protection may be required. Verify in the HASP.
6	Staging of Well Purge water and/or Free Product	1	Muscle strains can occur when moving purge water or drums	If using buckets, do not fill buckets up to the top. Always keep lid on buckets when traveling or moving them to another location. Only half fill buckets so when dumping the buckets weigh less. If the task requires the movement of drums review drum handling JSA for movement of drums.

*Drum handling JSA well oxidized locks difficult to open sometimes*

**PPE Personal Protective Equipment**

Type	Personal Protective Equipment	Description	Required
Dermal Protection	long sleeve shirt/pants		Required
Eye Protection	safety glasses		Required
Foot Protection	steel-toe boots		Required
Hand Protection	chemical resistant gloves (specify type)	nitrile and cut resistant	Required
	work gloves (specify type)	leather	Required
Head Protection	hard hat		Required
Miscellaneous PPE	other		Required
		Knee pads	Required

**Supplies**

Type	Supply	Description	Required
Communication Devices	mobile phone		Required
Decontamination	Decon supplies (specify type)	sprayers,alconox,towel paper	Required
Miscellaneous	fire extinguisher		Required
	first aid kit		Required
Personal	eye wash (specify type)	bottle	Required
	insect repellent		Required
	sunscreen		Recommended
Traffic Control	traffic cones		Recommended

June 1, 16 June 2, 16 June 3, 16 June 4, 16  
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6-7-16 06-15-16 06-16-16  
Ullat B M-078 M-078

06-21-16 6-22-16 6-23-16 6-24-16 6-27-16 6-28-16  
M-078 Ullat B Ullat B Ullat B Ullat B Ullat B

6-30-16 7-5-16 7-6-16 7-12-16 7-13-16 7-14-16 7-15-16  
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08/10/16 08/11/16 8/15/16 8/16/16  
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## Job Safety Analysis

### General

JSA ID	5971	Status	(3) Completed
Job Name	Environmental-Other	Created Date	9/20/2011
Task Description	Mobilization / Demobilization	Completed Date	10/04/2011
Template	False	Auto Closed	False

### Client / Project

Client	PUMA ENERGY CARIBE, LLC
Project Number	B00457070000
Project Name	ESA AND PHASE II AT RETAIL SS
PIC	ALONSO, JOHN
Project Manager	CALDERON, EFRAIN

### User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Lebron, Rita	10/17/2011	10/3/2011	Calderon, Efrain	<input checked="" type="checkbox"/>
Developer	Lewis, Bianca	10/17/2011	10/3/2011	Quiles Greo, Zaymar	<input checked="" type="checkbox"/>
Developer	Quiles Greo, Zaymar	10/17/2011	10/3/2011	Calderon, Efrain	<input checked="" type="checkbox"/>
HASP Reviewer	Sprick, Grant	10/17/2011	10/4/2011	Taylor, Gregson William	<input checked="" type="checkbox"/>

### Job Steps

Job Step No.	Job Step Description	Potential Hazard	Critical Action	H&S Reference
2	Mobilization to the Site	1 Collision, injury or death to occupants or other parties; Property damage	1. Secure all equipment in the vehicle prior to driving. 2. Obey all traffic laws and abide by posted speed limits. 3. Be aware of your surroundings and maintain a distance of 4 seconds behind the vehicle ahead. Add distance for adverse weather conditions. 4. Verify that all employees have accurate and understandable directions to the site. Use preprinted map or GPS. 5. Avoid driving when tired. Use cell phones for emergency contact. Do not use cell phones while driving. 6. Complete vehicle inspection checklist.	
		2 Weather Hazards/Road Conditions	Check local and destination forecasts and Road conditions for dates of travel	
3	Loading and unloading materials and equipment	1 Slips, trips, and falls; Lifting hazards and back strain.	Staff should use proper lifting techniques and to request assistance when lifting heavy equipment. Use dolly to transport equipment, if needed.	
		2 Pinch points/lacerations during equipment loading	Identify/avoid pinch points and sharp edges. Wear leather gloves to protect hands/fingers	
		3 Working near vehicles	Be mindful of traffic at all times. Use cones, barricades and signs as appropriate. Wear reflective traffic vests at all times.	
5	Demobilization	1 Slips, trips, and falls; Loss of equipments/supplies from moving vehicle; lifting hazards	Keep all walkways clear of equipment and materials. Follow safe driving procedures (following distances, speed, headlights, safety belts, etc.). Do not use cell phone when driving. Properly secure all equipments and supplies before operating vehicle. Use proper lifting technique.	<i>uneven rocky surfaces</i>
1	Verify all permits, forms, and trainings have been completed.	1 Administrative function - no hazards anticipated. Action is to ensure health and safety/regulatory compliance	Employees must have the following required training: OSHA 40-Hour HAZWOPER and refresher; First aid/CPR; medical clearance; DOT Hazardous Materials Shipping Training	
4	Working outdoors	1 Temperature-related illnesses (heat stress); Weather hazards.	Ensure all field staff drinks plenty of fluids; take breaks as needed to avoid overheating, frostbite, etc., dress appropriately for weather conditions. Check local weather forecasts daily use sunscreen as appropriate, monitor changes in weather, shutdown operations if extreme weather conditions occur; postpone work if lightning is observed or expected.	<i>high humidity</i>

*Wetland area  
many  
no quitoes.*

4	Working outdoors	2	Biological hazards (insects and plants)	1. Inspect area for hazardous plants and insects. 2. Apply insect repellent containing DEET during insect season. 3. Check for ticks throughout the day.
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PPE Personal Protective Equipment			
Type	Personal Protective Equipment	Description	Required
Dermal Protection	long sleeve shirt/pants		Required
Eye Protection	safety glasses		Required
Foot Protection	Other	Traffic Safety Vest	Required
	steel-toe boots		Required
Hand Protection	work gloves (specify type)		Required

Supplies			
Type	Supply	Description	Required
Communication Devices	mobile phone		Required
Miscellaneous	fire extinguisher		Required
	first aid kit		Required
	Other	Traffic cones and flags	Required
Personal	eye wash (specify type)		Required
	insect repellent		Required
	sunscreen		Required

Review Comments		
Reviewer	Comments	
Employee: Role Review Type Completed Date	Sprick, Grant HASP Reviewer Approve 10/4/2011	Thank you for incorporating comments. Nice job.

*June 1, 16*  
*Uelats*

*June 2, 16*  
*Uelats*

*June 3, 16*  
*Uelats*

*June 6, 16*  
*Uelats*

*6-7-16*  
*Uelats*

*6/10/16*  
*Uelats*

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*U-DTS*

*06-16-16*  
*U-DTS*

*06-21-16*  
*U-DTS*

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*Uelats*

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*Uelats*

## Job Safety Analysis

### General

JSA ID	10778	Status	(3) Completed
Job Name	Environmental-Other	Created Date	3/13/2014 (Manually Revised 8/5/16, RNL)
Task Description	Light Vegetation Clearance	Completed Date	04/18/2014 (Manually Revised 8/5/16, RNL)
Template	False	Auto Closed	True

### Client / Project

Client	TRAFIGURA (PUMA, ET.AL.)
Project Number	B00457140000/ B0063767
Project Name	RCRA CORRECTIVE ACTION AT FORMER CAPECO/ Biannual Sampling Events June & Dec 2016
PIC	ALONSO, JOHN
Project Manager	CALDERON, EFRAIN

### User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Calderon, Efrain	4/4/2014	3/21/2014	Alonso, John C.	
Developer	Hernandez Rivera, Gisela	4/4/2014	3/21/2014	Lebron, Rita N.	
HASP Reviewer	Lebron, Rita N.	4/4/2014	8/5/2016	Calderon, Efrain	
Reviewer	Alonso, John C.	4/4/2014	3/23/2014	Cameron, Gary R.	

### Job Steps





Job Step No.	Job Step Description	Potential Hazard	Critical Action	H&S Reference
1	Conduct TRACK, review Stop Work Authority and PUMA ENERGY General Safety Rules	1 Loss / Near Loss (Accident / Incident)	<ul style="list-style-type: none"> <li>Always conduct TRACK prior to start, during and after a task or job step.</li> <li>All personnel have the right and responsibility to use their Stop Work Authority id conditions or actions make working unsafe.</li> <li>Remember PUMA ENERGY Safety Rules and discuss them during tailgate meeting and how they will be applied for the tasks.</li> <li>Follow ARCADIS and PUMA ENERGY reporting procedures for any Loss/Near Loss.</li> </ul>	ARCHSMS000, ARCHSGE001, ARCHSGE009
2	Working outdoors / accessing target locations	1 Slip, trip and fall from uneven terrain 2 Puncture or lacerations from thorns and pointed features on shrubs/plants/trees or on ground 3 Excessive heat and sun exposition 4 Bites from insects, rodents, bees, etc. 5 Potentially dangerous wildlife	<ul style="list-style-type: none"> <li>Be aware of uneven terrain.</li> <li>Walk carefully, watch footing, stay alert and keep track of coworkers.</li> <li>Scan the area ahead while walking and limit walking past shrubbery.</li> <li>Assess area and be aware of surrounding / foot placement when walking and before bending.</li> <li>Use proper clothing including hat, long sleeve shirt, and long pant.</li> <li>Maintain a regular consumption of water or electrolyte beverage.</li> <li>Take rest as needed.</li> <li>Use sunblock with minimum SPF 15.</li> <li>Use effective insect repellent.</li> <li>Wear long pants and long sleeve shirts.</li> <li>Keep alert of rodents and watch the ground carefully.</li> <li>Do not attempt to make contact with any biological hazard.</li> <li>Be aware of mongoose, iguanas, alligators, etc.</li> <li>Scan the area and avoid encounters with large animals.</li> </ul>	H&S Field Handbook 2014 Section III.F,M, N,

<b>PPE Personal Protective Equipment</b>			
Type	Personal Protective Equipment	Description	Required
<b>Dermal Protection</b>	long sleeve shirt/pants		Required
<b>Eye Protection</b>	safety glasses		Required
<b>Face Protection</b>	faceshield		Required
<b>Foot Protection</b>	steel-toe boots		Required
<b>Hand Protection</b>	work gloves (specify type)	Leather	Required
	work gloves (specify type)	Cut resistant gloves (to sharpen the machete)	Required
		Nitrile (to refuel trimmer)	
<b>Head Protection</b>	hard hat		Required
<b>Hearing Protection</b>	Ear plugs		Required
	Ear muffs	In combination with ear muffs	Recommended
<b>Miscellaneous PPE</b>	traffic vest--Class II or III		Required
	shin guards/leather chaps	Machete and trimmer use	Required

<b>Supplies</b>			
Type	Supply	Description	Required
<b>Communication Devices</b>	mobile phone	In designated areas	Required
	walkie talkie	If available, In designated areas	Recommended
<b>Miscellaneous</b>	fire extinguisher	ABC	Required
	first aid kit		Required
	Other	TWIC card	Required
	Other	Absorbent materials	Required
<b>Personal</b>	eye wash (specify type)	Bottle	Required
	insect repellent		Required
	sunscreen		Required
	water/fluid replacement		Required

<b>Review Comments</b>		
Reviewer		Comments
<b>Employee:</b> <b>Role</b> <b>Review Type</b> <b>Completed Date</b>	Lebron, Rita N. HASP Reviewer Revise 3/21/2014	Add first step (TRACK) and references from ARCADIS Employee Field H&S Handbook related to DD. Vegetation Management.
<b>Employee:</b> <b>Role</b> <b>Review Type</b> <b>Completed Date</b>	Alonso, John C. Reviewer Approve 3/23/2014	Very well written and appropriate for use at this site. Users should remphasize that the use of the machete is only for intended use as indicated very clearly in the JSA.

05/05/16      05/09/16      05/10/16      5/11/16



The Safe Work Permit is an agreement between the permit issuer (designated by ARCADIS) and the permit receiver (workers) and identifies the following:

- All potential hazards associated with the job (including adjacent work areas) and the measures taken to control or eliminate hazards
- Conditions (e.g., equipment preparation, atmospheric testing, waste disposal) under which work can proceed
- Required safety equipment (e.g., PPE, rescue equipment, self-contained breathing apparatus) to complete the work safely
- Names of all workers assigned to complete the job

The Safe Work Permit will aid in identifying and controlling hazards at the project site, but it will not by itself make the job safer.

Examples of circumstances where Safe Work Permits are issued are presented below:

- **Lockout/Tagout:** Permits work involving the control of hazardous energy sources.
- **Hot Work:** Permits work involving open flames, sparks or other sources of ignition that could create a fire or explosion hazard in a hydrocarbon atmosphere.
- **Vessel Entry/Confined Space Entry:** Permits entry into spaces with restricted access or egress (e.g., fuel tanks, pipelines, pumping stations, process vessels, septic tanks, sewage digesters, manholes, vats and pits).
- **Ground Disturbance:** Permits excavations and other ground disturbance activities.
- **Maintenance Work:** Permits work for general maintenance on equipment or facilities where potential hazards may exist (e.g., energized electrical equipment, hydrogen sulfide or pressure).
- **Vehicle Entry:** Permits and controls the access of vehicles and heavy equipment onto hazardous locations. This permit can also be issued in combination with the above Safe Work Permits.
- **Nonintrinsically Safe Equipment:** Ask the SS if use of nonhazardous-location-rated electronic equipment (e.g., cellular phones, cameras, defibrillators, pagers, flashlights, laptops, PDAs, remote starters) is permitted.

## F. General Housekeeping, Personal Hygiene and Field Sanitation

Employees will be made aware of the appropriate method to dispose of waste and will observe good housekeeping practices at ARCADIS offices and project sites. Such practices include, but are not limited to, the following:

- Maintain project sites in an orderly fashion and clean up after each job has been completed and at the end of a worker's shift. Equipment, tools, extension cords, materials and supplies must be stored in a safe and orderly manner.
- Keep project sites clean and free of oil, grease, mud and other slippery materials to prevent slip, trip and fall hazards; post signs to warn others of slippery floors.
- Ensure that aisles and walkways, entrances and exits, and access to firefighting and first aid equipment are kept clear of obstructions.
- Collect and properly dispose of hazardous wastes, according to ARCADIS waste control practices and regulatory and client requirements.
- Avoid placing monitoring equipment on a potentially contaminated surface, including the ground surface.
- Keep building entrances, exits, platforms and stairwells free of snow and ice.
- Never set tools or materials on raised areas where they might fall and strike another worker.
- Remove all sharp objects when noticed, including scrap metal, broken glass, nails in wood, scrap welding rods, reinforcing steel and tin.
- Leave washing and toilet facilities in good sanitary condition for others.
- Report any safety hazards that cannot be quickly remedied.

During site activities, employees will regularly observe project sites to identify excess trash and unnecessary debris. Employees will collect excess debris and trash and store it in an appropriate container (e.g., plastic trash bags, garbage can, roll-off bin) prior to disposal. At no time will debris or trash be intermingled with waste PPE or contaminated materials. Additionally, project equipment and supplies will be kept in an orderly manner so as not to create a trip hazard.



## Personal Hygiene

Proper personal hygiene practices are extremely important when handling or working near hazardous materials. ARCADIS employees will use the following personal hygiene practices to minimize or eliminate exposures:

- Always wash hands, face and exposed skin surfaces with soap and water after working with chemicals or hazardous materials. Always wash before eating, drinking, chewing, smoking or when using toilet facilities, even if you have been wearing gloves. Washing must be repeated at the end of the shift. The use of hand sanitizers or wipes is not a substitute for washing with soap and water.
- If facilities are available and it is practical, the employees will consider changing clothes before leaving work to avoid bringing hazards home.
- Wash work clothes regularly and clean boots daily.
- Never eat, drink or smoke in restricted or hazardous work areas.
- Practice good housekeeping habits and leave the washroom and toilet facilities in a condition that is acceptable for use by other workers.
- Regularly inspect and maintain PPE that has been exposed to chemicals.

## Sanitation

Site sanitation will be maintained according to appropriate federal, state and local requirements and the guidance provided below:

- **Break Area:** Breaks must be taken in approved areas away from the active work area. The client may specify areas where breaks may be taken, or the ARCADIS SSO may specify break locations.
- **Potable Water:** The following rules apply to all field operations:
  - Provide an adequate supply of potable water at each project site. Potable water must be kept away from hazardous materials or media, and contaminated clothing or equipment.
  - To dispense drinking water, use only portable containers that can be tightly closed, and equipped with a tap dispenser. Water will not be consumed directly from the container (drinking from the tap is prohibited) and may

- not be removed from the container by dipping.
- Clean and sanitize portable water dispensers/containers weekly.
- Clearly mark containers used for drinking water and use these containers for drinking water only.
- If individual serving containers are not used, provide disposable drinking cups. A sanitary container for dispensing cups and a receptacle for disposing of used cups is required.
- **Sanitary Facilities:** Access to facilities for washing before eating, drinking or smoking, or alternate methods, such as waterless hand cleaner and paper towels, will be provided.
- **Lavatory:** If permanent toilet facilities are not available, an appropriate number of portable chemical toilets will be provided.

This requirement does not apply to mobile crews or to normally unattended site locations if employees at these locations have transportation immediately available to nearby toilet and hygiene facilities.



## K. Hazard Communication

All project-required chemicals shall be handled in accordance with the U.S./Canadian Right-to-Know requirements and ARCADIS standards.

The SSO will act as the Hazard Communication Program Coordinator for the site and will maintain the Master Inventory List of hazardous chemicals kept onsite. The SSO will maintain SDSs onsite for all chemicals.

SDSs will be maintained onsite and all employees working onsite will be informed of their location. The SSO will communicate the location of the SDSs and the hazards associated with these chemicals to all ARCADIS project personnel and subcontractors during the safety orientation. This information will be reviewed during tailgate briefings, especially if new chemicals or materials are introduced onsite.

The SSO will ensure that all containers of chemicals (e.g., drums, bags, pails, tanks, vessels) are labeled with the following information:

- Contents of container
- Proper name of the chemical
- Associated hazards and appropriate hazard warnings
- Name and address of manufacturer/importer

Chemicals that are not properly labeled will not be accepted or allowed onsite. If transferred to a secondary container, the new container will be labeled as described.

The SSO will ensure that the PPE necessary for work around the particular chemical is available and that project personnel have been trained in its use. The PM will ensure that all project personnel have received Hazard Communication training as required in OSHA 29 Code of Federal Regulations (CFR) 1910.1200 (h), or Canadian WHMIS, as applicable.

Employees must follow in-house container labeling requirements, as applicable, and as identified below:

- Label all transfer containers
- Use required PPE

- Understand hazard communication material or ask questions
- Immediately report all accidents, spills, exposure and injuries according to procedures and standards
- Know where a copy of the written Hazard Communication Program is kept (the HASP on most projects)

## L. Noise

NOTE: This section of the handbook is not meant to replace requirements provided by the ARCADIS standard. This section of the handbook is meant as a quick reference only. The following information is applicable to US and Canada operations only. The Global Hearing Conservation standard will be referenced when working outside US and Canada operations.

A noise exposure assessment will be conducted if worker is or is likely to be exposed to noise at a workplace in excess of 80 dBA as an 8-hour Time-Weighted Average (TWA). Hearing protection devices will be available for staff to wear when exposed to noise levels that exceed 82 dBA for any amount of time or if noise levels exceed 80 dBA as an 8-hour TWA. Training on the hearing conservation program will be required for voluntary use. All personnel are required to wear hearing protection, with a noise reduction rating (NRR) of at least 19, when noise levels exceed 85 dBA for any exposure time. All personnel who are exposed to 85 dBA and above will be trained in the hearing conservation program, if not already. If an employee is exposed to noise at 85 dBA or higher for an 8-hr TWA, then they are required to have audiometric testing included as part of their workplace medical monitoring. Audiometric tests will be scheduled in conjunction with pre-placement, periodic, and termination medical examinations as required by the Medical Surveillance Program.

As a general rule of thumb, if you must increase your voice (yell) to talk to someone, then the area is in excess of 85 dBA. In general, working around heavy equipment (e.g., drill



rigs, generators) will require the use of hearing protective devices.

Where work area noise levels exceed 85 dBA and it is feasible to do so, ARCADIS shall require that noise hazard signs be posted.

When noise levels exceed 105 dBA as an 8-hour TWA, it is recommended that staff use both ear plugs and ear muffs.

Employees must not have "unprotected exposures" to noise levels in excess of 115 dBA.

Table III L-1

Standard Sound Level Chart

Sound Level dBA	Typical Sound	Average Subjective Description	Duration per day without protection
50	general office	noisy	no time limit
70	avg. street noise	noisy	no time limit
80	noisy office	intolerable for telephone use	16 hours
85	some machinery	OSHA limit	8 hours
90	pneumatic jackhammer		4 hours
95	30 m from turbine		2 hours
100	outboard motor	very noisy	1 hour
110	hard rock band	threshold of discomfort	¼ hour
120	jet plane (passenger ramp)	threshold of pain	0 hour
135	peak sound level		

## M. Heat and Cold Stress

Exposure to heat during the summer and cold during the winter can result in stress to the body that, if not managed, can result in serious health effects. The guidelines outlined below are recommended best work practices that will help workers manage heat and cold stress on the job.

### 1. Heat Stress

In general, an environment is "hot" if it is very humid and above 85 degrees Fahrenheit (°F) (29.5 degrees Celsius [°C]). Environmental factors of temperature, humidity and air movement affect the body's ability to dissipate heat. Combined with human factors (such as clothing, fitness and body weight) and job factors (such as heat generation from work activity), this can result in a heat imbalance thereby elevating the body's core temperature and causing heat stress. The following actions can be taken to reduce heat stress:

- Avoidance of working in the heat when possible — this can be accomplished by avoiding work in the hottest parts of the day, working in cooled enclosures or cooling units provided in the work area. Severe heat conditions can be cause for stopping or not starting work.
- Employees must adapt to working in the heat by pacing themselves until they become adequately acclimatized to the hot environment.
- Drink plenty of fluids to replenish the fluids lost through perspiration and evaporation from the skin. Avoid caffeine, alcohol, large amounts of sugar and very cold drinks because these can cause cramps.
- Eating prior to work and then during the work rotation.
- Take rest breaks as appropriate for the work being done. If a worker is feeling faint, experiencing cramping or becoming fatigued, the body is warning of potential heat stress.
- The worker must move to a cooler area to rest (work-rest cycle).
- If workers will be working in an enclosed or confined area without natural air movement, obtain fans or other means of ventilating the work area to provide cooling.





Table III M-4

Risk Levels and Associated Protective Measures

Heat Index	Risk Level	Protective Measures
<91°F	<b>Lower (Caution)</b>	<ul style="list-style-type: none"> <li>Provide drinking water</li> <li>Ensure that adequate medical services are available</li> <li>Plan ahead for times when heat index is higher, including worker heat safety training</li> <li>Encourage workers to wear sunscreen</li> </ul> <p>If workers must wear heavy protective clothing, perform strenuous activity or work in the direct sun, additional precautions are recommended to protect workers from heat-related illness.*</p>
91°F to 103°F	<b>Moderate</b>	<p>In addition to the steps listed above:</p> <ul style="list-style-type: none"> <li>Remind workers to drink water often (about 4 cups/hour)**</li> <li>Review heat-related illness topics with workers: how to recognize heat-related illness, how to prevent it, and what to do if someone gets sick</li> <li>Schedule frequent breaks in cool, shaded area</li> <li>Acclimatize workers</li> <li>Set up buddy system/instruct supervisors to watch workers for signs of heat-related illness</li> </ul> <p>If workers must wear heavy protective clothing, perform strenuous activity or work in the direct sun, additional precautions are recommended to protect workers from heat-related illness.*</p> <ul style="list-style-type: none"> <li>Schedule activities at a time when the heat index is lower</li> <li>Develop work/rest schedules</li> <li>Monitor workers closely</li> </ul>
103°F to 115°F	<b>High</b>	<p>In addition to the steps listed above:</p> <ul style="list-style-type: none"> <li>Alert workers of high risk conditions</li> <li>Actively encourage workers to drink plenty of water (about 4 cups/hour)**</li> <li>Limit physical exertion (e.g. use mechanical lifts)</li> <li>Have a knowledgeable person at the worksite who is well-informed about heat-related illness and able to determine appropriate work/rest schedules</li> <li>Establish and enforce work/rest schedules</li> <li>Adjust work activities (e.g., reschedule work, pace/rotate jobs)</li> <li>Use cooling techniques</li> <li>Watch/communicate with workers at all times</li> </ul> <p>When possible, reschedule activities to a time when heat index is lower</p>
>115°F	<b>Very High to Extreme</b>	<p><b>Reschedule non-essential activity for days with a reduced heat index or to a time when the heat index is lower</b></p> <p>Move essential work tasks to the coolest part of the work shift; consider earlier start times, split shifts, or evening and night shifts.</p> <p><b>Strenuous work tasks and those requiring the use of heavy or non-breathable clothing or impermeable chemical protective clothing should not be conducted when the heat index is at or above 115°F.</b></p> <p>If essential work must be done, in addition to the steps listed above:</p> <ul style="list-style-type: none"> <li>Alert workers of extreme heat hazards</li> <li>Establish water drinking schedule (about 4 cups/hour)**</li> <li>Develop and enforce protective work/rest schedules</li> <li>Conduct physiological monitoring (e.g., pulse, temperature, etc)</li> <li>Stop work if essential control methods are inadequate or unavailable.</li> </ul>

\*The heat index is a simple tool and a useful guide for employers making decisions about protecting workers in hot weather. It does not account for certain conditions that contribute additional risk, such as physical exertion. Consider taking the steps at the next highest risk level to protect workers from the added risks posed by:

- Working in the direct sun (can add up to 15°F to the heat index value)
- Wearing heavy clothing or protective gear

\*\*Under most circumstances, fluid intake should not exceed 6 cups per hour or 12 quarts per day. This makes it particularly important to reduce work rates, reschedule work, or enforce work/rest schedules.



### First Aid for Heat-Related Illness - Heat Stroke/Heat Exhaustion

Heat stroke can be life threatening. Signals can include a body temperature of 105°F or higher; dry, hot, flushed skin; rapid pulse; unconsciousness; and lack of perspiration. If these symptoms are present in an employee, take the following actions immediately:

- Get medical attention immediately – call 911. While waiting for medical services to arrive, get the victim out of the heat and into a cooler place.
- Place victim on his/her back, with feet up.
- Remove or loosen clothing.
- Cool victim by fanning and applying cloth-wrapped cold packs or wet towels.
- Care for shock.

Heat exhaustion signals include nearly normal body temperature, pale clammy cool skin, weakness, headache, nausea, dizziness, thirst and cramps.

- Perform all but the first step as outlined above.
- If the victim is fully conscious and can tolerate it, give 4 oz. of water to drink every 15 minutes, which should bring relief within 30 minutes.

### 2. Cold Stress

In a cold environment, body heat must be conserved to maintain a core temperature at normal levels and to ensure adequate blood flow to the brain and extremities. Environmental factors affecting conservation of body heat are temperature and wind chill. These environmental factors, combined with human factors (such as protective layers of clothing) and job factors (such as work activity) determine whether one is adequately protected from the extremes of cold weather.

The following actions can be taken to reduce cold stress:

- Workers must adapt to working in the cold by pacing themselves until they become adequately acclimatized to the cold environment.
- Prior to working outside (including operating a snowmobile) or in unheated buildings, determine the

wind chill index and check the weather forecast for possible changes.

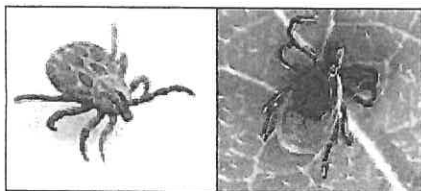
- Ensure that a means of communication is available when working in a wind chill below -22°F, so that a rescue can be conducted in case of an accident.
- Plan work so that a heated location, such as a vehicle, is available for warming up if needed.
- Schedule rest breaks regularly, so workers can warm up and replenish their fluids.
- Provide thermal cushioned insulation on tool handles.
- Workers should recognize the following potential health problems from working in cold environments:
  - Frostbite:** freezing of the skin; loss of sensation; cold, pale and waxy skin.
  - Trench foot/immersion foot:** intense pain in the foot, with swelling. Discoloration of the skin may be caused by long immersion in cold water. Water temperature does not need to be below freezing to cause trench foot.
  - Hypothermia:** cold extremities, which are numb and clumsy; severe shivering along with reduced mental alertness with irritability and lack of concentration. The normal shivering process stops in severe hypothermia.
- Personal protective approaches that can reduce cold stress include:
  - Use mittens and gloves with removable insulated liners. Liners that cannot be removed and dried every day will gradually absorb moisture, which will speed up the loss of body heat.
  - Wear insulated boots that have a removable insole with wool or nylon-blend socks.
  - Wear a cold-weather mask or woolen toque and scarf during severe wind chill conditions; check facial skin frequently for frostbite.
  - Have a spare change of clothing available during cold weather. Clothing that has become wet from perspiration or weather-related precipitation must be changed as soon as possible. If the employee has perspired heavily, the employee must exercise caution before removing outer clothing (while resting outdoors) to prevent chilling and possible hypothermia.



- Once the dog loses interest in you, slowly back away until the dog is out of sight.
- If attacked, “feed” the dog outer clothing like jackets, field equipment, field books or anything else that may be used to place between you and the dog.
- If you fall or are knocked down to the ground, curl into a ball with your hands over your ears and remain motionless to the extent possible. Do not scream.

If bitten by an animal, thoroughly clean the bite area with soap and water and seek to control bleeding. Do not scrub the wound. Lightly cover the wound, but do not tighten with tape or butterfly bandages, and seek medical attention. Call WorkCare. Avoidance and alertness to surroundings are the best defense to biting animal hazards.

## 2. Ticks



American Dog Tick

Deer Tick

This information is limited to the American Dog Tick and the Deer Tick. Both ticks favor tall grass and brushy environments. Both ticks are primarily active during summer months, but may also be active in the spring and fall. The following should help reduce exposure to tick bites.

- Avoid unnecessary entry into tall grass and brushy areas.
- Wear insect repellents containing N,N-diethyl-metoluamide (DEET) or permethrin.
- Wear light-colored clothing so crawling ticks can be easily identified.
- Inspect yourself frequently during the day.
- Minimize exposed skin and tuck pants into socks or boots.

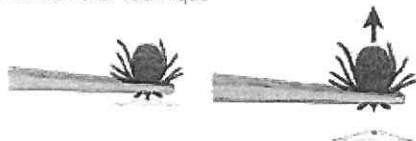
If a tick is found on the body, carefully remove using the following process:

1. Gently, but firmly and steadily, pull on the tick’s body

using a small pair of tweezers or specially designed tick removal tool.

2. During removal, be careful not to squeeze the tick’s body and grasp the tick where its mouth enters the skin.
3. After removal, inspect the tick to see if its head was removed.
4. Once the tick has been removed, wash the area with soap and water and apply antiseptic or antibiotic ointment to prevent infection.
5. Keep a close watch over the bite area and keep the tick in a small jar or bag for reference by a physician, if needed.
6. If parts of the tick stay in the skin, or if unexplained symptoms develop (severe headaches, fever or rash within 10 days of the bite), call WorkCare.

Figure III N-1  
Tick Removal Technique



Larval stage ticks (also known as “seed ticks”) are prevalent during August and September. During this period, the larvae accumulate in masses on vegetation and infest a host upon contact (brushing up against the infested vegetation), resulting in numerous tick bites. If infested with “seed ticks,” use the following methodology to remove them:

- Use tweezers designed for splinter removal to grasp and remove the tick as described above.
- If infested with a large number of seed ticks, tape may be placed across the ticks where they can be pulled off the skin; however, this should only be used as a last resort.

### Lyme Disease and Ehrlichiosis

Lyme disease results from a tick-borne infection. Ticks that are removed within 24 hours of insertion typically do not result in Lyme disease exposure. A red papule appears at the site of the tick bite. This infection tends to expand over a period of 3 to 4 days and may reach 15 centimeters in diameter. Symptoms of the



disease include influenza-like symptoms, such as chills, headache and aching muscles. “Hot spots” in the U.S. include New York, New Jersey, Pennsylvania, Massachusetts, Connecticut, Rhode Island, Minnesota and Wisconsin.

Ehrlichiosis also commonly occurs in summer and is transmitted by the bite of infected ticks. “Hot spots” in the U.S. include New York, Massachusetts, Connecticut, Rhode Island, Minnesota and Wisconsin. Symptoms include muscle and joint aches and flu-like symptoms, but there is typically no skin rash.

### Rocky Mountain Spotted Fever

Rocky Mountain Spotted Fever can be very difficult to diagnose in its early stages, even by experienced physicians who are familiar with the disease.

Patients infected with *R. rickettsii* (the bacteria that causes Rocky Mountain Spotted Fever) generally visit a physician in the first week of their illness, following an incubation period of 5 to 10 days after a tick bite. The early clinical presentation of Rocky Mountain Spotted Fever is nonspecific and may resemble a variety of other infectious and noninfectious diseases.

The classic triad of findings for this disease are fever, rash and history of tick bite. However, this combination is not always detected when the patient initially presents for care.

### Initial Signs and Symptoms

Initial symptoms may include fever, nausea, vomiting, severe headache, muscle pain and lack of appetite.

The rash first appears 2 to 5 days after the onset of fever and is often not present or may be very subtle when the patient is initially seen by a physician. Younger patients usually develop the rash earlier than older patients. Most often it begins as small, flat, pink, nonitchy spots (macules) on the wrists, forearms and ankles. These spots turn pale when pressure is applied and eventually become raised on the skin.

### Later Signs and Symptoms

Later signs and symptoms include rash, abdominal pain, joint pain and diarrhea.

The characteristic red, spotted (petechial) rash of Rocky Mountain Spotted Fever is usually not seen until the sixth day or later after onset of symptoms, and this type of rash occurs in only 35 to 60 percent of patients. The rash involves the palms or soles in as many as 50 to 80 percent of patients; however, this distribution may not occur until later in the course of the disease. As many as 10 to 15 percent of patients may never develop a rash.

### 3. Stinging Insects (Bees, Wasps, Hornets & Yellow Jackets)

Care will be taken by all site workers to avoid



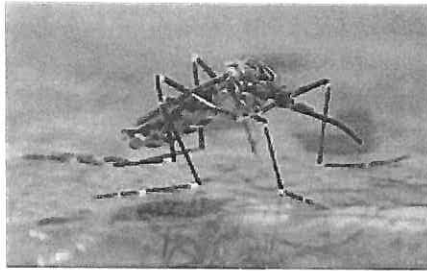
stinging or biting insects. These insects include, but are not limited to, bees, wasps, hornets and yellow jackets. The following will help reduce exposure to these types of insects:

- Do not agitate nests unless absolutely necessary.
- Be vigilant of holes in the ground near the work area.
- Avoid wearing brightly colored or patterned clothing.
- Avoid wearing perfume, cologne or using scented soaps.
- Inspect food and drinks prior to consumption.
- Use insect killer as a last resort.

It should be noted that wasps favor habitats provided by monitor wells with stick-up completions. Exercise caution and take care to look for stinging insects when opening protective casings of monitor wells.

### First Aid for Stings

1. Call WorkCare.
2. Have someone stay with the victim to be sure that they do not have an allergic reaction.
3. Wash the site with soap and water.
4. Remove the stinger using a 4- x 4-inch gauze pad wiped over the area or by scraping a fingernail over the area. Never squeeze the stinger or use tweezers. It



### 5. Mosquito-borne Diseases

Mosquitoes are blood-sucking insects that can spread several diseases, including malaria, West Nile Virus (WNV) and viral encephalitis.

**Malaria** is a mosquito-borne disease caused by a parasite. People with malaria often experience fever, chills and flu-like illness. Left untreated, they may develop severe complications and die. Each year 350 to 500 million cases of malaria occur worldwide, and more than 1 million people die, most of them young children in sub-Saharan Africa.

Treatment of malaria depends on many factors, including disease severity, the species of malaria parasite causing the infection and the part of the world in which the infection was acquired. The latter two characteristics help determine the probability that the organism is resistant to certain anti-malarial drugs. Additional factors, such as age, weight and pregnancy status, may limit the available options for malaria treatment.

**WNV** is a mosquito-borne virus that causes swelling and inflammation of the brain and spinal cord in horses, birds and humans. Humans can become infected after being bitten by an WNV-infected mosquito.

Most persons infected with WNV have either mild symptoms or no symptoms at all. Symptoms typically include fever, fatigue, headache and muscle or joint pain. Any worker who suspects they have symptoms of WNV should seek medical attention.

### General Safety Precautions

Some general precautions to take to avoid exposure to mosquito-borne diseases include:

- If possible, eliminate sources of standing water at the project site because mosquito breeding takes place in standing water.
- Use insect repellent containing DEET and apply to exposed, unbroken skin according to the manufacturer's instructions.
- Wear light-colored, long-sleeved shirts, long trousers and socks.
- Conditions may warrant wearing bug hats/jackets or wearing two layers of clothing.
- Wear rubber gloves when handling dead wildlife.

### 6. Snakes



The possibility of encountering snakes exists, specifically for personnel working in wooded or vegetated areas. The effects produced by venoms include:

- Neurotoxin effects with sensory, motor, cardiac and respiratory difficulties
- Cytotoxic effects on red blood cells, blood vessels, heart muscle, kidneys and lungs
- Defects in coagulation of blood
- Effects from local release of substances by enzymatic actions

Other noticeable effects of venomous snakebites include swelling, edema and pain around the bite, and the development of ecchymosis (the escape of blood onto tissues from ruptured blood vessels).

**NOTE:** Figure III N-2 applies to only certain snakes in North America, north of Mexico. In the U.S. and Canada, all venomous snakes are pit vipers as shown in Figure III N-2, except the coral snake (pictured above).

Coral snakes have round pupils, no sensory pits on the head and scales under the tail are divided.



### General Safety Precautions

All personnel walking through areas that are suspected or prone to have snake activity must be aware of the potential for encountering snakes and the need to avoid actions that will increase the risk of such an encounter (e.g., turning over logs). If a snake bite occurs, attempt to obtain markings, size and color of the snake for identification. The victim must be transported to the nearest hospital as soon as possible. First aid consists of applying a constriction band and washing the area around the wound to remove any unabsorbed venom.

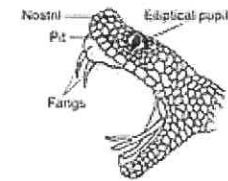
### Snake Bites

If an attack occurs, take the following actions:

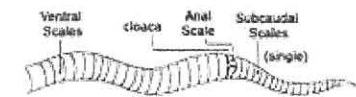
- Keep the bite victim calm and reassure them that bites can be effectively treated in an emergency room. Restrict movement and keep the affected area just below heart level to reduce the flow of venom.
- Remove any rings or constricting items because the affected area may swell.
- Create a loose splint to help restrict movement of the area.
- If the bite location begins to swell and change color, the snake was probably poisonous.
- Monitor the person's vital signs (temperature, pulse, rate of breathing and blood pressure). If there are signs of shock (such as paleness), lay the victim flat, raise the feet about 1 foot and cover the victim with a blanket.
- Get medical help immediately.

Figure III N-2  
Snakes

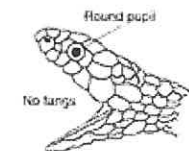
### Poisonous Snakes



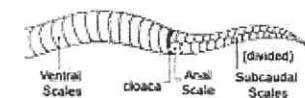
Triangular head

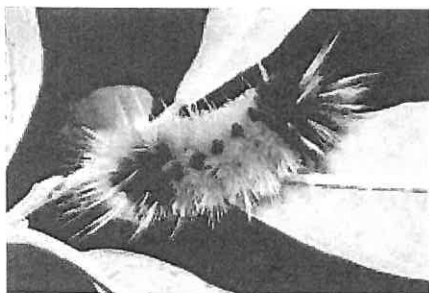


### Non-Poisonous Snakes



Round head





10. Caterpillars

In general, caterpillars do not have good eyesight. Some caterpillars will regurgitate acidic digestive juices at attacking enemies.

More aggressive self-defense measures are taken by hairy caterpillars. The most aggressive defenses are those of the many caterpillars that have bristles associated with venom glands, called urticating hairs, and one of these is among the most potent defensive chemicals in any animal.

Some caterpillars eat the leaves of plants that are toxic to other animals. These toxic species, such as the Cinnabar moth (*Tyria jacobaeae*) caterpillars, are brightly striped or colored in black, red and yellow—the danger colors.

#### 11. Physically Damaging Plants

Plants like briars and thistles, which have thorns, can create a hazard to skin and can damage protective or personal clothing. Plants of this nature are common on project sites and can often be found along fence lines, abandoned



Poison Sumac



Poison Ivy



Poison Oak

structures or equipment. If work will be conducted near these plants, they should be removed prior to implementing the work activity. Use of briar-resistant pants or chaps should be worn when working in dense thorny vegetation.

#### Poisonous Plants

Poisonous plants may be present at the project site. Personnel should be alerted to their presence and instructed on methods to prevent exposure. Poison sumac grows as a shrub or small tree with large alternate, compound leaves having seven to 13 leaflets without teeth. All plant parts are poisonous. The lack of leaflet glands, “wings” between the leaflets and teeth on the leaves, in addition to this species’ red stems supporting the leaflets and leaves, help to distinguish this plant from similar-looking nonpoisonous species, such as other sumacs and tree-of-heaven. Flowers are shades of green, white and yellow and appear in late spring. Fruits are small white berries that mature in late summer and may last through winter, occasionally in moist or wet soils.

Poison ivy is a woody shrub or vine with hairy-looking aerial roots. It grows to 10 feet or more, climbing high on trees, walls and fences or trails along the ground. All parts of poison ivy, including the roots, are poisonous at all times of the year. Poison oak is usually found in relatively dry sunny sites in woodlands, thickets or fields. This species of poisonous plant generally prefers sandy soils. The following characteristics are applicable to poison oak: low shrubs that do not climb; leaves are dull green, densely hairy, are



often lobed (3 to 7) and coarsely serrated; fruit is white and hairy.

The main control for poison ivy, sumac and oak is to avoid contact with the plant, cover arms and hands, and frequently wash potentially exposed skin. When working in an area known to have poisonous plants, employees should work in an area adjacent to the plant or wear modified Level D PPE and decontaminate appropriately.

Particular attention must be given to avoiding skin contact with objects or protective clothing that have touched the plants. Treat every surface that may have touched the plant as contaminated, and practice contamination avoidance.

If you come in contact with poison ivy, oak or sumac; an animal exposed to any of these plants; or tools, gear or clothing exposed to any of these plants, wash the affected area(s) with hot water (not so hot that it burns) and strong soap as soon as possible. Washing within the first 6 hours, before the first symptoms appear, will help to minimize the effects of an outbreak or even completely prevent an outbreak. Commercially available products, such as Technu, break down the oils that cause rashes may also be used and should be used as soon as possible after exposure.

Rash symptoms can appear within a few hours but can take 2 to 5 days to appear. The rash starts as a red, annoyingly itchy area that starts to swell. The area then becomes inflamed and will get covered in clusters of tiny pimples; the pimples eventually merge and turn into blisters. The fluid in the blisters turns yellow, dries up and becomes crusty. Left completely untreated, this cycle can last as short as 5 days and in severe cases, as long as 5 to 6 weeks.



12. Bear Safety

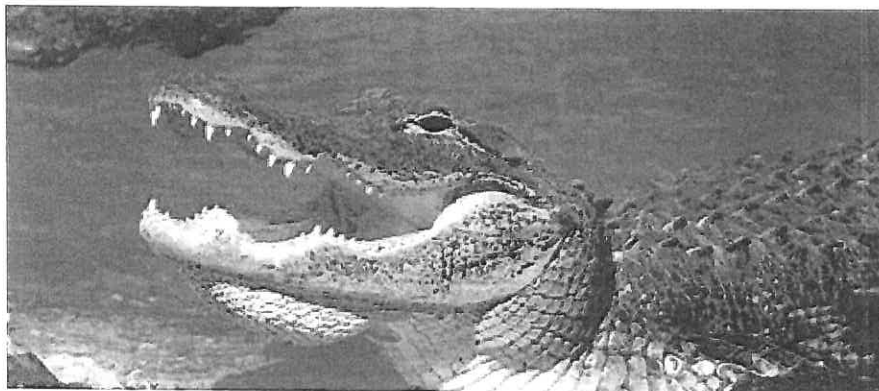
Bears are curious, intelligent and potentially dangerous animals, but undue fear of bears can endanger both bears and people. Most bears tend to avoid people.

Bears feed on green grasses and on vegetation that grows in wet areas. They often rest in cool, dark, thick forests. Grizzly bears are typically, but not exclusively, active during the dawn, dusk and nighttime.

#### Be Alert

Be alert where recent bear activity has been documented by park officials, Fish and Game, Forest Service and other public service people. Some common areas where bears like to frequent are avalanche chutes, stream beds, dense edge cover and, in late summer, berry patches.

- Use extreme caution when traveling on trails in the early morning, at dusk or at night.
- Always stay near and within communication distance of an armed guide.
- Always stay near your vehicle or other mode of transportation or permanent shelter.
- Be careful with food smells—never cook close to camp. Store all foods in plastic away from camp at night. When camp is unattended, store food at least 100 yards away and at least 14 feet up a tree hung 4 feet away from the trunk.
- Watch for fresh bear signs (scat or bear tracks) on the trail or near possible camp sites.
- If possible, make plenty of noise on the trail, especially on blind curves, in dense vegetation or areas with limited vision.



#### 14. Alligators

The range of the American Alligator extends south from the coastal swamps of North Carolina to the southern tip of Florida and west along the Gulf Coast to the mouth of the Rio Grande. Alligators range inland throughout the southern coastal flatland. Alligators favor living in freshwater lakes, canals, creeks, rivers and swamps and occasionally live in brackish water.

##### Overview of Alligator Characteristics

Adult American Alligators range in size from 6 feet for females to 14 feet for males, and can weigh up to 600 pounds. Length and size of alligators depend upon food availability and temperature; alligators are generally smaller in size in the northern portion of their habitat range. On land, alligators are generally slow moving; however, they can move very quickly (up to 30 mph) over short distances. They are very agile in water.

The diet of alligators varies depending on size. Smaller alligators generally eat insects, snails and small fish while larger alligators eat fish, birds, turtles, snakes and mammals. They feed primarily at dawn or dusk/early evening. They also tend to feed when the temperature is between 73 and 90°F. Generally, alligators over 6 feet long are more prone to attack humans as a source of food.

The alligator breeding season depends on air temperature. In the southern regions of their

U.S. habitat range, breeding season usually begins around mid-April through May. After a 6- to 8-week courtship period, the females construct nests (mounds) out of mud, sticks, plants and leaves where the eggs are laid. Hatchlings incubated in the nest (alligators do not sit on the nest to incubate the eggs) usually hatch around mid-August. Alligators tend to be more protective of their domain during the courtship and nesting season. Female alligators are very protective of their young. The young may stay near the mother for more than 2 years.

During the hot weather months, alligators produce "gator holes" where the alligator digs out a depression that stays full of water. Through time, the alligator may tunnel under an overhanging bank to create a den partially filled with water to help it survive the dry season.

##### Safety Recommendations to Avoid Alligator Hazards

The following may help in avoiding encounters with alligators during project work:

- Be vigilant to the presence of alligators at the project site. Report the presence of the alligator(s) to the rest of the project field team and document general areas of the project site where alligator(s) were observed. Look for the presence of nests during the breeding season and "gator holes" during the hot weather months. Always assume an alligator is nearby when nests, baby alligators or "gator holes" are found.
- Never feed alligators. Most alligator attacks occur when feeding an alligator.



- Always use the "buddy system" on any project site with known alligator hazards.
- Avoid getting within 15 feet of an alligator. Promptly evacuate the area if you encounter an alligator within the 15-foot buffer area or if the alligator is acting in an aggressive manner. Avoid creating a situation where you are between a female alligator and it's young.
- Do not harass, provoke or attempt to move alligators of any size. Avoid conducting project work during dusk or dawn. Use boats, to the extent practical, to access locations in swampy areas. Avoid wading whenever possible. Avoid reaching or walking in areas where visibility may be obscured due to vegetation. For long-term project sites with an alligator deemed to be a nuisance, the SSO should contact the appropriate regulatory agency to have the alligator removed.

##### Alligator Attack Recommendations

If attacked by an alligator, the best course of action is to fight the alligator using any means available. Create as much noise and confusion as possible. Usually, the alligator will realize it attacked a large animal that cannot be easily overpowered, and will turn loose and flee.



#### 15. Cougar and Mountain Lion Safety

When working in mountain lion or cougar country, use the following precautions to avoid (or during) an encounter:

- Make noise. Cougars will often retreat if given the opportunity. Walking in large groups and making noise will give the cougar the chance to retreat and reduce the likelihood of a sudden encounter.
- Be cautious at dusk and dawn. Contrary to popular belief, most predators are most active at dusk and dawn. These are times to be especially cautious.
- Don't leave food or garbage outside. The strong smell of food or garbage may attract a cougar. Keep your garbage securely stored.
- Remember, cougars are very different from bears. Cougars do not bluff charge and playing dead is never recommended in a cougar attack.
- Don't run. Cougars are a powerful predator. Running may trigger an attack.
- Face the cougar and retreat slowly. Keep direct eye contact with the cougar while you slowly retreat toward safety.
- Raise your arms above your head to make yourself look larger than normal. This may help to intimidate the cougar. You may also want to throw rocks and yell at it. Aggression will often scare it off.

If a cougar attacks, fight back. Many people have survived cougar attacks by fighting back with anything, including rocks, sticks and bare fists. Report the sighting.



## Tools

Workers shall have adequate training and be competent in the use of tools provided at the project site. When working with tools, workers shall meet the following requirements:

- Use of fixed open blade knives (i.e. pocket knives) is highly discouraged and prohibited on some project sites.
- Maintain tools in accordance with the manufacturer's instructions.
- Use tools that are in good condition and proper for the job (including cutting tools). Report defective tools and remove from service.
- Secure your footing before using any hand tool.
- Guards on all power tools must be in place.
- Cutting tools must be equipped with self-retracting or guarded blades.

## Portable and Fixed Grinders

Grinders (portable and fixed) must be used, maintained and inspected regularly according to the manufacturer's recommendations and those provided below:

- Workers who are grinding or buffing must wear full face shields and safety eyewear with side shields.
- Prior to starting a grinder, the abrasive wheels and discs must be inspected for defects (cracks and chips).
- The position of the safety guards must be checked; do not use grinders without guards.
- Abrasive wheels and discs must not be used for side grinding unless designed for that purpose.
- A work or tool rest for a grinding wheel must have a maximum clearance of 1/8-inch from the abrasive wheel, must be positioned at the center of the abrasive wheel and must not be adjusted while the abrasive wheel is in motion.

## Portable Heaters

Workers must obtain permission from the onsite supervisor to heat buildings with portable heaters.

## Machine Guarding

Machine and equipment safeguards should not be removed except for maintenance, repair, testing or adjustment. If removal is necessary, the following precautions must be followed:

- Remove machine guards only after the machine or equipment is shut down following ARCADIS LO/TO practices.
- Do not restart a machine until it is verified that all guards have been properly replaced and adjusted according to the manufacturer's instructions.
- Never, under any circumstances, use grinding or buffing tools without a proper manufactured guard. Always use eye and face protection.
- Shut down all machinery for oiling unless the grease or oil cups are located outside the guard, or they are not near moving parts.
- Ensure that all guards are in place when using portable hand tools.



## AE. Vegetation Management

### Mowing and Grass Trimming

Mowing equipment appropriate for site conditions will be selected to maintain grass vegetative covers. Conditions to consider include:

- Height of the vegetation
- Type of vegetation to be cut
- Type of site security measures (e.g., fences, gates) onsite that could affect use or accessibility of mowing equipment

The area to be mowed must be surveyed for hidden obstacles before mowing operations proceed.

Mowing and grass-trimming equipment shall have all manufacturer-supplied safety devices in place and in good working order. Mowing and grass-trimming equipment shall be inspected prior to use to ensure good working condition. Defective equipment shall not be used unless repaired by a competent person in accordance with manufacturer requirements and specifications prior to use on the project. Mowing or grass-trimming equipment used shall have sufficient power to effectively cut the materials to be mowed. Site workers, vehicles and other items not directly involved with mowing activities should stay the

following minimum distances from the mowing equipment:

- 50 feet away from grass-trimming operations
- 50 feet away from push-mower operations
- 100 feet away from riding- or tractor-mower operations

If prolonged use of grass trimmers or push mowers is required, ergonomic requirements will be implemented. Site workers responsible for mowing or grass trimming shall wear PPE specified in the JSA for the project, but at a minimum must include hearing protection, safety glasses and safety shoes. Fuels used to power mowers and grass trimmers shall be kept in approved safety cans. Only minimal quantities of fuel, sufficient to carry out the scope of work, will be brought and stored onsite with appropriate SDS.

### Cutting Tools

General safe work practices for machete use include:

- Sharpen machete blades only 6 inches from the butt of the handle to within 2 inches of the point.
- Always wear cut-resistant gloves while sharpening.
- If more than one project team member is cutting on the same line, always station yourself in at least 10-foot intervals.



## AF. Ergonomics

The purpose of ergonomics is to evaluate and control work conditions known to cause injuries and illnesses because of the excessive demands placed on people.

### General Considerations

Prior to lifting, carrying or lowering any object, some general considerations should be followed to move the object properly:

- Think before moving any object. Objects should be realistically evaluated by the lifter to determine if the weight of the object exceeds the lifter's ability to lift the object.
- Use mechanical aids (e.g., hand trucks, carts) or the buddy system whenever possible to move heavy objects, objects with poor hand holds or large bulky objects.
- Prior to moving the object, evaluate the object for the presence of any physical hazards such as pinch points, sharp or jagged edges, burrs, and rough or slippery surfaces. Evaluate the route in which the object will be moved. The route should be clear and free of obstructions that could cause difficulty in moving the object.
- Avoid lifting outside of the employee's safety zone (the area below the knees or above the shoulders). Generally, heavy materials should not be stored at levels higher than 5 feet off the floor or on the floor unless appropriate mechanical aids are available to move the object.
- Design out of the work process recognized lifting hazards whenever possible.
- Perform stretching and warm-up exercises prior to lifting.

**Figure III AF-1**  
The Diagonal Lift



### Proper Lifting and Carrying Techniques

The following techniques shall be used to lift heavy objects (**Figure III AF-1**):

- Establish a firm footing with the feet approximately shoulder-width apart and one foot slightly ahead of the other. This will aid in keeping good balance and a stable lifting base.
- When bending down to pick up the object, keep your back straight and as upright as possible (preferably perpendicular to the ground).
- Always bend at the knees, not at the waist when lowering or raising the object.
- Obtain a good secure grip on the object.
- When beginning to lift, tighten your stomach muscles and use your legs to lift the object. Your leg muscles should do all the work because they are a lot stronger than the lower back muscles.
- Take small steps and move slowly.
- If possible, face the direction in which the object is to be carried prior to lifting the object. Avoid twisting the body when carrying an object; always pivot with the feet.
- Hold the object as close to the body as possible and maintain a secure grip.
- Avoid objects that are large and bulky to the point where the employee's vision is obstructed while carrying the object.
- If possible, break down heavy objects having to be carried over a long distance into smaller, lighter loads to reduce stress on the body.



### Lowering Objects

The following techniques shall be used when lowering objects:

- Establish a firm footing with the feet approximately shoulder-width apart and one foot slightly ahead of the other.
- When beginning to lower, tighten your stomach muscles and use your legs to lower the object.
- Maintain a good secure grip on the object.
- Always bend at the knees, not at the waist when lowering the object.
- Keep your back straight and as upright as possible (preferably perpendicular to the ground) when lowering the object.

### Lifting Manhole Covers

Always use a manhole cover hook or lifter tool to lift and remove manhole covers. The following instructions apply to removal and replacement of manhole covers with the appropriate tool:

- Perform stretching exercises before attempting to remove cover(s).
- Freeing the cover:
  - When a cover is stuck in its frame, remove any encrustation with a cold chisel.
  - Place a block of wood on the cover near the rim, and hit the block with a heavy hammer. Do this at different points until the cover is loosened.
- Unseating the cover:
  - Lift the cover with the tool provided.
  - Engage the circumferential rib before lifting.
  - Unseat the cover about 4 inches by pulling and lifting with the leg and arm muscles.
  - Never place fingers or hands under the cover— injury can result.
- Removing the cover:
  - Use a helper when available.
  - Clear the area of any hazards to footing.
  - With your feet spread and footing secure, pull the cover clear of the frame and keep pulling until the cover is in a nonhazardous location.
  - Pull with the arm and leg muscles.
- Replacing the cover:
  - Stand parallel to the desired direction of travel

with toes in the clear.

- Place the point of the hook under the edge of the cover nearest you.
- Lift slightly and swing the cover toward the structure.
- Move to the opposite side and repeat the lifting and swinging.
- Continue this alternate lifting and swinging until the cover is partially over the structure's opening.
- With the hook, lift the edge that is farthest from the opening.
- Lift until the cover slides into the frame of the structure. If a helper is available with another hook, stand on opposite sides of the cover, parallel to the direction of travel.
- Securely hook under the cover and slide it to the frame.

**Motor Vehicle Inspection Form**

**Project Name and Number:** PUMA 63767 **Project Location:** PATAMON **Vehicle Make/Model/Lic #:** FORD / TRANSIT / 930-813

<b>Date</b>	6-1-16	6-2-16	6-3-16	6-6-16	6-7-16
<b>Vehicle Operator</b>	F. Colon	F. Colon	F. Colon	F. Colon	F. Colon
<b>Daily Odometer Reading</b>	27787	27796	27807	27812	27834

Daily	Acceptable			Deficient			N/A			Acceptable			Deficient			N/A		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tires – condition/tread	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tires – air pressure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Jack/spare tire	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Light Switch	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Headlights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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All glass and mirrors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Windshield wipers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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Parking brake	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Horn	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Steering wheel play	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Brakes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Body damage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Under vehicle – Leaks/obstructions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Reverse warning	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Prepared for weather	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Overall vehicle cleanliness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Weekly</b>	<b>Acceptable</b>						<b>Deficient</b>						<b>N/A</b>					
Engine oil	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>					
Coolant level	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>					
Transmission oil level	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>					
Brake fluid level	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>					
Hydraulic oil	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>					
Battery	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>					
Belts/hoses	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>					
Miscellaneous vehicle performance	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>					

**Trip Planning**

JMP signed by all operators?  Yes  No

JMP located on site?  Yes  No

Modifications documented and approved?  Yes  No

Basic H&S supplies/equipment

First aid kit  Fire extinguisher  Reflective safety vest

Camera  Roadside warning equipment (flare, flag, etc.)  Flashlight

If "deficient" is noted (other than fuel), please explain below and include what corrective action was taken and the date it was taken.



**Project Name and Number:** PUMA / 63763  
TOTAL / 76768

**Project Location:** GUAYHABO

**Vehicle Make/Model/Lic #:** FORD / TRANSIT / 930813

<b>Date</b>	6-13-16	6-14-16	6-15-16	6-16-16	6-17-16
<b>Vehicle Operator</b>	F. Colon	F. Colon	F. Colon	F. Colon	F. Colon
<b>Daily Odometer Reading</b>	28351	28379	28467	28492	28597

Inspection:	6-13-16			6-14-16			6-15-16			6-16-16			6-17-16		
	Acceptable	Deficient	N/A	Acceptable	Deficient	N/A	Acceptable	Deficient	N/A	Acceptable	Deficient	N/A	Acceptable	Deficient	N/A
<b>Daily</b>															
Tires – condition/tread	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tires – air pressure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jack/spare tire	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light Switch	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Headlights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tail Lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brake lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turn signals	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All glass and mirrors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Windshield wipers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel	<input checked="" type="checkbox"/> F <input type="checkbox"/> % <input type="checkbox"/> %	<input type="checkbox"/> % <input type="checkbox"/> E	<input type="checkbox"/>	<input checked="" type="checkbox"/> F <input type="checkbox"/> % <input type="checkbox"/> %	<input type="checkbox"/> % <input type="checkbox"/> E	<input type="checkbox"/>	<input type="checkbox"/> F <input type="checkbox"/> % <input type="checkbox"/> %	<input checked="" type="checkbox"/> % <input type="checkbox"/> E	<input type="checkbox"/>	<input checked="" type="checkbox"/> F <input type="checkbox"/> % <input type="checkbox"/> %	<input type="checkbox"/> % <input type="checkbox"/> E	<input type="checkbox"/>	<input checked="" type="checkbox"/> F <input type="checkbox"/> % <input type="checkbox"/> %	<input type="checkbox"/> % <input type="checkbox"/> E	<input type="checkbox"/>
Parking brake	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Horn	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steering wheel play	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brakes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Body damage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Under vehicle – Leaks/obstructions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reverse warning	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prepared for weather	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall vehicle cleanliness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Weekly</b>	Acceptable						Deficient						N/A		
Engine oil	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>		
Coolant level	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>		
Transmission oil level	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>		
Brake fluid level	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>		
Hydraulic oil	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>		
Battery	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>		
Belts/hoses	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>		
Miscellaneous vehicle performance	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>		

**Trip Planning**

JMP signed by all operators?  Yes  No

JMP located on site?  Yes  No

Modifications documented and approved?  Yes  No

Basic H&S supplies/equipment

First aid kit  Fire extinguisher  Reflective safety vest

Camera  Roadside warning equipment (flare, flag, etc.)  Flashlight

If "deficient" is noted (other than fuel), please explain below and include what corrective action was taken and the date it was taken.

<b>Project Name and Number:</b> <i>PUMA 63767</i>	<b>Project Location:</b> <i>BAYAMON</i>	<b>Vehicle Make/Model/Lic #:</b> <i>FORD / TRANSIT / 930-813</i>
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<b>Date</b>	<i>6-21-16</i>	<i>6-22-16</i>	<i>6-23-16</i>	<i>6-24-16</i>	<i>6-28-16</i>
<b>Vehicle Operator</b>	<i>F. COLOM</i>	<i>F.C.</i>	<i>F.C.</i>	<i>F.C.</i>	<i>F.C.</i>
<b>Daily Odometer Reading</b>	<i>78718</i>	<i>28788</i>	<i>78331</i>	<i>28974</i>	<i>29210</i>

Inspection:	Daily			Acceptable			Deficient			N/A			Acceptable			Deficient			N/A		
	Acceptable	Deficient	N/A	Acceptable	Deficient	N/A	Acceptable	Deficient	N/A	Acceptable	Deficient	N/A	Acceptable	Deficient	N/A	Acceptable	Deficient	N/A			
Tires – condition/tread	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Tires – air pressure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Jack/spare tire	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Light Switch	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Headlights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Tail Lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Brake lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Turn signals	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
All glass and mirrors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Windshield wipers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Fuel	<input type="checkbox"/> F <input type="checkbox"/> % <input type="checkbox"/> %	<input type="checkbox"/> % <input checked="" type="checkbox"/> E	<input type="checkbox"/>	<input type="checkbox"/> F <input type="checkbox"/> % <input type="checkbox"/> %	<input type="checkbox"/> % <input checked="" type="checkbox"/> E	<input type="checkbox"/>	<input type="checkbox"/> F <input type="checkbox"/> % <input type="checkbox"/> %	<input type="checkbox"/> % <input checked="" type="checkbox"/> E	<input type="checkbox"/>	<input type="checkbox"/> F <input type="checkbox"/> % <input type="checkbox"/> %	<input type="checkbox"/> % <input checked="" type="checkbox"/> E	<input type="checkbox"/>	<input type="checkbox"/> F <input type="checkbox"/> % <input type="checkbox"/> %	<input type="checkbox"/> % <input checked="" type="checkbox"/> E	<input type="checkbox"/>	<input type="checkbox"/> F <input type="checkbox"/> % <input type="checkbox"/> %	<input type="checkbox"/> % <input checked="" type="checkbox"/> E	<input type="checkbox"/>			
Parking brake	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Horn	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Steering wheel play	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Brakes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Body damage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Under vehicle – Leaks/obstructions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Reverse warning	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Prepared for weather	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Overall vehicle cleanliness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<b>Weekly</b>	Acceptable						Deficient						N/A								
Engine oil	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>								
Coolant level	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>								
Transmission oil level	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>								
Brake fluid level	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>								
Hydraulic oil	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>								
Battery	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>								
Belts/hoses	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>								
Miscellaneous vehicle performance	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>								

**Trip Planning**

JMP signed by all operators?  Yes  No

JMP located on site?  Yes  No

Modifications documented and approved?  Yes  No

Basic H&S supplies/equipment

First aid kit  Fire extinguisher  Reflective safety vest

Camera  Roadside warning equipment (flare, flag, etc.)  Flashlight

If "deficient" is noted (other than fuel), please explain below and include what corrective action was taken and the date it was taken.

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<b>Project Name and Number:</b> <i>PUMA 63767</i>	<b>Project Location:</b> <i>BAYAMON</i>	<b>Vehicle Make/Model/Lic #:</b> <i>FORD / TRANSIT / 930-813</i>
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<b>Date</b>	<i>6-28-16</i>	<i>6-29-16</i>	<i>6-30-16</i>	<i>7-5-16</i>	<i>7-6-16</i>
<b>Vehicle Operator</b>	<i>F.C.</i>	<i>F.C.</i>	<i>F.C.</i>	<i>F.C.</i>	<i>F.C.</i>
<b>Daily Odometer Reading</b>	<i>29295</i>	<i>29376</i>	<i>29458</i>	<i>29730</i>	<i>29824</i>

Inspection:	Acceptable			Deficient			N/A			Acceptable			Deficient			N/A		
	Acceptable	Deficient	N/A	Acceptable	Deficient	N/A	Acceptable	Deficient	N/A	Acceptable	Deficient	N/A	Acceptable	Deficient	N/A			
Tires - condition/tread	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Tires - air pressure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Jack/spare tire	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Light Switch	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Headlights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Tail Lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Brake lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Turn signals	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
All glass and mirrors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Windshield wipers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Fuel	<input type="checkbox"/> F <input type="checkbox"/> 0% <input checked="" type="checkbox"/> 1/2	<input type="checkbox"/> 1/4 <input type="checkbox"/> 3/4	<input type="checkbox"/>	<input checked="" type="checkbox"/> F <input type="checkbox"/> 0% <input type="checkbox"/> 1/2	<input type="checkbox"/> 1/4 <input type="checkbox"/> 3/4	<input type="checkbox"/>	<input checked="" type="checkbox"/> F <input type="checkbox"/> 0% <input type="checkbox"/> 1/2	<input type="checkbox"/> 1/4 <input type="checkbox"/> 3/4	<input type="checkbox"/>	<input type="checkbox"/> F <input type="checkbox"/> 0% <input type="checkbox"/> 1/2	<input type="checkbox"/> 1/4 <input type="checkbox"/> 3/4	<input type="checkbox"/>	<input type="checkbox"/> F <input type="checkbox"/> 0% <input type="checkbox"/> 1/2	<input type="checkbox"/> 1/4 <input type="checkbox"/> 3/4	<input type="checkbox"/>			
Parking brake	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> F <input type="checkbox"/> 0% <input checked="" type="checkbox"/> 1/2	<input type="checkbox"/> 1/4 <input type="checkbox"/> 3/4	<input type="checkbox"/>			
Horn	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Steering wheel play	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Brakes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Body damage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Under vehicle - Leaks/obstructions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Reverse warning	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Prepared for weather	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Overall vehicle cleanliness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<b>Weekly</b>	Acceptable						Deficient						N/A					
Engine oil			<input checked="" type="checkbox"/>															
Coolant level			<input checked="" type="checkbox"/>															
Transmission oil level			<input checked="" type="checkbox"/>															
Brake fluid level			<input checked="" type="checkbox"/>															
Hydraulic oil			<input checked="" type="checkbox"/>															
Battery			<input checked="" type="checkbox"/>															
Belts/hoses			<input checked="" type="checkbox"/>															
Miscellaneous vehicle performance			<input checked="" type="checkbox"/>															

<b>Trip Planning</b>	
JMP signed by all operators?	<input type="checkbox"/> Yes <input type="checkbox"/> No
JMP located on site?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Modifications documented and approved?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Basic H&S supplies/equipment	<input checked="" type="checkbox"/> First aid kit <input type="checkbox"/> Fire extinguisher <input checked="" type="checkbox"/> Reflective safety vest <input type="checkbox"/> Camera <input type="checkbox"/> Roadside warning equipment (flare, flag, etc.) <input type="checkbox"/> Flashlight

\*If "deficient" is noted (other than fuel), please explain below and include what corrective action was taken and the date it was taken.

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Project Name and Number: Puma 63167 Project Location: Bayamon Vehicle Make/Model/Lic #: Ford / F150 944-094

Date: 08/15/16 08/16/16  
 Vehicle Operator: A.C. A.C.  
 Daily Odometer Reading: 19761.8 19777.9

Inspection:	Daily			Daily			Daily			Daily			Daily	
	Acceptable	Deficient	N/A	Acceptable	Deficient	N/A	Acceptable	Deficient	N/A	Acceptable	Deficient	N/A	Acceptable	Deficient
Tires – condition/tread	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tires – air pressure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jack/spare tire	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light Switch	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Headlights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tail Lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brake lights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turn signals	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All glass and mirrors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Windshield wipers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel	<input type="checkbox"/> F <input type="checkbox"/> 0% <input type="checkbox"/> 1/2	<input type="checkbox"/> 1/2 <input type="checkbox"/> E	<input type="checkbox"/>	<input type="checkbox"/> F <input type="checkbox"/> 0% <input type="checkbox"/> 1/2	<input type="checkbox"/> 1/2 <input type="checkbox"/> E	<input type="checkbox"/>	<input type="checkbox"/> F <input type="checkbox"/> 0% <input type="checkbox"/> 1/2	<input type="checkbox"/> 1/2 <input type="checkbox"/> E	<input type="checkbox"/>	<input type="checkbox"/> F <input type="checkbox"/> 0% <input type="checkbox"/> 1/2	<input type="checkbox"/> 1/2 <input type="checkbox"/> E	<input type="checkbox"/>	<input type="checkbox"/> F <input type="checkbox"/> 0% <input type="checkbox"/> 1/2	<input type="checkbox"/> 1/2 <input type="checkbox"/> E
Parking brake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Horn	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steering wheel play	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brakes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Body damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Under vehicle – Leaks/obstructions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reverse warning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prepared for weather	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall vehicle cleanliness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Weekly</b>	<b>Acceptable</b>						<b>Deficient</b>						<b>N/A</b>	
Engine oil	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>	
Coolant level	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>	
Transmission oil level	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>	
Brake fluid level	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>	
Hydraulic oil	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>	
Battery	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>	
Belts/hoses	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>	
Miscellaneous vehicle performance	<input checked="" type="checkbox"/>						<input type="checkbox"/>						<input type="checkbox"/>	

**Trip Planning**

JMP signed by all operators?  Yes  No

JMP located on site?  Yes  No

Modifications documented and approved?  Yes  No

Basic H&S supplies/equipment  First aid kit  Fire extinguisher  Reflective safety vest  
 Camera  Roadside warning equipment (flare, flag, etc.)  Flashlight

"nt" is noted (other than fuel), please explain below and include what corrective action was taken and the date it was taken.

MONITORING WELL	NORTHING	EASTING	ELEVATION (TOP OF CASING)	GROUND ELEVATION	Sample date	Product level	water level	Duplicate date
42B	867876.014	760741.654	29.507	28.46	7-12-16	24.54	24.57	
40B	867805.31	760593.163	20.277	19.17	7/14/16	12.55	12.96	
91A	867621.796	759923.514	22.81	20.12	7-12-16		7.93	
18D	867041.366	759973.079	31.802	30.13	6/24/16		15.04	
87A	867178.651	759812.194	27.726	25.54	6/22/16		14.74	
88A	867585.447	759561.051	25.072	22.17	6/24/16		6.01	
99A	867751.866	759515.901	24.355	21.12	6/23/16		12.38	
98A	867714.022	759334.252	21.654	18.71	6/23/16		7.99	
T9	868240.885	759340.897	16.517	15.65	7/14/16	5.48	5.68	
30A	868213.871	759747.423	17.418	15.71	7-12-16		No BAJA	
48B	868144.503	760085.505	20.413	17.04	2/6/16		7.03	
P 119	868069.644	761317.213	24.356	21.57	6/20/16		14.60	
P118	868267.634	761278.685	17.881	15.25	6/25/16		8.90	
83B2	868649.947	761520.841	11.071	8.14	6/28/16		6.57	
83A	868648.999	761516.105	11.933	8.36	6/28/16		5.52	
75B2	870137.591	761331.969	6.631	4.02	7-13-16		2.42	
114A	869256.828	761431.111	7.252	5.22	8-11-16		2.98	
AD2	868563.969	761143.806	15.314	12.84	6/28/16		5.35	
AD1	868594.603	761051.808	17.328	14.82	6/27/16		4.72	
57A	868552.701	760875.865	19.716	17.94	6/27/16		5.28	
AD3	868550.322	760757.448	21.381	18.73	6/27/16		7.54	
AD4	868485.217	760442.758	21.146	18.47	6/27/16		9.29	
33A	868463.778	760362.924	15.365	17.8	6/27/16		7.71	
P116	869159.846	761449.376	8.468	5.89	7-5-16		4.05	
P117	868953.949	761483.245	10.655	7.75	7-5-16		4.74	
65A	868587.685	759925.656	15.9	14.31	6/22/16		3.36	MS/MSD-65A
15A	868914.863	759886.149	10.645	10.36	6-10-16		3.62	
15B2	868919.67	759887.375	11.642	9.79	6-10-16		7.00	
15B	868933.999	759879.497	12.036	9.94	6-10-16		7.30	
86A	868872.763	759665.856	11.58	8.9	6-22-16		4.24	DUP 3
MP8	868808.442	759382.564	12.462	9.97	6-16-16		7.24	
MP9	868815.934	759381.856	9.996	6.74	6-16-16		4.70	
MP4	868775.188	759228.186	12.461	9.94	6-21-16		7.00	
MP3	868784.218	759225.929	10.168	6.84	6-16-16		4.02	
MP2	868813.822	759216.627	9.869	8.19	6-15-16		4.63	
DP1	868848.675	759205.384	9.698	8.03	6-15-16		4.45	
MP5A	868890.661	759363.416	10.666	7.86	6-10-16		5.80	
DP5	868891.602	759369.603	9.667	7.73	6-10-16		3.64	
EB107	868678.518	759094.57	11.286	10.26	6-21-16		5.22	
EB108	868618.966	759054.626	11.803	10.5	6-21-16		5.38	
EB103	868577.214	759134.326	12.447	10.69	6/16/16		5.90	
EB104	868628.077	759220.307	13.563	11.99	6/16/16		7.06	
EB105	868648.128	759319.863	13.975	12.25	6/17/16		8.08	
EB106	868670.929	759423.171	13.512	11.41	6/17/16		8.23	
EB102	868491.944	759157.061	14.775	12.64	6/16/16		7.68	

WW TP-1 depth = 16.46  
 WW TP-2 depth = 19.00

2/6/16  
 2/6/16  
 6.69  
 9.72  
 DUP 1

Scout

EB101	868465.916	759325.415	14.135	12.69	3-6-16	4.74	MS/msd-EB-101
B9	868447.181	759268.704	14.881	12.69	6-10-16	2.53	
B1	868431.822	759198.069	14.388	13.32	3-6-16	2.03	DUP 2
P120	867124.565	760234.434	28.522	26.12	6/24/16	18.36	
P122	867280.619	760783.67	29.399	27.55	7/5/16	16.40	
P123	867398.282	761149.588	43.337	40.66	7/5/16	12.98*	
P124	867502.776	761405.294	43.274	40.52	6/30/16	35.31	
P121	867742.142	761389.913	40.502	37.08	6/30/16	35.56	
16C	868479.486	759676.795	11.759	11.19	6/6/16	6.80	
109A	868394.381	759044.49	17.648	14.39	7-12-16	10.09	
76A	868638.661	758785.096	14.09	11.58	6-21-16	9.10	
76B2	868640.839	758790.635	14.035	11.13	6-21-16	6.99	
17B	869260.701	759320.973	10.118	7.06	8-16-16	11.12	
78B	870179.155	760240.47	11.952	8.73	8-15-16	4.24	
37A	868913.465	760217.188	16.803	13.84	7-13-16	10.49	
13B2	868933.809	760322.733	18.059	14.81	7/6/16	13.44	DUP 4
13A	868934.62	760327.039	17.426	15.55	7/6/16	8.90	
110B2	869431.953	760308.97	11.385	8.95	8-16-16	6.37	
110AB	869426.639	760305.114	12.26	9.12	8-11-16	7.98	
111A	869515.288	760463.83	13.273	9.57	8-11-16	11.42	
63A	868988.372	760571.613	18.574	17.25	7-13-16	8.15	
38A	868990.929	760577.028	17.525	16.83	7-13-16	5.76	
84A	869131.225	761225.128	10.029	8.19	7-14-16	4.95	
84B2	869131.618	761229.887	10.137	7.47	7/6/16	5.04	
77B	870167.293	758970.04	12.932	10.15	7-15-16	7.29	
20B	870173.536	759773.63	9.229	7.82	8-10-16	7.61	
21B	870211.124	760963.737	16.53	14.09	7/14/16	12.00	

\* interfase dudoso.

# APPENDIX C

## Photo Log



### Site Photographs

Puma Energy Caribe, LLC  
Former CAPECO  
Semi-annual Sampling June 2016  
Bayamón, Puerto Rico



**Photograph 3** – ARCADIS personnel during groundwater sampling of monitoring wells in Avenue D.



**Photograph 4** – ARCADIS personnel during groundwater sampling of monitoring wells in Avenue D..



## Site Photographs

Puma Energy Caribe, LLC  
Former CAPECO  
Semi-annual Sampling June 2016  
Bayamón, Puerto Rico



**Photograph 5** – ARCADIS personnel during groundwater sampling of monitoring well 83A.



**Photograph 6** – ARCADIS personnel during groundwater sampling of monitoring wells in Avenue F.

# APPENDIX D

## Chain of Custody and Laboratory Results



# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

<b>Section A</b> Required Client Information:	<b>Section B</b> Required Project Information:	<b>Section C</b> Invoice Information:	Page: <u>1</u> of <u>1</u>
Company: <u>BBL Caybe</u>	Report To: <u>Extrañ Caldevan</u>	Attention:	<b>2035838</b>
Address: <u>City View Plaza I, Ste. 1401 Guaynabo, PR</u>	Copy To:	Company Name:	<b>REGULATORY AGENCY</b> <input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER
Email To: <u>maria.caldevan@pacelabs.com</u>	Purchase Order No.:	Address:	
Phone: <u>787-577-4000</u> Fax:	Project Name: <u>Marina Terminal MW Sampling</u>	Pace Quote Reference:	<b>Site Location</b> <u>Bayamon</u> <b>STATE:</b> <u>P.R.</u>
Requested Due Date/TAT:	Project Number: <u>B0063767</u>	Pace Project Manager: <u>J. Redondo</u> Pace Profile #:	

ITEM #	Section D Required Client Information  <b>SAMPLE ID</b> (A-Z, 0-9 / .-) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓ Y/N	Requested Analysis Filtered (Y/N)													Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.			
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol		Other																	
					DATE	TIME	DATE	TIME																												
1	EB-060316		OTG				03/14	0710		4																										
2	EB-101		OTG				03/14	0800		4																										
3	MS/MSd - EB-101		OTG				03/14			4																										
4	B-1		WTG				03/14	0945		4																										
5	Dup 2		WTG				03/14			4																										
6	EB-060316		WTG				03/14	0950		4																										
7	Tnp blank		WTG				03/14			4																										
8																																				
9																																				
10																																				
11																																				
12																																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
<u>level 10</u>	<u>Melara Aranis</u>	<u>03/14</u>	<u>1055</u>	<u>[Signature]</u>	<u>03/19</u>	<u>10:55</u>	<u>30</u>	<u>Y</u>	<u>N</u>	<u>Y</u>

<b>SAMPLER NAME AND SIGNATURE</b>		Temp in °C	Received on ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples intact (Y/N)
PRINT Name of SAMPLER: <u>Hananelle Hernandez / Hernandez Colon</u>					
SIGNATURE of SAMPLER: <u>Melara B.</u>					
DATE Signed (MM/DD/YY): <u>03/14</u>					

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

**CHAIN-OF-CUSTODY / Analytical Request Document**

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1  
**2035841**

**Section A**  
Required Client Information:

Company: BBL Caribe  
Address: City View Plaza I  
Ste 401, Guaynabo, PR  
Email To: rain-calderon@arcadis.com  
Phone: 787-777-4000 Fax: 787-777-8085  
Requested Due Date/TAT:

**Section B**  
Required Project Information:

Report To: Etrain Calderon  
Copy To:  
Purchase Order No.:  
Project Name:  
Project Number: 20063767

**Section C**  
Invoice Information:

Attention:  
Company Name:  
Address:  
Pace Quote Reference:  
Pace Project Manager: J Redondo  
Pace Profile #:

**REGULATORY AGENCY**

NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER

Site Location: Bayamon  
STATE: PR

ITEM #	SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE		COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Analysis Test ↓ Analysis Test ↑	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.			
		Drinking Water	DW	COMPOSITE START	COMPOSITE END/GRAB		Unpreserved			H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other										
		Water	WT	DATE	TIME	DATE	TIME																			
1	EB-060616					6/6/16	0830		4																	
2	16C					6/6/16	0915		4																	
3	EB-102					6/6/16	0746		4																	
4	EB-103					6/6/16	0545		116																	
5	EB-104					6/6/16	200		116																	
6	EB-060616					6/6/16	0805		4																	
7	TP blank					6/6/16	0800		4																	
8																										
9																										
10																										
11																										
12																										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
level 10	Melania Arcadis	6/6/16	12:45	J Redondo	6/6/16	10:45	30 Y P Y

**SAMPLER NAME AND SIGNATURE**

PRINT Name of SAMPLER: Marianela Mercado Burgos/Fernando  
SIGNATURE of SAMPLER: [Signature] DATE Signed (MM/DD/YY): 6/6/16

Temperature: Color  
Received on Ice (Y/N): Color  
Custody Sealed Cooler (Y/N): Color  
Samples Intact (Y/N): Color

2

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

<b>Section A</b> Required Client Information:		<b>Section B</b> Required Project Information:		<b>Section C</b> Invoice Information:		2035835	
Company: <i>BBL Caribe</i>		Report To: <i>Ethain Calderon</i>		Attention:		REGULATORY AGENCY	
Address: <i>City View Plaza I</i>		Copy To:		Company Name:			
Email To: <i>ethain.calderon@bblcaribe.com</i>		Purchase Order No.:		Address:		Site Location: <i>Bayamon</i>	
Phone: <i>787-777-4000</i> Fax: <i>787-777-8888</i>		Project Name: <i>Ruma Terminal Well Sampling</i>		Pace Quote Reference:		STATE: <i>P.R.</i>	
Requested Due Date/TAT: <i>STU</i>		Project Number: <i>PO0063767</i>		Pace Project Manager: <i>J. Rodriguez</i>			
				Pace Profile #:			

ITEM #	Section D Required Client Information  SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Requested Analysis Filtered (Y/N)											Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.		
					COMPOSITE START		COMPOSITE END/GRAB				Preservatives														
					DATE	TIME	DATE	TIME			Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other	Analysis Test ↓						
1	<i>EB-060216</i>		<i>WTG</i>					<i>02/14/0852</i>	<i>9</i>																
2	<i>Triblank</i>		<i>WTG</i>					<i>6/2/16</i>	<i>1</i>																
3	<i>WWTP-2</i>		<i>WTG</i>					<i>6/2/16 1017</i>	<i>9</i>																
4	<i>WWTP-1</i>		<i>WTG</i>					<i>6/2/16 1130</i>	<i>9</i>																
5	<i>DUP-1</i>		<i>WTG</i>					<i>6/2/16</i>	<i>9</i>																
6	<i>FB-060216</i>		<i>WTG</i>					<i>6/2/16 1135</i>	<i>4</i>																
7																									
8																									
9																									
10																									
11																									
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<i>Relaxtas Armas - BBL Caribe</i>	<i>6/1/16</i>	<i>12:45</i>	<i>Fabrizio Vazquez - P.R.</i>	<i>2/6/16</i>	<i>12:45</i>	<i>Y N Y</i>

2

SAMPLER NAME AND SIGNATURE				Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: <i>Nananela Mercado Burgos / Fernando Colon</i>							
SIGNATURE of SAMPLER: <i>Nananela Mercado Burgos</i>				DATE Signed (MM/DD/YY): <i>June 2, 16</i>			

# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**2035840**

**Section A**  
Required Client Information:

**Section B**  
Required Project Information:

**Section C**  
Invoice Information:

Company: <u>PPG Lanby Acad</u>	Report To: <u>Estain Calderon</u>	Attention:
Address: <u>5741 View Plaza I</u>	Copy To:	Company Name:
<u>574101, Guaynabo, PR</u>		Address:
Email To: <u>estain-calderon@ppg.com</u>	Purchase Order No.:	Pace Quote Reference:
Phone: <u>787-7400</u>	Project Name: <u>Puma Terminal MW Samp</u>	Pace Project Manager: <u>J. Pedron</u>
Fax:	Project Number: <u>B00263767</u>	Pace Profile #:
Requested Due Date/TAT:		

<b>REGULATORY AGENCY</b>		
<input type="checkbox"/> NPDES	<input type="checkbox"/> GROUND WATER	<input type="checkbox"/> DRINKING WATER
<input type="checkbox"/> UST	<input type="checkbox"/> RCRA	<input type="checkbox"/> OTHER
Site Location: <u>Bayamon</u>		
STATE: <u>PR</u>		

**Section D**  
Required Client Information

**SAMPLE ID**  
(A-Z, 0-9 / . -)  
Sample IDs MUST BE UNIQUE

**Matrix Codes**  
MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

MATRIX CODE (see valid codes to left)

SAMPLE TYPE (G=GRAB C=COMP)

**COLLECTED**

COMPOSITE START		COMPOSITE END/GRAB	
DATE	TIME	DATE	TIME

SAMPLE TEMP AT COLLECTION

**Preservatives**

Unpreserved	
H <sub>2</sub> SO <sub>4</sub>	
HNO <sub>3</sub>	
HCl	
NaOH	
Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	
Methanol	
Other	

Analysis Test

**Requested Analysis Filtered (Y/N)**

VOA	
TPH GRO	
TPH PRO	
TPH ORO	
PAH	
Metals	

Residual Chlorine (Y/N)

Pace Project No./ Lab I.D.

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE	DATE	TIME	DATE	TIME	SAMPLE TEMP	# OF CONTAINERS	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other	Analysis Test	Requested Analysis Filtered	Residual Chlorine	Pace Project No./ Lab I.D.
1	EB-060716	WTG		6/7/16	10:35	9	4		4												
2	EB-105	WTG		6/7/16	10:44	9	4		4												
3	EB-106	WTG		6/7/16	12:43	9	4		4												
4	FB-060716	WTG		6/7/16	12:45	4			4												
5	Trip blank	WTG		6/7/16	00:00	4			4												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS		
level 12	<u>Michelle Hernandez</u>	<u>6/7/16</u>	<u>13:40</u>	<u>[Signature]</u>	<u>6-7-16</u>	<u>13:40</u>			

<b>SAMPLER NAME AND SIGNATURE</b>		Temp in °C	Received on ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples intact (Y/N)
PRINT Name of SAMPLER: <u>Manuela Hernandez</u>					
SIGNATURE of SAMPLER: <u>[Signature]</u>	DATE Signed (MM/DD/YY): <u>6/7/16</u>				

# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



**Section A**  
Required Client Information:

**Section B**  
Required Project Information:

**Section C**  
Invoice Information:

Page: 1 of 1  
**2035839**

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER \_\_\_\_\_

**Site Location** Raymond  
**STATE:** P.R.

Company: Arcadis Report To: Efrain Calderon Attention:  
 Address: City View Plaza I Copy To:  
Ste 401, Quaynabo, PR  
 Email To: Efrain.Calderon@Arcadis.com Purchase Order No.:  
 Phone: 787-777-4070 Project Name:  
 Requested Due Date/TAT: Project Number: R0063767

Pace Quote Reference:  
 Pace Project Manager: J. Redondo  
 Pace Profile #:

ITEM #	Section D Required Client Information  <b>SAMPLE ID</b> (A-Z, 0-9 / . - ) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓ Y/N ↑	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.														
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other																		
					DATE	TIME	DATE	TIME																												
1	FB-D061016		GT	G				6/10/16	18	9	4																									
2	MP-SA		GT	G				6/10/16	150	9	4																									
3	ISA		GT	G				6/10/16	020	9	4																									
4	DPS		GT	G				6/10/16	116	9	4																									
5	ISB2		GT	G				6/10/16	0722	9	4																									
6	B9		GT	G				6/10/16	0746	9	4																									
7	ISB		GT	G				6/10/16	0843	9	4																									
8	Tripblank		GT	G				0/0/16	0000	4																										
9	FB-D061016		GT	G				0/10/16	155	4																										
10																																				
11																																				
12																																				
ADDITIONAL COMMENTS			RELINQUISHED BY / AFFILIATION				DATE		TIME		ACCEPTED BY / AFFILIATION				DATE		TIME		SAMPLE CONDITIONS																	
			<u>Relax by Arcadis</u>				<u>6/10/16</u>		<u>16:31</u>		<u>[Signature]</u>				<u>6-10-16</u>		<u>17:31</u>																			

**SAMPLER NAME AND SIGNATURE**

PRINT Name of SAMPLER: Mariangela Mercado Hernandez

SIGNATURE of SAMPLER: [Signature] DATE Signed (MM/DD/YY): 6/10/16

Temp in °C: \_\_\_\_\_  
 Received on Ice (Y/N): \_\_\_\_\_  
 Custody Sealed Cooler (Y/N): \_\_\_\_\_  
 Samples Intact (Y/N): \_\_\_\_\_





### CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

**2035877**

**Section A**  
Required Client Information:

Company: **BBL CARIBE**  
Address: **CITY VIEW PLAZA I STE 401**  
**SUAYHABO P.R. 00968**  
Email To: **efrain.calderon@arcadis.com**  
Phone: **787-777-4000** Fax: **787-777-8085**  
Requested Due Date/TAT: **ST**

**Section B**  
Required Project Information:

Report To: **EFRAIN CALDERON**  
Copy To:  
Purchase Order No.:  
Project Name: **PUM TERMINAL WELL SAMPLING**  
Project Number: **30063767**

**Section C**  
Invoice Information:

Attention:  
Company Name:  
Address:  
Pace Quote Reference:  
Pace Project Manager: **J. REDONIDO**  
Pace Profile #:

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER \_\_\_\_\_  
Site Location: **BAYAMON**  
STATE: **P.R.**

ITEM #	Section D Required Client Information  <b>SAMPLE ID</b> (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE		MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓ Y/N ↑	Requested Analysis Filtered (Y/N)										Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.												
		Drinking Water DW	Water WT			Waste Water WW	Product P	Soil/Solid SL	Oil OL			Wipe WP	Air AR	Tissue TS	Other OT	COMPOSITE START	COMPOSITE END/GRAB	Unpreserved	H <sub>2</sub> SO <sub>4</sub>		HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other	VOA	TPH	GR0	TPH DB0 / 010			PAH5	METALS										
		DATE	TIME			DATE	TIME	DATE	TIME			DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME		DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME			DATE	TIME	DATE	TIME	DATE	TIME						
1	EB-062116	WT	G			06-21-16	0742	9	4	1	4								X	X	X	X	X																					
2	MW-MP4	WT	G			06-21-16	0754	9	4	1	4								X	X	X	X	X																					
3	MW-EB107	WT	G			06-21-16	0939	9	4	1	4								X	X	X	X	X																					
4	MW-EB108	WT	G			06-21-16	1056	9	4	1	4								X	X	X	X	X																					
5	MW-76B2	WT	G			06-21-16	1215	9	4	1	4								X	X	X	X	X																					
6	MW-76A	WT	G			06-21-16	1303	9	4	1	4								X	X	X	X	X																					
7	FB-062116	WT	G			06-21-16	1315	4											X	X																								
8	TB	WT	G			06-21-16	LAB	4											X	X																								
9																																												
10																																												
11																																												
12																																												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS						
LEVEL TV	ARCADIS	06-21-16	1520		06-21-16	15:20							

**SAMPLER NAME AND SIGNATURE**

PRINT Name of SAMPLER: **FERNANDO COLON**

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY): **06-21-16**

Temp in °C

Received on Ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples Intact (Y/N)

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

### CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1  
**2035899**

<b>Section A</b> Required Client Information:	<b>Section B</b> Required Project Information:	<b>Section C</b> Invoice Information:	
Company: <u>Arcadis</u>	Report To: <u>Strain Calderon</u>	Attention:	
Address: <u>1771 View Plaza I</u> <u>Ste 1401 Quagmabo, PR</u>	Copy To:	Company Name:	<b>REGULATORY AGENCY</b>
Email To: <u>fern.cald@arcadis.com</u>	Purchase Order No.:	Address:	
Phone: <u>877-777-0000</u> Fax:	Project Name: <u>Puerto Terminal MW Sampling</u>	Pace Quote Reference:	<input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER
Requested Due Date/TAT:	Project Number: <u>20063767</u>	Pace Project Manager: <u>J. Redondo</u>	Site Location: <u>Bayamon</u> STATE: <u>PR</u>
		Pace Profile #:	

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Y/N ↓	Requested Analysis Filtered (Y/N)								Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.			
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other		Analysis Test ↓												
					DATE	TIME	DATE	TIME												VDA	TPH	GIW	TPH	DRO	TPH	DRO	PAHS			Metals		
1	EB-062216		WTG				02/21/16	1300	9	4																						
2	trip blank		WTG				02/21/16	1300	4																							
3	86A		WTG				02/21/16	1300	9	4																						
4	DUP3		WTG				02/21/16	1300	9	4																						
5	65A		WTG				02/21/16	1305	9	4																						
6	MS/MSD-65A		WTG				02/21/16	1305	9	4																						
7	87A		WTG				02/21/16	1305	9	4																						
8	FB-062216		WTG				02/21/16	1305	4																							
9																																
10																																
11																																
12																																

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS				
level IV	<u>Aracelis Arcadis</u>	<u>02/21/16</u>	<u>1300</u>	<u>for PRR</u>	<u>02/21/16</u>	<u>1330</u>	<u>30</u>	<u>Y</u>	<u>N</u>	<u>Y</u>	<u>Y</u>
<b>SAMPLER NAME AND SIGNATURE</b> PRINT Name of SAMPLER: <u>Hanabela Mercado / Fernando Colon</u> SIGNATURE of SAMPLER: <u>[Signature]</u> DATE Signed (MM/DD/YYYY): <u>4/22/16</u>											
Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)								

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

# CHAIN-OF-CUSTODY / Analytical Request Document

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2035962

<b>Section A</b> Required Client Information:	<b>Section B</b> Required Project Information:	<b>Section C</b> Invoice Information:	
Company: <u>BOL CARBO / Arcadis</u>	Report To: <u>Ethain Calderon</u>	Attention:	
Address: <u>City View Plaza I Ste 401</u> <u>Guaynabo, P.R. 00961</u>	Copy To:	Company Name:	<b>REGULATORY AGENCY</b>
Email To: <u>Ethain.Calderon@arcadis.com</u>	Purchase Order No.:	Address:	<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER
Phone: <u>787-774000</u> Fax: <u>787-7748085</u>	Project Name: <u>Puma Terminal NW Samplings</u>	Pace Quote Reference:	<input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER
Requested Due Date/TAT:	Project Number: <u>B0063767</u>	Pace Project Manager: <u>J. Ricardo</u>	Site Location: <u>Bayamon</u>
		Pace Profile #:	STATE: <u>PR</u>

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.				
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other	VDA	TPH GRO					TPH PRO	TPH DRO	PAHS	Metals
					DATE	TIME	DATE	TIME																				
1	EB-062416	WTG					10/24/16	0735	9	4																		
2	88A	WTG					10/24/16	0900	9	4																		
3	18D	WTG					10/24/16	1037	9	4																		
4	P-120	WTG					10/24/16	1230	9	4																		
5	FB-062416	WTG					10/24/16	1235	4																			
6	EB-062316	WTG					10/23/16	1200	9	4																		
7	98A	WTG					10/23/16	1310	9	4																		
8	99A	WTG					10/23/16	1432	9	4																		
9	FB-062316	WTG					10/23/16	1440	4																			
10	Triblank - 062316	WTG					10/23/16	0000	4																			
11	Triblank - 062416	WTG					10/24/16	0000	4																			
12																												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<u>Alcarriz / Arcadis</u>	<u>10/24/16</u>	<u>14:21</u>	<u>[Signature]</u>	<u>10/26/16</u>	<u>14:21</u>	

2

<b>SAMPLER NAME AND SIGNATURE</b>			
PRINT Name of SAMPLER: <u>Marianella Mercado / Fernando Colon</u>		Temp in °C	Received on ice (Y/N)
SIGNATURE of SAMPLER: <u>[Signature]</u>		Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
DATE Signed (MM/DD/YY): <u>10/24/16</u>			

**CHAIN-OF-CUSTODY / Analytical Request Document**

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<b>Section A</b> Required Client Information:		<b>Section B</b> Required Project Information:		<b>Section C</b> Invoice Information:		Page: 1 of 1	
Company: Arcadis PBL Corp		Report To: Efrain Caldern		Attention:		<b>2035875</b>	
Address: City View Plaza I St 401, Guaynabo PR 00968		Copy To:		Company Name:			
Email To: efrain.caldern@arcadis.com		Purchase Order No.:		Address:		<b>REGULATORY AGENCY</b>	
Phone: 787-777-4000 Fax:		Project Name: Puerto Terminal NW Sm		Pace Quote Reference:			
Requested Due Date/TAT:		Project Number: 30063767		Pace Project Manager: J. Redondo		Site Location: Bayamon	
				Pace Profile #:		STATE: P.R.	

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.						
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other										
					DATE	TIME	DATE	TIME																				
1	EB-062716		WTG	G				6/27/16	07:44	9	4																	
2	trip blank		WTG	G				6/27/16	00:00	4																		
3	33A		WTG	G				6/27/16	09:01	9	4																	
4	AD-4		WTG	G				6/27/16	10:28	9	4																	
5	AD-3		WTG	G				6/27/16	11:37	9	4																	
6	57-A		WTG	G				6/27/16	12:42	9	4																	
7	AD-1		WTG	G				6/27/16	13:38	9	4																	
8	FB-062716		WTG	G				6/27/16	13:42	9	4																	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
NIUCL #4	[Signature] / ARCADIS	6-27-16	14:20	[Signature] / PACE	6/29/16	14:22	20	Y	N	Y

2

<b>SAMPLER NAME AND SIGNATURE</b>		Temp °C	Received on ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: Fernando Colon / Manager					
SIGNATURE of SAMPLER: [Signature]	DATE Signed (MM/DD/YY): 6/27/16				

**Section A**  
Required Client Information:

Company: Pace Caribe Arcadis  
Address: 1701, Plaza T, Ste 201, Guaynabo, PR 00969  
Email To: rain.colon@arcadis.com  
Phone: 787-777-4000 Fax:  
Requested Due Date/TAT:

**Section B**  
Required Project Information:

Report To: Efrain Caldeira  
Copy To:  
Purchase Order No.:  
Project Name: Tuna terminal MUD sample  
Project Number: B0063767

**Section C**  
Invoice Information:

Attention:  
Company Name:  
Address:  
Pace Quote Reference:  
Pace Project Manager: J. Redondo  
Pace Profile #:

Page: 1 of 1  
**2035806**

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER  
 Site Location: Bayamon  
 STATE: PR

ITEM #	SAMPLE ID (A-Z, 0-9/,-) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives									Analysis Test ↓	Requested Analysis Filtered (Y/N)										Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.						
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other	VDA		TPH GPO	TPH BRO/DRO	PAH	Metals														
					DATE	TIME	DATE	TIME																														
1	EB-062816		WT	G			6/28/16	0905	9	4	14																											
2	Ripbank		WT	G			6/28/16	0900	4		4																											
3	HD-2		WT	G			6/28/16	1002	9	4	14																											
4	83A		WT	G			6/28/16	1110	9	4	14																											
5	83B2		WT	G			6/28/16	1200	9	4	14																											
6	P-118		WT	G			6/28/16	1305	9	4	14																											
7	FB-062816		WT	G			6/28/16	1308	4		4																											
8																																						
9																																						
10																																						
11																																						
12																																						

**ADDITIONAL COMMENTS**: LEVEL IV

**RELINQUISHED BY / AFFILIATION**: [Signature] ARCADIS

**DATE**: 6-28-16

**TIME**: 1505

**ACCEPTED BY / AFFILIATION**: [Signature] Pace

**DATE**: 6-28-16

**TIME**: 15:05

**SAMPLE CONDITIONS**

**Temp in °C**:  
**Received on Ice (Y/N)**:  
**Custody Sealed Cooler (Y/N)**:  
**Samples Intact (Y/N)**:

**SAMPLER NAME AND SIGNATURE**

**PRINT Name of SAMPLER**: Hernando Colon / Mariánela Merado

**SIGNATURE of SAMPLER**: [Signature]

**DATE Signed (MM/DD/YY)**: 6/28/16

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Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		REGULATORY AGENCY	
Company: <u>Arcadis</u>	Report To: <u>Efraim Calderin</u>	Attention:		Company Name:		<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER	
Address: <u>311 View Plaza Quincy, PA</u>	Copy To:	Address:		Pace Quote Reference:		<input type="checkbox"/> UST <input type="checkbox"/> RCRA <input checked="" type="checkbox"/> OTHER	
Email To: <u>efraim.calderin@arcadis.com</u>	Purchase Order No.:	Pace Project Manager: <u>J. Redondo</u>		Site Location: <u>Berwyn</u>		STATE: <u>PA</u>	
Phone: <u>717-4000</u> Fax: _____	Project Name: <u>Aluma Terminal MW Sample</u>	Project Number: <u>P0063767</u>		Pace Profile #:			
Requested Due Date/TAT:							

ITEM #	SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	COLLECTED COMPOSITE START COMPOSITE END/GRAB	DATE	TIME	DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.						
										Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other										
										DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME					DATE	TIME	DATE	TIME	DATE	TIME
1	FB-063016					6/30/16	0901		9	4	14																
2	P-119					6/30/16	1005		9	4	14																
3	P-121					6/30/16	1123		9	4	14																
4	P-124					6/30/16	1232		9	4	14																
5	FB-063016					6/30/16	1245		4		4																
6	Trip Tank					6/30/16	0000		4		4																

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<i>Mellars / Analysis</i>	6/30/16	1410	<i>[Signature] / Pace</i>	6/30/16	1410	

<b>SAMPLER NAME AND SIGNATURE</b> PRINT Name of SAMPLER: <u>Mariela Mercado Hernandez Colon</u> SIGNATURE of SAMPLER: <i>[Signature]</i> DATE Signed (MM/DD/YY): <u>6/30/16</u>			Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
--	--	--	------------	-----------------------	-----------------------------	----------------------

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# CHAIN-OF-CUSTODY / Analytical Request Document

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<b>Section A</b> Required Client Information:		<b>Section B</b> Required Project Information:		<b>Section C</b> Invoice Information:		Page: <u>1</u> of <u>1</u>
Company: <u>Arcadis/BBL Caribe</u>		Report To: <u>Efraín Calderín</u>		Attention:		2035876
Address: <u>City View Plaza I Ste 401</u>		Copy To:		Company Name:		<b>REGULATORY AGENCY</b>
Maynebo, PR 00968				Address:		
Email To: <u>Efrain.Calderin@arcadis.com</u>		Purchase Order No.:		Pace Quote Reference:		<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER
Phone: <u>787-777-4000</u> Fax:		Project Name: <u>Puma Terminal MW-Samp</u>		Pace Project Manager: <u>J. Pedronis</u>		<input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER
Requested Due Date/TAT:		Project Number: <u>B00063767</u>		Pace Profile #:		Site Location: <u>Bayamon</u>
						STATE: <u>PR</u>

ITEM #	Section D Required Client Information	SAMPLE ID (A-Z, 0-9 / . - ) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Analysis Test Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.					
				COMPOSITE				Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other											
				START	END/GRAB																					
				DATE	TIME	DATE	TIME																			
1		EB-070516	WTG			7/5/16	0810	9	4																	
2		Tipblank	WTG			7/5/16	0800	4																		
3		P-123	WTG			7/5/16	0835	9	4																	
4		P-122	WTG			7/5/16	0928	9	4																	
5		P-116	WTG			7/5/16	1150	9	4																	
6		P-117	WTG			7/5/16	1240	9	4																	
7		PB-070516	WTG			7/5/16	1247	4																		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
<u>Level IV</u>	<u>Kelara Hernandez</u>	<u>7/5/16</u>	<u>15:35</u>	<u>J. Pace</u>	<u>7/5/16</u>	<u>15:35</u>	<u>30 Y N Y</u>

<b>SAMPLER NAME AND SIGNATURE</b>		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: <u>Manuel Heredo Hernandez Colon</u>					
SIGNATURE of SAMPLER: <u>Kelara Hernandez</u>	DATE Signed (MM/DD/YY): <u>7/5/16</u>				

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### CHAIN-OF-CUSTODY / Analytical Request Document

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**Section A**  
Required Client Information:

**Section B**  
Required Project Information:

**Section C**  
Invoice Information:

Company: Arcadis IPA, Canada  
Address: 7777 View Plaza I, SK 4701  
Regina, SK S4S 0G8  
Email To: rafraim.caldeira@arcadis.com  
Phone: 306-777-4000  
Requested Due Date/TAT:

Report To: Efraim Caldeira  
Copy To:  
Purchase Order No.:  
Project Name: Borne Terminal  
Project Number: BUN1037107

Attention:  
Company Name:  
Address:  
Pace Quote Reference:  
Pace Project Manager: *[Signature]*  
Pace Profile #:

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER  
Site Location: *[Signature]*  
STATE: PR

**Section D**  
Required Client Information

**Matrix Codes**  
MATRIX / CODE  
Drinking Water DW  
Water WT  
Waste Water WW  
Product P  
Soil/Solid SL  
Oil OL  
Wipe WP  
Air AR  
Tissue TS  
Other OT

**SAMPLE ID**  
(A-Z, 0-9 / .-)  
Sample IDs MUST BE UNIQUE

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMIP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓ Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.			
				COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other							
				DATE	TIME	DATE	TIME																	
1	EB-070616	WT	G			7/6/16	0750	4																
2	Trip/blank	WT	G			7/6/16	0800	4																
3	134	WT	G			7/6/16	0900	4																
4	13B2	WT	G			7/6/16	1000	4																
5	84B2	WT	G			7/6/16	1110	4																
6	48B	WT	G			7/6/16	1222	4																
7	DUP 4	WT	G			7/6/16	0800	4																
8	DUP 5	WT	G			7/6/16	0800	4																
9	PB-070616	WT	G			7/6/16	1225	4																

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Level 2	<i>[Signature]</i> / ARCADIS	7-6-16	1440	<i>[Signature]</i> / Pace	7-6-16	1440	

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: *Maramela Mercado Burgos / Fernando Caldeira*  
 SIGNATURE of SAMPLER: *[Signature]* DATE Signed (MM/DD/YY): 7/6/16  
 Temp in °C: \_\_\_\_\_  
 Received on Ice (Y/N): \_\_\_\_\_  
 Custody Sealed Cooler (Y/N): \_\_\_\_\_  
 Samples Intact (Y/N): \_\_\_\_\_



# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A**

Required Client Information:

**Section B**

Required Project Information:

**Section C**

Invoice Information:

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## 2030777

Company: <u>Arcadis / BBK Caribe</u>	Report To: <u>E Fraiz Calderon</u>	Attention:
Address: <u>City View Plaza I Ste 401</u>	Copy To:	Company Name:
<u>Guaynabo, PR 00968</u>		Address:
Email To: <u>EFraiz.Calderon@arcadis.com</u>	Purchase Order No.:	Pace Quote Reference:
Phone: <u>(787) 575-4000</u>	Project Name: <u>Pinna Terminal MW Sampling</u>	Pace Project Manager: <u>J Redondo</u>
Fax:	Project Number: <u>B0063769 +</u>	Pace Profile #:
Requested Due Date/TAT:		

REGULATORY AGENCY		
<input type="checkbox"/> NPDES	<input type="checkbox"/> GROUND WATER	<input type="checkbox"/> DRINKING WATER
<input type="checkbox"/> UST	<input type="checkbox"/> RCRA	<input type="checkbox"/> OTHER _____
Site Location		
STATE: <u>PR</u>		

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Requested Analysis Filtered (Y/N)										Residual Chlorine (Y/N)
			COMPOSITE				Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other	↓ Analysis Test ↓												
			START	END/GRAB																							
	<b>SAMPLE ID</b> (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME					
1	FB-091216	WT G	09/12/16	0815		9	4	1	4					X	X	X	X	X									
2	Trip blank	WT G	09/12/16	0800		4																					
3	MW-91A	WT G	09/12/16	0930		9	4	1	4					X	X	X	X	X									
4	MW-109A	WT G	09/12/16	1115		9	4	1	4					X	X	X	X	X									
5	FB-091216	WT G	09/12/16	1122		4								X		X											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

Pace Project No./ Lab I.D.

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Level IV	Andrés Colón / Arcadis	09/12/16	1236	<i>[Signature]</i>	09/12/16	1236	

<b>SAMPLER NAME AND SIGNATURE</b>		Temp in °C	Received on ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: <u>Andrés Colón</u>					
SIGNATURE OF SAMPLER: <i>[Signature]</i>	DATE Signed (MM/DD/YY): <u>09/12/16</u>				

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: \_\_\_\_\_ of \_\_\_\_\_  
**2030776**

<b>Section A</b> Required Client Information:		<b>Section B</b> Required Project Information:		<b>Section C</b> Invoice Information:	
Company: <b>Arcaadis / BRL Caribe</b>		Report To: <b>Efrain Calderon</b>		Attention:	
Address: <b>City View Plaza 1401</b>		Copy To:		Company Name:	
<b>Guaynabo P.R. 00968</b>		Purchase Order No.:		Address:	
Email To: <b>Efrain.Calderon@arcaadis.com</b>		Project Name: <b>Puma Terminal MW Sampling</b>		Pace Quote Reference: <b>J Rodolfo</b>	
Phone: <b>(787)-991-4003</b> Fax:		Project Number: <b>B0063161</b>		Pace Project Manager: <b>J Rodolfo</b>	
Requested Due Date/TAT:				Pace Profile #:	
<b>REGULATORY AGENCY</b>					
<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER _____					
Site Location				STATE: <b>P.R.</b>	

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Requested Analysis Filtered (Y/N)								Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.									
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other			Analysis Test ↓								
					DATE	TIME	DATE	TIME														Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N
1	EB-071316	Drinking Water	WT	G			07/13/16	0738	9	4																			
2	Trip Blank	Water	WT	G			07/13/16	LAB	4																				
3	MW-05B	Waste Water	WT	G			07/13/16	0858	9	4																			
4	MW-37A	Product	WT	G			07/13/16	1120	9	4																			
5	<del>MW-68A</del> MW-63A	Soil/Solid	WT	G			07/13/16	1214	9	4																			
6	FB-071316	Oil	VT	G			07/13/16	1220	4																				
7		Wipe																											
8		Air																											
9		Tissue																											
10		Other																											
11																													
12																													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Level IV	Andres Colon / Arcaadis	07/13/16	1428	[Signature]	7-13-16	14:28	

<b>SAMPLER NAME AND SIGNATURE</b>		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: <b>Andres Colon</b>					
SIGNATURE of SAMPLER: <b>[Signature]</b>	DATE Signed (MM/DD/YY): <b>07/13/16</b>				





### CHAIN-OF-CUSTODY / Analytical Request Document

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Page: 1 of 1  
**2035994**

<b>Section A</b> Required Client Information: Company: <u>Aracibo / BBL Caribe</u> Address: <u>City view Playa I ste 401</u> <u>Aracibo, P.R. 00968</u> Email To: <u>Efrain Calderon @ aracibo.com</u> Phone: <u>787-777-4000</u> Fax: Requested Due Date/TAT:		<b>Section B</b> Required Project Information: Report To: <u>E Frain Calderon</u> Copy To: Purchase Order No.: Project Name: <u>Porta Terminal mw - sampling</u> Project Number: <u>B0063110</u>		<b>Section C</b> Invoice Information: Attention: Company Name: Address: Pace Quote Reference: Pace Project Manager: <u>J. Redondo</u> Pace Profile #:		<b>REGULATORY AGENCY</b> <input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER _____ <b>Site Location</b> STATE: <u>P.R.</u>
---	--	--	--	--	--	---

ITEM #	Section D Required Client Information  SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.					
					COMPOSITE START	COMPOSITE END/GRAB		Unpreserved			H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other	VOA's 8260					PAH's 8210	metals 6020	680 6015	DAO/ORD	
	DATE	TIME	DATE	TIME																							
1	FB-081016		WT	G			08/10/16	1035	9	4		1	4						X	X	X	X	X				
2	Trip/blank		WT	G			08/10/16	LAB	4				4						X								
3	MW 20B		WT	G			08/10/16	1416	9	4		1	4						X	X	X	X	X				
4	MS-MW 20B		WT	G			08/10/16	1416	9	4		1	4						X	X	X	X	X				
5	MSD-MW 20B		WT	G			08/10/16	1416	9	4		1	4						X	X	X	X	X				
6	FB-081016		WT	G			08/10/16	1734	4				4						X								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Level IV	E. Frain Calderon / Aracibo Caribe	Aug 10, 2016	1600	J. Redondo / Pace	8/10/16	1600	

**SAMPLER NAME AND SIGNATURE**

PRINT Name of SAMPLER: E. Delgado

SIGNATURE of SAMPLER: [Signature]

DATE Signed (MM/DD/YY): Aug 10, 2016

Temp in °C: \_\_\_\_\_

Received on Ice (Y/N): \_\_\_\_\_

Custody Sealed Cooler (Y/N): \_\_\_\_\_

Samples Intact (Y/N): \_\_\_\_\_

## CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

<b>Section A</b> Required Client Information:	<b>Section B</b> Required Project Information:	<b>Section C</b> Invoice Information:	Page: 1 of 1 <b>2035992</b>
Company: <b>Arcadis / BBL Corp</b>	Report To: <b>E. Fraun Calderon</b>	Attention:	<b>REGULATORY AGENCY</b>
Address: <b>City View Plaza 1 Ste 401 Guaynabo P.R. 00968</b>	Copy To:	Company Name:	
Email To: <b>E.fraun.calderon@arcadis.com</b>	Purchase Order No.:	Address:	
Phone: <b>781-993-4000</b> Fax:	Project Name: <b>Burn Terminal MW-Sampling</b>	Pace Quote Reference:	
Requested Due Date/TAT:	Project Number: <b>3006316</b>	Pace Project Manager: <b>J Redondo</b>	<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER
		Pace Profile #:	<input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER
			Site Location: <b>PR</b> STATE: <b>PR</b>

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives									Analysis Test ↓ Y/N	Requested Analysis Filtered (Y/N)				
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other	↓ Analysis Test ↓ Y/N		Residual Chlorine (Y/N)				
					DATE	TIME	DATE	TIME																	
1	<b>EB-081116</b>		WT G				08/11/16	0850		9	4	1	4												
2	<b>TB-081116</b>		WT G				08/11/16	LAB		4			4												
3	<b>MW-114A</b>		WT G				08/11/16	1102		9	4	1	4												
4	<b>MW-111A</b>		WT G				08/11/16	1352		9	4	1	4												
5	<b>MW-110AB</b>		WT G				08/11/16	1448		9	4	1	4												
6	<b>FB-081116</b>		WT G				08/11/16	1454		4			4												
7																									
8																									
9																									
10																									
11																									
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
<b>Level III</b>	<i>[Signature]</i> / Arcadis, Corp. PR	Aug 11, 2016	16:15	<i>[Signature]</i> / Pace	8-11-16	16:15	

2

<b>SAMPLER NAME AND SIGNATURE</b>			Temp in °C	Received on ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: <b>E. Dulgado</b>						
SIGNATURE of SAMPLER: <i>[Signature]</i>			DATE Signed (MM/DD/YY): <b>Aug 11, 2016</b>			

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

## CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A**

Required Client Information:

**Section B**

Required Project Information:

**Section C**

Invoice Information:

Page: 1 of 1

Company: Arcadis / BBL	Report To: E Frair Calderon	Attention:
Address: City view Plaza 1 Ste 401	Copy To:	Company Name:
San Juan P.R. 00968		Address:
Email To: E Frair Calderon @ arcadis.com	Purchase Order No.:	Pace Quote Reference:
Phone: 787-555-4000	Project Name: From Terminal MW Sampling	Pace Project Manager: J. Redondo
Requested Due Date/TAT:	Project Number:	Pace Profile #:

2035993

**REGULATORY AGENCY**

NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER \_\_\_\_\_

Site Location: P.R.  
STATE: P.R.

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓	Requested Analysis Filtered (Y/N)										Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.							
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other																				
					DATE	TIME	DATE	TIME																														
1	TB-081516		WT	G				08/15/16	LAB	4																												
2	EB-081516		WT	G				08/15/16	1030	9																												
3	MW-78B		WT	G				08/15/16	1320	9																												
4	FB-081516		WT	G				08/15/16	1326	4																												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Level II	Andri Colon / Arcadis	08/15/16	1416	Paulo Juan Paez	08/15/16	1416	40	Y	N	Y

2

<b>SAMPLER NAME AND SIGNATURE</b>				Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: Andri Colon							
SIGNATURE of SAMPLER: [Signature]							
DATE Signed (MM/DD/YY): 08/15/16							

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

**CHAIN-OF-CUSTODY / Analytical Request Document**

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

<b>Section A</b> Required Client Information:	<b>Section B</b> Required Project Information:	<b>Section C</b> Invoice Information:	Page: 1 of 1	
Company: <u>Arca's / BBL</u>	Report To: <u>E Frain Calderon</u>	Attention:	1627371	
Address: <u>Citizens Plaza 150</u>	Copy To:	Company Name:	<b>REGULATORY AGENCY</b>	
<u>401 Gwynn P.R. 00968</u>		Address:		<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER
Email To: <u>E Frain Calderon @ arca.com</u>	Purchase Order No.:	Pace Quote Reference:		<input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER _____
Phone: <u>787-999-4000</u> Fax:	Project Name: <u>Urban Terminal MW Sampling</u>	Pace Project Manager: <u>J. Redondo</u>	<b>Site Location</b> STATE: <u>P.R.</u>	
Requested Due Date/TAT: <u>STO</u>	Project Number:	Pace Profile #:		

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Requested Analysis Filtered (Y/N)										Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.						
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other	↓ Analysis Test ↓																			
					DATE	TIME	DATE	TIME																														
1	TS-081616		WT	G				08/16/16	LAB	4																												
2	EB-081616		WT	G				08/16/16	0750	9	4		4																									
3	MW-17B		WT	G				08/16/16	0928	9	4		4																									
4	MW-110B2		WT	G				08/16/16	1216	9	4		4																									
5	FB-081616		WT	G				08/16/16	1221	4																												
6																																						
7																																						
8																																						
9																																						
10																																						
11																																						
12																																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	
<u>Level IV</u>	<u>Andri Colon / Arca's</u>	<u>08/16/16</u>	<u>1248</u>	<u>J Redondo / Pace</u>	<u>08/16/16</u>	<u>1248</u>	<u>40</u>	<u>Y</u>

<b>SAMPLER NAME AND SIGNATURE</b>				Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: <u>Andri Colon</u>							
SIGNATURE of SAMPLER: <u>[Signature]</u>							
DATE Signed (MM/DD/YY): <u>08/16/16</u>							



July 13, 2016

Efrain Calderon  
BBL Caribe Engineering P.S.C.  
48 City View Plaza1, Suite 401  
Road 16, Km. 1.2  
Guaynabo, PR 00968

RE: Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013

Dear Efrain Calderon:

Enclosed are the analytical results for sample(s) received by the laboratory on June 30, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Juan Redondo  
juan.redondo@pacelabs.com  
Project Manager

Enclosures

cc: Sharon Colon  
Abner Hernandez  
Marianela Mercado-Burgos



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013

---

### New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:  
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):  
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):  
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):  
T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-  
00119

Commonwealth of Virginia (TNI): 480246

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039013

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2039013001	EB-063016	Water	06/30/16 09:01	06/30/16 14:10
2039013002	P-119	Water	06/30/16 10:05	06/30/16 14:10
2039013003	P-121	Water	06/30/16 11:23	06/30/16 14:10
2039013004	P-124	Water	06/30/16 12:32	06/30/16 14:10
2039013005	FB-063016	Water	06/30/16 12:45	06/30/16 14:10
2039013006	TRIPBLANK	Water	06/30/16 00:00	06/30/16 14:10

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039013

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2039013001	EB-063016	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2039013002	P-119	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2039013003	P-121	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2039013004	P-124	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2039013005	FB-063016	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2039013006	TRIPBLANK	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039013

---

**Method:** EPA 8015B Modified

**Description:** 8015M DRO/ORO Organics

**Client:** BBL Caribe / Arcadis PR

**Date:** July 13, 2016

**General Information:**

4 samples were analyzed for EPA 8015B Modified. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3535 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 58178

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039013

---

**Method:** EPA 8015/8021

**Description:** 8021 GCV BTEX, MTBE, GRO

**Client:** BBL Caribe / Arcadis PR

**Date:** July 13, 2016

**General Information:**

6 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013

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**Method:** EPA 6020  
**Description:** 6020 MET ICPMS  
**Client:** BBL Caribe / Arcadis PR  
**Date:** July 13, 2016

**General Information:**

4 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039013

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**Method:** EPA 7470

**Description:** 7470 Mercury

**Client:** BBL Caribe / Arcadis PR

**Date:** July 13, 2016

**General Information:**

4 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013

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**Method:** EPA 8270 by SIM  
**Description:** 8270 MSSV PAH by SIM SEP  
**Client:** BBL Caribe / Arcadis PR  
**Date:** July 13, 2016

### General Information:

4 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 58320

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

### Additional Comments:

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013

---

**Method:** EPA 5030B/8260  
**Description:** 8260 MSV Low Level  
**Client:** BBL Caribe / Arcadis PR  
**Date:** July 13, 2016

**General Information:**

6 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

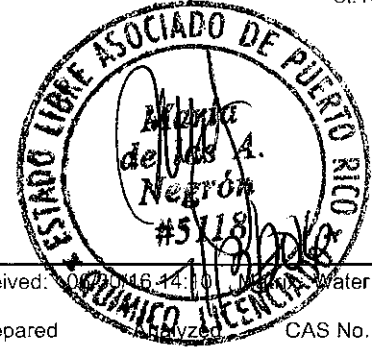
This data package has been reviewed for quality and completeness and is approved for release.

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013



Sample: EB-063016	Lab ID: 2039013001	Collected: 06/30/16 09:01	Received: 07/06/16 14:10	Matrix: Water	Prepared	CAS No.	Qual
Parameters	Results	Units	Report Limit	DF	Prepared	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>							
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535							
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/06/16 09:29	07/11/16 20:34	
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/06/16 09:29	07/11/16 20:34	
<b>Surrogates</b>							
n-Pentacosane (S)	68	%	16-137	1	07/06/16 09:29	07/11/16 20:34	629-99-2
o-Terphenyl (S)	75	%	10-121	1	07/06/16 09:29	07/11/16 20:34	84-15-1
<b>8021 GCV BTEX, MTBE, GRO</b>							
Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		07/01/16 21:52	
<b>Surrogates</b>							
4-Bromofluorobenzene (S)	89	%	44-148	1		07/01/16 21:52	460-00-4
<b>6020 MET ICPMS</b>							
Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Arsenic	ND	mg/L	0.0010	1	07/05/16 21:44	07/11/16 14:11	7440-38-2
Chromium	ND	mg/L	0.0010	1	07/05/16 21:44	07/11/16 14:11	7440-47-3
Lead	ND	mg/L	0.0010	1	07/05/16 21:44	07/11/16 14:11	7439-92-1
Vanadium	ND	mg/L	0.0050	1	07/05/16 21:44	07/11/16 14:11	7440-62-2
<b>7470 Mercury</b>							
Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	ND	ug/L	0.20	1	07/05/16 10:15	07/06/16 11:01	7439-97-6
<b>8270 MSSV PAH by SIM SEP</b>							
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510							
Naphthalene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 12:51	91-20-3
Acenaphthene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 12:51	83-32-9
Fluorene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 12:51	86-73-7
Phenanthrene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 12:51	85-01-8
Anthracene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 12:51	120-12-7
Fluoranthene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 12:51	206-44-0
Pyrene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 12:51	129-00-0
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 12:51	56-55-3
Chrysene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 12:51	218-01-9
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 12:51	205-99-2
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 12:51	207-08-9
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 12:51	50-32-8
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 12:51	191-24-2
<b>Surrogates</b>							
2-Fluorobiphenyl (S)	72	%	25-150	1	07/07/16 11:01	07/11/16 12:51	321-60-8
Terphenyl-d14 (S)	91	%	25-150	1	07/07/16 11:01	07/11/16 12:51	1718-51-0
<b>8260 MSV Low Level</b>							
Analytical Method: EPA 5030B/8260							
Acetone	23.0	ug/L	4.0	1		07/01/16 15:21	67-64-1
Benzene	ND	ug/L	0.50	1		07/01/16 15:21	71-43-2
Bromodichloromethane	ND	ug/L	0.50	1		07/01/16 15:21	75-27-4
Bromoform	ND	ug/L	0.50	1		07/01/16 15:21	75-25-2
Bromomethane	ND	ug/L	0.50	1		07/01/16 15:21	74-83-9
2-Butanone (MEK)	2.1	ug/L	2.0	1		07/01/16 15:21	78-93-3
tert-Butyl Alcohol	ND	ug/L	200	1		07/01/16 15:21	75-65-0

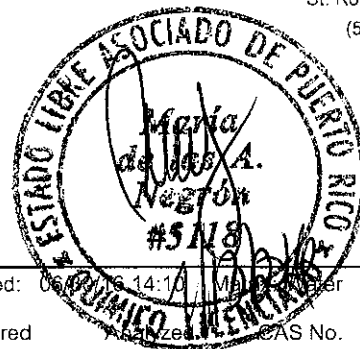
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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039013



Sample: EB-063016      Lab ID: 2039013001      Collected: 06/30/16 09:01      Received: 07/01/16 14:10  
 Parameters      Results      Units      Report Limit      DF      Prepared      CAS No.      Qual

**8260 MSV Low Level**

Analytical Method: EPA 5030B/8260

Parameters	Results	Units	Report Limit	DF	Prepared	CAS No.	Qual
Carbon disulfide	ND	ug/L	1.0	1	07/01/16 15:21	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1	07/01/16 15:21	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1	07/01/16 15:21	108-90-7	
Chloroethane	ND	ug/L	0.50	1	07/01/16 15:21	75-00-3	
Chloroform	ND	ug/L	0.50	1	07/01/16 15:21	67-66-3	
Chloromethane	ND	ug/L	0.50	1	07/01/16 15:21	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1	07/01/16 15:21	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1	07/01/16 15:21	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1	07/01/16 15:21	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1	07/01/16 15:21	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1	07/01/16 15:21	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1	07/01/16 15:21	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1	07/01/16 15:21	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1	07/01/16 15:21	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1	07/01/16 15:21	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1	07/01/16 15:21	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1	07/01/16 15:21	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1	07/01/16 15:21	10061-02-6	
Ethanol	ND	ug/L	500	1	07/01/16 15:21	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1	07/01/16 15:21	100-41-4	
2-Hexanone	ND	ug/L	1.0	1	07/01/16 15:21	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1	07/01/16 15:21	98-82-8	
Methyl acetate	ND	ug/L	2.0	1	07/01/16 15:21	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1	07/01/16 15:21	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1	07/01/16 15:21	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1	07/01/16 15:21	1634-04-4	
Styrene	ND	ug/L	1.0	1	07/01/16 15:21	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1	07/01/16 15:21	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1	07/01/16 15:21	127-18-4	
Toluene	0.58	ug/L	0.50	1	07/01/16 15:21	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1	07/01/16 15:21	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1	07/01/16 15:21	79-00-5	
Trichloroethene	ND	ug/L	0.50	1	07/01/16 15:21	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1	07/01/16 15:21	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1	07/01/16 15:21	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1	07/01/16 15:21	179601-23-1	
o-Xylene	ND	ug/L	1.0	1	07/01/16 15:21	95-47-6	
<b>Surrogates</b>							
Dibromofluoromethane (S)	97	%	72-126	1	07/01/16 15:21	1868-53-7	
4-Bromofluorobenzene (S)	96	%	68-124	1	07/01/16 15:21	460-00-4	
Toluene-d8 (S)	97	%	79-119	1	07/01/16 15:21	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013

Sample: P-119 Lab ID: 2039013002 Collected: 06/30/16 10:05 Received: 06/30/16 10:05 Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535						
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/06/16 09:29	07/11/16 21:02		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/06/16 09:29	07/11/16 21:02		
<b>Surrogates</b>								
n-Pentacosane (S)	72	%	16-137	1	07/06/16 09:29	07/11/16 21:02	629-99-2	
o-Terphenyl (S)	61	%	10-121	1	07/06/16 09:29	07/11/16 21:02	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		07/01/16 22:19		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	91	%	44-148	1		07/01/16 22:19	460-00-4	
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010						
Arsenic	ND	mg/L	0.0010	1	07/05/16 21:44	07/11/16 14:15	7440-38-2	
Chromium	ND	mg/L	0.0010	1	07/05/16 21:44	07/11/16 14:15	7440-47-3	
Lead	ND	mg/L	0.0010	1	07/05/16 21:44	07/11/16 14:15	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	07/05/16 21:44	07/11/16 14:15	7440-62-2	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470						
Mercury	ND	ug/L	0.20	1	07/05/16 10:15	07/06/16 11:11	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Naphthalene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:12	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:12	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:12	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:12	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:12	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:12	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:12	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:12	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:12	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:12	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:12	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:12	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:12	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	64	%	25-150	1	07/07/16 11:01	07/11/16 13:12	321-60-8	
Terphenyl-d14 (S)	87	%	25-150	1	07/07/16 11:01	07/11/16 13:12	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	17.2	ug/L	4.0	1		07/01/16 15:03	67-64-1	
Benzene	ND	ug/L	0.50	1		07/01/16 15:03	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/01/16 15:03	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/01/16 15:03	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/01/16 15:03	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/01/16 15:03	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/01/16 15:03	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039013



Sample: P-119      Lab ID: 2039013002      Collected: 06/30/16 10:05      Received: 07/01/16 14:10      Analyzed: 07/01/16 15:03      Water

Parameters	Results	Units	Report Limit	DF	Prepared	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260					
Carbon disulfide	ND	ug/L	1.0	1	07/01/16 15:03	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1	07/01/16 15:03	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1	07/01/16 15:03	108-90-7	
Chloroethane	ND	ug/L	0.50	1	07/01/16 15:03	75-00-3	
Chloroform	ND	ug/L	0.50	1	07/01/16 15:03	67-66-3	
Chloromethane	<b>0.58</b>	ug/L	0.50	1	07/01/16 15:03	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1	07/01/16 15:03	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1	07/01/16 15:03	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1	07/01/16 15:03	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1	07/01/16 15:03	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1	07/01/16 15:03	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1	07/01/16 15:03	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1	07/01/16 15:03	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1	07/01/16 15:03	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1	07/01/16 15:03	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1	07/01/16 15:03	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1	07/01/16 15:03	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1	07/01/16 15:03	10061-02-6	
Ethanol	ND	ug/L	500	1	07/01/16 15:03	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1	07/01/16 15:03	100-41-4	
2-Hexanone	ND	ug/L	1.0	1	07/01/16 15:03	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1	07/01/16 15:03	98-82-8	
Methyl acetate	ND	ug/L	2.0	1	07/01/16 15:03	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1	07/01/16 15:03	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1	07/01/16 15:03	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1	07/01/16 15:03	1634-04-4	
Styrene	ND	ug/L	1.0	1	07/01/16 15:03	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1	07/01/16 15:03	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1	07/01/16 15:03	127-18-4	
Toluene	ND	ug/L	0.50	1	07/01/16 15:03	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1	07/01/16 15:03	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1	07/01/16 15:03	79-00-5	
Trichloroethene	<b>4.5</b>	ug/L	0.50	1	07/01/16 15:03	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1	07/01/16 15:03	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1	07/01/16 15:03	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1	07/01/16 15:03	179601-23-1	
o-Xylene	ND	ug/L	1.0	1	07/01/16 15:03	95-47-6	
<b>Surrogates</b>							
Dibromofluoromethane (S)	95	%	72-126	1	07/01/16 15:03	1868-53-7	
4-Bromofluorobenzene (S)	95	%	68-124	1	07/01/16 15:03	460-00-4	
Toluene-d8 (S)	97	%	79-119	1	07/01/16 15:03	2037-26-5	

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### ANALYTICAL RESULTS



Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013

Sample:	Lab ID:	Collected:	Received:	Prepared:	Water	
Parameters	Results	Units	Report Limit	DF	CAS No.	Qual
<b>8015M DRO/ORO Organics</b> Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535						
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/06/16 09:29 07/11/16 21:30	
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/06/16 09:29 07/11/16 21:30	
<b>Surrogates</b>						
n-Pentacosane (S)	32	%	16-137	1	07/06/16 09:29 07/11/16 21:30	629-99-2
o-Terphenyl (S)	55	%	10-121	1	07/06/16 09:29 07/11/16 21:30	84-15-1
<b>8021 GCV BTEX, MTBE, GRO</b> Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1	07/01/16 22:45	
<b>Surrogates</b>						
4-Bromofluorobenzene (S)	92	%	44-148	1	07/01/16 22:45	460-00-4
<b>6020 MET ICPMS</b> Analytical Method: EPA 6020 Preparation Method: EPA 3010						
Arsenic	0.0037	mg/L	0.0010	1	07/05/16 21:44 07/11/16 14:19	7440-38-2
Chromium	0.098	mg/L	0.0010	1	07/05/16 21:44 07/11/16 14:19	7440-47-3
Lead	0.034	mg/L	0.0010	1	07/05/16 21:44 07/11/16 14:19	7439-92-1
Vanadium	0.19	mg/L	0.0050	1	07/05/16 21:44 07/11/16 14:19	7440-62-2
<b>7470 Mercury</b> Analytical Method: EPA 7470 Preparation Method: EPA 7470						
Mercury	2.0	ug/L	0.20	1	07/05/16 10:15 07/06/16 11:13	7439-97-6
<b>8270 MSSV PAH by SIM SEP</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Naphthalene	ND	mg/L	0.00010	1	07/07/16 11:01 07/11/16 13:34	91-20-3
Acenaphthene	ND	mg/L	0.00010	1	07/07/16 11:01 07/11/16 13:34	83-32-9
Fluorene	ND	mg/L	0.00010	1	07/07/16 11:01 07/11/16 13:34	86-73-7
Phenanthrene	ND	mg/L	0.00010	1	07/07/16 11:01 07/11/16 13:34	85-01-8
Anthracene	ND	mg/L	0.00010	1	07/07/16 11:01 07/11/16 13:34	120-12-7
Fluoranthene	ND	mg/L	0.00010	1	07/07/16 11:01 07/11/16 13:34	206-44-0
Pyrene	ND	mg/L	0.00010	1	07/07/16 11:01 07/11/16 13:34	129-00-0
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/07/16 11:01 07/11/16 13:34	56-55-3
Chrysene	ND	mg/L	0.00010	1	07/07/16 11:01 07/11/16 13:34	218-01-9
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/07/16 11:01 07/11/16 13:34	205-99-2
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/07/16 11:01 07/11/16 13:34	207-08-9
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/07/16 11:01 07/11/16 13:34	50-32-8
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/07/16 11:01 07/11/16 13:34	191-24-2
<b>Surrogates</b>						
2-Fluorobiphenyl (S)	73	%	25-150	1	07/07/16 11:01 07/11/16 13:34	321-60-8
Terphenyl-d14 (S)	99	%	25-150	1	07/07/16 11:01 07/11/16 13:34	1718-51-0
<b>8260 MSV Low Level</b> Analytical Method: EPA 5030B/8260						
Acetone	14.0	ug/L	4.0	1	07/01/16 15:38	67-64-1
Benzene	ND	ug/L	0.50	1	07/01/16 15:38	71-43-2
Bromodichloromethane	ND	ug/L	0.50	1	07/01/16 15:38	75-27-4
Bromoform	ND	ug/L	0.50	1	07/01/16 15:38	75-25-2
Bromomethane	ND	ug/L	0.50	1	07/01/16 15:38	74-83-9
2-Butanone (MEK)	ND	ug/L	2.0	1	07/01/16 15:38	78-93-3
tert-Butyl Alcohol	ND	ug/L	200	1	07/01/16 15:38	75-65-0

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013



Sample: P-121 Lab ID: 2039013003 Collected: 06/30/16 11:23 Received: 06/30/16 14:10

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		07/01/16 15:38	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/01/16 15:38	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/01/16 15:38	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/01/16 15:38	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/01/16 15:38	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/01/16 15:38	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/01/16 15:38	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/01/16 15:38	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/01/16 15:38	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/01/16 15:38	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/01/16 15:38	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/01/16 15:38	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/01/16 15:38	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/01/16 15:38	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/01/16 15:38	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/01/16 15:38	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/01/16 15:38	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/01/16 15:38	10061-02-6	
Ethanol	ND	ug/L	500	1		07/01/16 15:38	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/01/16 15:38	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/01/16 15:38	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/01/16 15:38	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/01/16 15:38	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/01/16 15:38	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/01/16 15:38	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/01/16 15:38	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/01/16 15:38	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/01/16 15:38	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/01/16 15:38	127-18-4	
Toluene	ND	ug/L	0.50	1		07/01/16 15:38	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/01/16 15:38	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/01/16 15:38	79-00-5	
Trichloroethene	3.1	ug/L	0.50	1		07/01/16 15:38	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/01/16 15:38	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/01/16 15:38	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/01/16 15:38	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/01/16 15:38	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	96	%	72-126	1		07/01/16 15:38	1868-53-7	
4-Bromofluorobenzene (S)	96	%	68-124	1		07/01/16 15:38	460-00-4	
Toluene-d8 (S)	98	%	79-119	1		07/01/16 15:38	2037-26-5	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013



Sample: P-124 Lab ID: 2039013004 Collected: 06/30/16 12:32 Received: 07/01/16 14:10 Water

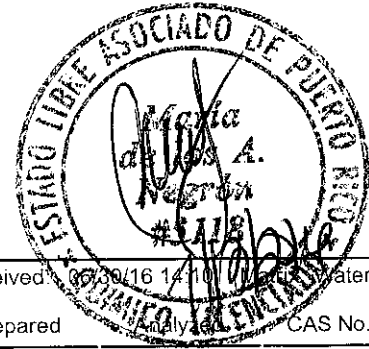
Parameters	Results	Units	Report Limit	DF	Prepared	Analysed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b> Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/06/16 09:29	07/11/16 21:58		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/06/16 09:29	07/11/16 21:58		
<b>Surrogates</b>								
n-Pentacosane (S)	41	%	16-137	1	07/06/16 09:29	07/11/16 21:58	629-99-2	
o-Terphenyl (S)	59	%	10-121	1	07/06/16 09:29	07/11/16 21:58	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b> Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		07/01/16 23:11		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	90	%	44-148	1		07/01/16 23:11	460-00-4	
<b>6020 MET ICPMS</b> Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	0.0030	mg/L	0.0010	1	07/05/16 21:44	07/11/16 14:23	7440-38-2	
Chromium	0.012	mg/L	0.0010	1	07/05/16 21:44	07/11/16 14:23	7440-47-3	
Lead	ND	mg/L	0.0010	1	07/05/16 21:44	07/11/16 14:23	7439-92-1	
Vanadium	0.018	mg/L	0.0050	1	07/05/16 21:44	07/11/16 14:23	7440-62-2	
<b>7470 Mercury</b> Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	7.9	ug/L	0.20	1	07/05/16 10:15	07/06/16 11:15	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:56	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:56	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:56	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:56	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:56	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:56	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:56	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:56	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:56	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:56	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:56	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:56	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/07/16 11:01	07/11/16 13:56	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	66	%	25-150	1	07/07/16 11:01	07/11/16 13:56	321-60-8	
Terphenyl-d14 (S)	63	%	25-150	1	07/07/16 11:01	07/11/16 13:56	1718-51-0	
<b>8260 MSV Low Level</b> Analytical Method: EPA 5030B/8260								
Acetone	14.8	ug/L	4.0	1		07/01/16 15:56	67-64-1	
Benzene	ND	ug/L	0.50	1		07/01/16 15:56	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/01/16 15:56	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/01/16 15:56	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/01/16 15:56	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/01/16 15:56	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/01/16 15:56	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013



Sample: P-124 Lab ID: 2039013004 Collected: 06/30/16 12:32 Received: 07/01/16 14:10 Water

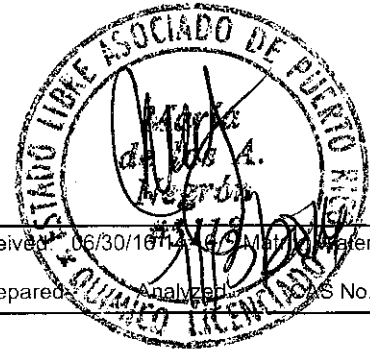
Parameters	Results	Units	Report Limit	DF	Prepared	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260					
Carbon disulfide	ND	ug/L	1.0	1	07/01/16 15:56	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1	07/01/16 15:56	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1	07/01/16 15:56	108-90-7	
Chloroethane	ND	ug/L	0.50	1	07/01/16 15:56	75-00-3	
Chloroform	ND	ug/L	0.50	1	07/01/16 15:56	67-66-3	
Chloromethane	ND	ug/L	0.50	1	07/01/16 15:56	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1	07/01/16 15:56	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1	07/01/16 15:56	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1	07/01/16 15:56	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1	07/01/16 15:56	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1	07/01/16 15:56	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1	07/01/16 15:56	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1	07/01/16 15:56	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1	07/01/16 15:56	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1	07/01/16 15:56	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1	07/01/16 15:56	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1	07/01/16 15:56	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1	07/01/16 15:56	10061-02-6	
Ethanol	ND	ug/L	500	1	07/01/16 15:56	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1	07/01/16 15:56	100-41-4	
2-Hexanone	ND	ug/L	1.0	1	07/01/16 15:56	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1	07/01/16 15:56	98-82-8	
Methyl acetate	ND	ug/L	2.0	1	07/01/16 15:56	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1	07/01/16 15:56	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1	07/01/16 15:56	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1	07/01/16 15:56	1634-04-4	
Styrene	ND	ug/L	1.0	1	07/01/16 15:56	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1	07/01/16 15:56	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1	07/01/16 15:56	127-18-4	
Toluene	ND	ug/L	0.50	1	07/01/16 15:56	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1	07/01/16 15:56	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1	07/01/16 15:56	79-00-5	
Trichloroethene	ND	ug/L	0.50	1	07/01/16 15:56	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1	07/01/16 15:56	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1	07/01/16 15:56	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1	07/01/16 15:56	179601-23-1	
o-Xylene	ND	ug/L	1.0	1	07/01/16 15:56	95-47-6	
<b>Surrogates</b>							
Dibromofluoromethane (S)	93	%	72-126	1	07/01/16 15:56	1868-53-7	
4-Bromofluorobenzene (S)	98	%	68-124	1	07/01/16 15:56	460-00-4	
Toluene-d8 (S)	98	%	79-119	1	07/01/16 15:56	2037-26-5	

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**ANALYTICAL RESULTS**

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013



Sample: FB-063016 Lab ID: 2039013005 Collected: 06/30/16 12:45 Received: 06/30/16 14:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	Lab No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		07/01/16 23:37		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	91	%	44-148	1		07/01/16 23:37	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	15.1	ug/L	4.0	1		07/01/16 16:14	67-64-1	
Benzene	ND	ug/L	0.50	1		07/01/16 16:14	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/01/16 16:14	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/01/16 16:14	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/01/16 16:14	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/01/16 16:14	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/01/16 16:14	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		07/01/16 16:14	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/01/16 16:14	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/01/16 16:14	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/01/16 16:14	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/01/16 16:14	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/01/16 16:14	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/01/16 16:14	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/01/16 16:14	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/01/16 16:14	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/01/16 16:14	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/01/16 16:14	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/01/16 16:14	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/01/16 16:14	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/01/16 16:14	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/01/16 16:14	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/01/16 16:14	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/01/16 16:14	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/01/16 16:14	10061-02-6	
Ethanol	ND	ug/L	500	1		07/01/16 16:14	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/01/16 16:14	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/01/16 16:14	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/01/16 16:14	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/01/16 16:14	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/01/16 16:14	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/01/16 16:14	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/01/16 16:14	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/01/16 16:14	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	1		07/01/16 16:14	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/01/16 16:14	127-18-4	
Toluene	ND	ug/L	0.50	1		07/01/16 16:14	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/01/16 16:14	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/01/16 16:14	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/01/16 16:14	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/01/16 16:14	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/01/16 16:14	75-01-4	

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## ANALYTICAL RESULTS



Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013

Sample: FB-063016		Lab ID: 2039013005	Collected: 06/30/16 12:45	Received: 06/30/16 16:14	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
m&p-Xylene	ND	ug/L	2.0	1		07/01/16 16:14	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/01/16 16:14	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	94	%	72-126	1		07/01/16 16:14	1868-53-7	
4-Bromofluorobenzene (S)	96	%	68-124	1		07/01/16 16:14	460-00-4	
Toluene-d8 (S)	97	%	79-119	1		07/01/16 16:14	2037-26-5	

Sample: TRIPBLANK		Lab ID: 2039013006	Collected: 06/30/16 00:00	Received: 06/30/16 14:10	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		07/02/16 00:29		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	92	%	44-148	1		07/02/16 00:29	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	24.7	ug/L	4.0	1		07/01/16 16:32	67-64-1	
Benzene	ND	ug/L	0.50	1		07/01/16 16:32	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/01/16 16:32	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/01/16 16:32	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/01/16 16:32	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/01/16 16:32	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/01/16 16:32	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		07/01/16 16:32	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/01/16 16:32	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/01/16 16:32	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/01/16 16:32	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/01/16 16:32	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/01/16 16:32	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/01/16 16:32	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/01/16 16:32	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/01/16 16:32	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/01/16 16:32	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/01/16 16:32	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/01/16 16:32	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/01/16 16:32	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/01/16 16:32	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/01/16 16:32	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/01/16 16:32	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/01/16 16:32	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/01/16 16:32	10061-02-6	
Ethanol	ND	ug/L	500	1		07/01/16 16:32	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/01/16 16:32	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/01/16 16:32	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/01/16 16:32	98-82-8	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039013

Sample:	Lab ID:	Collected:	Received:	Matrix:				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: TRIPBLANK</b>	<b>Lab ID: 2039013006</b>	Collected: 06/30/16 00:00	Received: 06/30/16 14:10	Matrix: Water				
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Methyl acetate	ND	ug/L	2.0	1		07/01/16 16:32	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/01/16 16:32	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/01/16 16:32	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/01/16 16:32	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/01/16 16:32	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/01/16 16:32	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/01/16 16:32	127-18-4	
Toluene	ND	ug/L	0.50	1		07/01/16 16:32	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/01/16 16:32	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/01/16 16:32	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/01/16 16:32	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/01/16 16:32	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/01/16 16:32	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/01/16 16:32	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/01/16 16:32	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	95	%	72-126	1		07/01/16 16:32	1868-53-7	
4-Bromofluorobenzene (S)	98	%	68-124	1		07/01/16 16:32	460-00-4	
Toluene-d8 (S)	96	%	79-119	1		07/01/16 16:32	2037-26-5	



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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013

QC Batch: 58037 Analysis Method: EPA 8015/8021  
QC Batch Method: EPA 8015/8021 Analysis Description: 8021 W GCV BTEX, MTBE, GRO  
Associated Lab Samples: 2039013001, 2039013002, 2039013003, 2039013004, 2039013005, 2039013006

METHOD BLANK: 239826 Matrix: Water  
Associated Lab Samples: 2039013001, 2039013002, 2039013003, 2039013004, 2039013005, 2039013006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	07/01/16 17:59	
4-Bromofluorobenzene (S)	%	89	44-148	07/01/16 17:59	

LABORATORY CONTROL SAMPLE: 239827

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	430	86	61-136	
4-Bromofluorobenzene (S)	%			91	44-148	
4-Bromofluorobenzene (S)	%			89	44-148	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 239839 239840

Parameter	Units	2039023002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
4-Bromofluorobenzene (S)	%						94	93	44-148		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 239841 239842

Parameter	Units	2039023002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
Gasoline Range Organics	ug/L	75.4	500	500	504	500	86	85	15-147	1	20
4-Bromofluorobenzene (S)	%						93	92	44-148		

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013

QC Batch: 58099 Analysis Method: EPA 7470  
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
Associated Lab Samples: 2039013001, 2039013002, 2039013003, 2039013004

METHOD BLANK: 240108 Matrix: Water  
Associated Lab Samples: 2039013001, 2039013002, 2039013003, 2039013004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	07/06/16 10:56	

LABORATORY CONTROL SAMPLE: 240109

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	1.0	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 240110 240111

Parameter	Units	2039013001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
Mercury	ug/L	ND	1	1	1.0	1.0	103	103	75-125	0 20	

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013

QC Batch: 58097 Analysis Method: EPA 6020  
QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
Associated Lab Samples: 2039013001, 2039013002, 2039013003, 2039013004

METHOD BLANK: 240098 Matrix: Water  
Associated Lab Samples: 2039013001, 2039013002, 2039013003, 2039013004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	07/11/16 12:46	
Chromium	mg/L	ND	0.0010	07/11/16 12:46	
Lead	mg/L	ND	0.0010	07/11/16 12:46	
Vanadium	mg/L	ND	0.0050	07/11/16 12:46	

LABORATORY CONTROL SAMPLE: 240099

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.02	0.020	102	83-115	
Chromium	mg/L	.02	0.020	101	85-115	
Lead	mg/L	.02	0.019	97	84-115	
Vanadium	mg/L	.02	0.020	99	81-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 240100 240101

Parameter	Units	2038992006		240101		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result					
Arsenic	mg/L	ND	.02	.02	0.020	0.020	95	95	80-120	0 20
Chromium	mg/L	1.6 ug/L	.02	.02	0.021	0.021	97	96	80-120	0 20
Lead	mg/L	ND	.02	.02	0.021	0.021	104	105	80-120	0 20
Vanadium	mg/L	ND	.02	.02	0.020	0.020	95	95	80-120	0 20

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013

QC Batch: 58031 Analysis Method: EPA 5030B/8260  
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Low Level  
Associated Lab Samples: 2039013001, 2039013002, 2039013003, 2039013004, 2039013005, 2039013006

METHOD BLANK: 239797 Matrix: Water  
Associated Lab Samples: 2039013001, 2039013002, 2039013003, 2039013004, 2039013005, 2039013006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	07/01/16 13:35	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	07/01/16 13:35	
1,1,2-Trichloroethane	ug/L	ND	0.50	07/01/16 13:35	
1,1-Dichloroethane	ug/L	ND	0.50	07/01/16 13:35	
1,1-Dichloroethene	ug/L	ND	0.50	07/01/16 13:35	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	07/01/16 13:35	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	07/01/16 13:35	
1,2-Dichloroethane	ug/L	ND	0.50	07/01/16 13:35	
1,2-Dichloropropane	ug/L	ND	0.50	07/01/16 13:35	
2-Butanone (MEK)	ug/L	ND	2.0	07/01/16 13:35	
2-Hexanone	ug/L	ND	1.0	07/01/16 13:35	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	07/01/16 13:35	
Acetone	ug/L	ND	4.0	07/01/16 13:35	
Benzene	ug/L	ND	0.50	07/01/16 13:35	
Bromodichloromethane	ug/L	ND	0.50	07/01/16 13:35	
Bromoform	ug/L	ND	0.50	07/01/16 13:35	
Bromomethane	ug/L	ND	0.50	07/01/16 13:35	
Carbon disulfide	ug/L	ND	1.0	07/01/16 13:35	
Carbon tetrachloride	ug/L	ND	0.50	07/01/16 13:35	
Chlorobenzene	ug/L	ND	0.50	07/01/16 13:35	
Chloroethane	ug/L	ND	0.50	07/01/16 13:35	
Chloroform	ug/L	ND	0.50	07/01/16 13:35	
Chloromethane	ug/L	ND	0.50	07/01/16 13:35	
cis-1,2-Dichloroethene	ug/L	ND	1.0	07/01/16 13:35	
cis-1,3-Dichloropropene	ug/L	ND	0.50	07/01/16 13:35	
Dibromochloromethane	ug/L	ND	0.50	07/01/16 13:35	
Dichlorodifluoromethane	ug/L	ND	1.0	07/01/16 13:35	
Ethanol	ug/L	ND	500	07/01/16 13:35	
Ethylbenzene	ug/L	ND	0.50	07/01/16 13:35	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	07/01/16 13:35	
m&p-Xylene	ug/L	ND	2.0	07/01/16 13:35	
Methyl acetate	ug/L	ND	2.0	07/01/16 13:35	
Methyl-tert-butyl ether	ug/L	ND	0.50	07/01/16 13:35	
Methylene Chloride	ug/L	ND	0.50	07/01/16 13:35	
o-Xylene	ug/L	ND	1.0	07/01/16 13:35	
Styrene	ug/L	ND	1.0	07/01/16 13:35	
tert-Butyl Alcohol	ug/L	ND	200	07/01/16 13:35	
Tetrachloroethene	ug/L	ND	0.50	07/01/16 13:35	
Toluene	ug/L	ND	0.50	07/01/16 13:35	
trans-1,2-Dichloroethene	ug/L	ND	0.50	07/01/16 13:35	
trans-1,3-Dichloropropene	ug/L	ND	0.50	07/01/16 13:35	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039013

METHOD BLANK: 239797

Matrix: Water

Associated Lab Samples: 2039013001, 2039013002, 2039013003, 2039013004, 2039013005, 2039013006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	0.50	07/01/16 13:35	
Trichlorofluoromethane	ug/L	ND	0.50	07/01/16 13:35	
Vinyl chloride	ug/L	ND	0.50	07/01/16 13:35	
4-Bromofluorobenzene (S)	%	95	68-124	07/01/16 13:35	
Dibromofluoromethane (S)	%	94	72-126	07/01/16 13:35	
Toluene-d8 (S)	%	97	79-119	07/01/16 13:35	

LABORATORY CONTROL SAMPLE: 239798

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	50.4	101	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	51.5	103	15-179	
1,1,2-Trichloroethane	ug/L	50	51.1	102	58-144	
1,1-Dichloroethane	ug/L	50	50.2	100	63-129	
1,1-Dichloroethene	ug/L	50	39.2	78	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	48.3	97	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	56.2	112	52-161	
1,2-Dichloroethane	ug/L	50	43.7	87	57-148	
1,2-Dichloropropane	ug/L	50	53.2	106	66-128	
2-Butanone (MEK)	ug/L	50	57.8	116	32-183	
2-Hexanone	ug/L	50	58.2	116	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	53.0	106	26-171	
Acetone	ug/L	50	55.9	112	22-165	
Benzene	ug/L	50	53.9	108	62-131	
Bromodichloromethane	ug/L	50	49.7	99	69-132	
Bromoform	ug/L	50	44.7	89	35-166	
Bromomethane	ug/L	50	45.8	92	34-158	
Carbon disulfide	ug/L	50	37.1	74	31-128	
Carbon tetrachloride	ug/L	50	46.4	93	54-144	
Chlorobenzene	ug/L	50	48.9	98	70-127	
Chloroethane	ug/L	50	43.6	87	17-195	
Chloroform	ug/L	50	50.4	101	73-134	
Chloromethane	ug/L	50	55.2	110	17-153	
cis-1,2-Dichloroethene	ug/L	50	53.7	107	68-129	
cis-1,3-Dichloropropene	ug/L	50	52.6	105	72-138	
Dibromochloromethane	ug/L	50	46.7	93	49-146	
Dichlorodifluoromethane	ug/L	50	43.8	88	10-179	
Ethylbenzene	ug/L	50	48.0	96	66-126	
Isopropylbenzene (Cumene)	ug/L	50	48.5	97	51-138	
m&p-Xylene	ug/L	100	94.6	95	65-129	
Methyl acetate	ug/L	50	53.1	106	20-142	
Methyl-tert-butyl ether	ug/L	50	50.8	102	37-166	
Methylene Chloride	ug/L	50	53.9	108	46-168	
o-Xylene	ug/L	50	47.0	94	65-124	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013

LABORATORY CONTROL SAMPLE: 239798

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Styrene	ug/L	50	48.8	98	72-133	
Tetrachloroethene	ug/L	50	45.9	92	46-157	
Toluene	ug/L	50	50.6	101	69-126	
trans-1,2-Dichloroethene	ug/L	50	50.9	102	60-129	
trans-1,3-Dichloropropene	ug/L	50	51.6	103	59-149	
Trichloroethene	ug/L	50	47.7	95	67-132	
Trichlorofluoromethane	ug/L	50	46.7	93	39-171	
Vinyl chloride	ug/L	50	43.9	88	27-149	
4-Bromofluorobenzene (S)	%			100	68-124	
Dibromofluoromethane (S)	%			107	72-126	
Toluene-d8 (S)	%			101	79-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 239799 239800

Parameter	Units	2039013002 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Result	MSD Spike Conc.						
1,1,1-Trichloroethane	ug/L	ND	50	50	54.9	51.6	110	103	54-137	6	20	
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	50.0	48.1	100	96	15-187	4	20	
1,1,2-Trichloroethane	ug/L	ND	50	50	51.4	48.3	103	97	59-148	6	20	
1,1-Dichloroethane	ug/L	ND	50	50	50.2	46.5	100	93	59-133	8	20	
1,1-Dichloroethene	ug/L	ND	50	50	43.7	41.9	87	84	44-146	4	20	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	47.1	46.0	94	92	23-166	2	20	
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	54.5	53.4	109	107	55-166	2	20	
1,2-Dichloroethane	ug/L	ND	50	50	44.6	43.1	89	86	56-154	3	20	
1,2-Dichloropropane	ug/L	ND	50	50	52.4	49.1	105	98	62-135	7	20	
2-Butanone (MEK)	ug/L	ND	50	50	53.5	50.8	104	98	20-205	5	20	
2-Hexanone	ug/L	ND	50	50	55.3	52.3	111	105	25-189	6	20	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	50	51.4	50.8	103	102	23-184	1	20	
Acetone	ug/L	17.2	50	50	68.3	66.4	102	98	11-217	3	20	
Benzene	ug/L	ND	50	50	54.1	50.8	108	102	52-141	6	20	
Bromodichloromethane	ug/L	ND	50	50	51.1	47.5	102	95	70-134	7	20	
Bromoform	ug/L	ND	50	50	44.2	43.5	88	87	37-171	2	20	
Bromomethane	ug/L	ND	50	50	48.0	48.5	96	97	34-155	1	20	
Carbon disulfide	ug/L	ND	50	50	43.3	39.7	87	79	28-130	8	20	
Carbon tetrachloride	ug/L	ND	50	50	51.1	47.9	102	96	48-146	6	20	
Chlorobenzene	ug/L	ND	50	50	50.0	47.5	100	95	67-129	5	20	
Chloroethane	ug/L	ND	50	50	47.8	45.9	96	92	12-192	4	20	
Chloroform	ug/L	ND	50	50	51.6	49.0	103	98	66-143	5	20	
Chloromethane	ug/L	0.58	50	50	54.9	51.2	109	101	14-155	7	20	
cis-1,2-Dichloroethene	ug/L	ND	50	50	56.6	52.0	112	103	56-141	8	20	
cis-1,3-Dichloropropene	ug/L	ND	50	50	52.3	49.6	105	99	70-139	5	20	
Dibromochloromethane	ug/L	ND	50	50	45.0	44.0	90	88	50-150	2	20	
Dichlorodifluoromethane	ug/L	ND	50	50	48.3	44.4	97	89	10-173	8	20	
Ethylbenzene	ug/L	ND	50	50	50.0	48.0	100	96	57-135	4	20	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039013

Parameter	Units	2039013002		239799		239800		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Isopropylbenzene (Cumene)	ug/L	ND	50	50	50.9	50.7	102	101	40-146	0	20		
m&p-Xylene	ug/L	ND	100	100	98.1	95.1	98	95	56-136	3	20		
Methyl acetate	ug/L	ND	50	50	54.9	50.1	110	100	10-142	9	20		
Methyl-tert-butyl ether	ug/L	ND	50	50	51.3	49.2	103	98	35-176	4	20		
Methylene Chloride	ug/L	ND	50	50	52.8	51.7	106	103	45-166	2	20		
o-Xylene	ug/L	ND	50	50	49.5	47.9	99	96	57-133	3	20		
Styrene	ug/L	ND	50	50	49.3	47.7	99	95	58-144	3	20		
Tetrachloroethene	ug/L	ND	50	50	49.2	47.2	98	94	48-143	4	20		
Toluene	ug/L	ND	50	50	52.9	50.2	106	100	59-136	5	20		
trans-1,2-Dichloroethene	ug/L	ND	50	50	54.1	49.9	108	100	57-132	8	20		
trans-1,3-Dichloropropene	ug/L	ND	50	50	51.7	49.9	103	100	59-154	4	20		
Trichloroethene	ug/L	4.5	50	50	55.5	51.5	102	94	58-140	7	20		
Trichlorofluoromethane	ug/L	ND	50	50	53.0	50.6	106	101	24-175	5	20		
Vinyl chloride	ug/L	ND	50	50	45.5	42.0	91	84	21-150	8	20		
4-Bromofluorobenzene (S)	%						101	100	68-124				
Dibromofluoromethane (S)	%						107	105	72-126				
Toluene-d8 (S)	%						102	100	79-119				

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013

QC Batch: 58178 Analysis Method: EPA 8015B Modified  
QC Batch Method: EPA 3535 Analysis Description: EPA 8015 ORO  
Associated Lab Samples: 2039013001, 2039013002, 2039013003, 2039013004

METHOD BLANK: 240386 Matrix: Water  
Associated Lab Samples: 2039013001, 2039013002, 2039013003, 2039013004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	ND	0.25	07/11/16 16:18	
Oil Range Organics (>C28-C40)	mg/L	ND	0.50	07/11/16 16:18	
n-Pentacosane (S)	%	57	16-137	07/11/16 16:18	
o-Terphenyl (S)	%	71	10-121	07/11/16 16:18	

LABORATORY CONTROL SAMPLE: 240387

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	.4	ND	45	10-115	
n-Pentacosane (S)	%			62	16-137	
o-Terphenyl (S)	%			80	10-121	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013

QC Batch: 58320 Analysis Method: EPA 8270 by SIM  
QC Batch Method: EPA 3510 Analysis Description: 8270 Water by SIM MSSV  
Associated Lab Samples: 2039013001, 2039013002, 2039013003, 2039013004

METHOD BLANK: 240919 Matrix: Water  
Associated Lab Samples: 2039013001, 2039013002, 2039013003, 2039013004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	07/09/16 12:39	
Anthracene	mg/L	ND	0.00010	07/09/16 12:39	
Benzo(a)anthracene	mg/L	ND	0.00010	07/09/16 12:39	
Benzo(a)pyrene	mg/L	ND	0.00010	07/09/16 12:39	
Benzo(b)fluoranthene	mg/L	ND	0.00010	07/09/16 12:39	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	07/09/16 12:39	
Benzo(k)fluoranthene	mg/L	ND	0.00010	07/09/16 12:39	
Chrysene	mg/L	ND	0.00010	07/09/16 12:39	
Fluoranthene	mg/L	ND	0.00010	07/09/16 12:39	
Fluorene	mg/L	ND	0.00010	07/09/16 12:39	
Naphthalene	mg/L	ND	0.00010	07/09/16 12:39	
Phenanthrene	mg/L	ND	0.00010	07/09/16 12:39	
Pyrene	mg/L	ND	0.00010	07/09/16 12:39	
2-Fluorobiphenyl (S)	%	73	25-150	07/09/16 12:39	
Terphenyl-d14 (S)	%	97	25-150	07/09/16 12:39	

LABORATORY CONTROL SAMPLE: 240920

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0027	68	35-150	
Anthracene	mg/L	.004	0.0032	81	35-150	
Benzo(a)anthracene	mg/L	.004	0.0032	80	35-150	
Benzo(a)pyrene	mg/L	.004	0.0034	85	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0035	88	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0035	87	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0037	93	35-150	
Chrysene	mg/L	.004	0.0036	91	35-150	
Fluoranthene	mg/L	.004	0.0034	86	35-150	
Fluorene	mg/L	.004	0.0028	69	35-150	
Naphthalene	mg/L	.004	0.0029	73	35-150	
Phenanthrene	mg/L	.004	0.0033	83	35-150	
Pyrene	mg/L	.004	0.0031	79	35-150	
2-Fluorobiphenyl (S)	%			73	25-150	
Terphenyl-d14 (S)	%			97	25-150	

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### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039013

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.  
ND - Not Detected at or above adjusted reporting limit.  
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.  
MDL - Adjusted Method Detection Limit.  
PQL - Practical Quantitation Limit.  
RL - Reporting Limit.  
S - Surrogate  
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.  
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.  
LCS(D) - Laboratory Control Sample (Duplicate)  
MS(D) - Matrix Spike (Duplicate)  
DUP - Sample Duplicate  
RPD - Relative Percent Difference  
NC - Not Calculable.  
SG - Silica Gel - Clean-Up  
U - Indicates the compound was analyzed for, but not detected.  
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.  
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.  
TNI - The Nelac Institute

### LABORATORIES

PASI-N Pace Analytical Services - New Orleans

### BATCH QUALIFIERS

Batch: 58221

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 58479

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039013

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2039013001	EB-063016	EPA 3535	58178	EPA 8015B Modified	58221
2039013002	P-119	EPA 3535	58178	EPA 8015B Modified	58221
2039013003	P-121	EPA 3535	58178	EPA 8015B Modified	58221
2039013004	P-124	EPA 3535	58178	EPA 8015B Modified	58221
2039013001	EB-063016	EPA 8015/8021	58037		
2039013002	P-119	EPA 8015/8021	58037		
2039013003	P-121	EPA 8015/8021	58037		
2039013004	P-124	EPA 8015/8021	58037		
2039013005	FB-063016	EPA 8015/8021	58037		
2039013006	TRIPBLANK	EPA 8015/8021	58037		
2039013001	EB-063016	EPA 3010	58097	EPA 6020	58171
2039013002	P-119	EPA 3010	58097	EPA 6020	58171
2039013003	P-121	EPA 3010	58097	EPA 6020	58171
2039013004	P-124	EPA 3010	58097	EPA 6020	58171
2039013001	EB-063016	EPA 7470	58099	EPA 7470	58164
2039013002	P-119	EPA 7470	58099	EPA 7470	58164
2039013003	P-121	EPA 7470	58099	EPA 7470	58164
2039013004	P-124	EPA 7470	58099	EPA 7470	58164
2039013001	EB-063016	EPA 3510	58320	EPA 8270 by SIM	58479
2039013002	P-119	EPA 3510	58320	EPA 8270 by SIM	58479
2039013003	P-121	EPA 3510	58320	EPA 8270 by SIM	58479
2039013004	P-124	EPA 3510	58320	EPA 8270 by SIM	58479
2039013001	EB-063016	EPA 5030B/8260	58031		
2039013002	P-119	EPA 5030B/8260	58031		
2039013003	P-121	EPA 5030B/8260	58031		
2039013004	P-124	EPA 5030B/8260	58031		
2039013005	FB-063016	EPA 5030B/8260	58031		
2039013006	TRIPBLANK	EPA 5030B/8260	58031		

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WO#: 2039013

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1  
2035805

Section A  
Required Client I  
2039013

Section C  
Invoice Information:

Company: <b>Acadix</b>	Report To: <b>Ebrahn Calderin</b>	Attention:
Address: <b>City View Plaza Guaynabo, PR</b>	Copy To:	Company Name:
Phone: <b>787-4000</b>	Purchase Order No.:	Address:
Fax:	Project Name: <b>Puma Terminal MW Sampling</b>	Page Quote Reference:
Requested Due Date/TAT:	Project Number: <b>BDD63767</b>	Page Project Manager: <b>J. Redondo</b>
		Page Profile #:

REGULATORY AGENCY

NPDES  GROUND WATER  DRINKING WATER

UST  RCRA  OTHER

Site Location: **Buena Vista**

STATE: **PR**

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test	Y/N	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other				
					DATE	TIME	DATE	TIME														
1	FB-063016	WT	G		6/30/16	09:01	9	4	14												2039013	
2	P-119	WT	G		6/30/16	10:05	9	4	14													
3	P-121	WT	G		6/30/16	11:23	9	4	14													
4	P-124	WT	G		6/30/16	12:32	9	4	14													
5	FB-063016	WT	G		6/30/16	12:45	4		4													
6	Imp tank	WT	G		6/30/16	00:00	4		4													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Melab / Acadix	6/30/16	14:10	Jace / Pace	6/30/16	14:10	
	Fed Exp	7-1-16	0850	Jace	7/1/16	0850	25 5.3

ORIGINAL

SAMPLER NAME AND SIGNATURE: **Melab**

PRINT Name of SAMPLER: **Melab**

SIGNATURE of SAMPLER: **Melab**

DATE Signed (MM/DD/YY): **6/30/16**

Temp in °C: \_\_\_\_\_

Received on Ice (Y/N): \_\_\_\_\_

Custody Sealed Cooler (Y/N): \_\_\_\_\_

Samples intact (Y/N): \_\_\_\_\_

Page 33 of 35



Sample Condition Upon Receipt

WO#: 2039013

Urb. Jardines de Guaynabo
Calle Marginal Bldg A-10
Guaynabo, PR 00869

PM: JAR1 Due Date: 07/15/16
CLIENT: 98-ARCADISPR

Project #:

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 4, 6, 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents:

Temp must be measured from Temperature blank when present

Comments:

Table with 15 rows and 3 columns: Question, Yes/No/N/A checkboxes, and Number/Comments. Rows include Temperature Blank Present, Chain of Custody Present, etc.

Client Notification/ Resolution:

Person Contacted:

Date/Time:

Comments/ Resolution:



### Sample Condition Upon Receipt

1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

Project #: **20**

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 5  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 6/16/16 JMB

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
		If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14 <u>P-121 2 vials &gt;6mm</u>
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

June 15, 2016

Efrain Calderon  
BBL Caribe Engineering P.S.C.  
48 City View Plaza1, Suite 401  
Road 16, Km. 1.2  
Guaynabo, PR 00968

RE: Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037647

Dear Efrain Calderon:

Enclosed are the analytical results for sample(s) received by the laboratory on June 03, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Juan Redondo  
juan.redondo@pacelabs.com  
Project Manager

Enclosures

cc: Sharon Colon  
Abner Hernandez  
Marianela Mercado-Burgos



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

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### New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:  
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):  
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):  
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):  
T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-  
00119

Commonwealth of Virginia (TNI): 480246

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### SAMPLE SUMMARY

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2037647001	EB 060316	Water	06/03/16 07:10	06/03/16 10:55
2037647002	EB 101	Water	06/03/16 08:00	06/03/16 10:55
2037647003	B 1	Water	06/03/16 09:45	06/03/16 10:55
2037647004	DUP 2	Water	06/03/16 00:00	06/03/16 10:55
2037647005	FB 060316	Water	06/03/16 09:50	06/03/16 10:55
2037647006	TRIP BLANK	Water	06/03/16 00:00	06/03/16 10:55

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2037647001	EB 060316	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2037647002	EB 101	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2037647003	B 1	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2037647004	DUP 2	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2037647005	FB 060316	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
2037647006	TRIP BLANK	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N

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## PROJECT NARRATIVE

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

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**Method:** EPA 8015B Modified

**Description:** 8015M DRO/ORO Organics

**Client:** BBL Caribe / Arcadis PR

**Date:** June 15, 2016

**General Information:**

4 samples were analyzed for EPA 8015B Modified. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3535 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

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**Method:** EPA 8015/8021

**Description:** 8021 GCV BTEX, MTBE, GRO

**Client:** BBL Caribe / Arcadis PR

**Date:** June 15, 2016

**General Information:**

6 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

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**Method:** EPA 6020

**Description:** 6020 MET ICPMS

**Client:** BBL Caribe / Arcadis PR

**Date:** June 15, 2016

**General Information:**

4 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

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**Method:** EPA 7470

**Description:** 7470 Mercury

**Client:** BBL Caribe / Arcadis PR

**Date:** June 15, 2016

**General Information:**

4 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

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**Method:** EPA 8270 by SIM

**Description:** 8270 MSSV PAH by SIM SEP

**Client:** BBL Caribe / Arcadis PR

**Date:** June 15, 2016

**General Information:**

4 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: OEXT/9171

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037647

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**Method:** EPA 5030B/8260  
**Description:** 8260 MSV Low Level  
**Client:** BBL Caribe / Arcadis PR  
**Date:** June 15, 2016

### General Information:

6 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

### Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

Sample: EB 060316	Lab ID: 2037647001	Collected: 06/03/16 07:10	Received: 06/03/16 10:55	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/08/16 08:36	06/09/16 12:50		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/08/16 08:36	06/09/16 12:50		
<b>Surrogates</b>								
n-Pentacosane (S)	50	%	16-137	1	06/08/16 08:36	06/09/16 12:50	629-99-2	
o-Terphenyl (S)	50	%	10-121	1	06/08/16 08:36	06/09/16 12:50	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/09/16 15:26		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	90	%	44-148	1		06/09/16 15:26	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 10:56	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 10:56	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 10:56	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/09/16 08:33	06/10/16 10:56	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/08/16 09:38	06/08/16 16:06	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:14	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:14	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:14	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:14	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:14	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:14	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:14	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:14	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:14	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:14	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:14	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:14	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:14	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	73	%	25-150	1	06/10/16 10:58	06/13/16 17:14	321-60-8	
Terphenyl-d14 (S)	86	%	25-150	1	06/10/16 10:58	06/13/16 17:14	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	16.6	ug/L	4.0	1		06/08/16 11:56	67-64-1	
Benzene	ND	ug/L	0.50	1		06/08/16 11:56	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/08/16 11:56	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/08/16 11:56	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/08/16 11:56	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/08/16 11:56	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/08/16 11:56	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

Sample: EB 060316	Lab ID: 2037647001	Collected: 06/03/16 07:10	Received: 06/03/16 10:55	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/08/16 11:56	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/08/16 11:56	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/08/16 11:56	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/08/16 11:56	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/08/16 11:56	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/08/16 11:56	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/08/16 11:56	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/08/16 11:56	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/08/16 11:56	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/08/16 11:56	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/08/16 11:56	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/08/16 11:56	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/08/16 11:56	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/08/16 11:56	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/08/16 11:56	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/08/16 11:56	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 11:56	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 11:56	10061-02-6	
Ethanol	ND	ug/L	500	1		06/08/16 11:56	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/08/16 11:56	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/08/16 11:56	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/08/16 11:56	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/08/16 11:56	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/08/16 11:56	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/08/16 11:56	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/08/16 11:56	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/08/16 11:56	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/08/16 11:56	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/08/16 11:56	127-18-4	
Toluene	ND	ug/L	0.50	1		06/08/16 11:56	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/08/16 11:56	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/08/16 11:56	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/08/16 11:56	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/08/16 11:56	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/08/16 11:56	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/08/16 11:56	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/08/16 11:56	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	103	%	72-126	1		06/08/16 11:56	1868-53-7	
4-Bromofluorobenzene (S)	101	%	68-124	1		06/08/16 11:56	460-00-4	
Toluene-d8 (S)	97	%	79-119	1		06/08/16 11:56	2037-26-5	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037647

Sample: EB 101	Lab ID: 2037647002	Collected: 06/03/16 08:00	Received: 06/03/16 10:55	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/08/16 08:36	06/09/16 13:18		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/08/16 08:36	06/09/16 13:18		
<b>Surrogates</b>								
n-Pentacosane (S)	52	%	16-137	1	06/08/16 08:36	06/09/16 13:18	629-99-2	
o-Terphenyl (S)	62	%	10-121	1	06/08/16 08:36	06/09/16 13:18	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/09/16 15:53		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	89	%	44-148	1		06/09/16 15:53	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	<b>0.0013</b>	mg/L	0.0010	1	06/09/16 08:33	06/10/16 10:17	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 10:17	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 10:17	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/09/16 08:33	06/10/16 10:17	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/08/16 09:38	06/08/16 15:56	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	<b>0.00048</b>	mg/L	0.00010	1	06/10/16 10:58	06/13/16 16:52	91-20-3	
Acenaphthene	<b>0.0011</b>	mg/L	0.00010	1	06/10/16 10:58	06/13/16 16:52	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 16:52	86-73-7	
Phenanthrene	<b>0.00074</b>	mg/L	0.00010	1	06/10/16 10:58	06/13/16 16:52	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 16:52	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 16:52	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 16:52	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 16:52	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 16:52	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 16:52	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 16:52	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 16:52	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 16:52	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	82	%	25-150	1	06/10/16 10:58	06/13/16 16:52	321-60-8	
Terphenyl-d14 (S)	100	%	25-150	1	06/10/16 10:58	06/13/16 16:52	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	<b>8.6</b>	ug/L	4.0	1		06/08/16 11:20	67-64-1	
Benzene	ND	ug/L	0.50	1		06/08/16 11:20	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/08/16 11:20	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/08/16 11:20	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/08/16 11:20	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/08/16 11:20	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/08/16 11:20	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

Sample: EB 101	Lab ID: 2037647002	Collected: 06/03/16 08:00	Received: 06/03/16 10:55	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>	Analytical Method: EPA 5030B/8260							
Carbon disulfide	ND	ug/L	1.0	1		06/08/16 11:20	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/08/16 11:20	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/08/16 11:20	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/08/16 11:20	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/08/16 11:20	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/08/16 11:20	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/08/16 11:20	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/08/16 11:20	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/08/16 11:20	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/08/16 11:20	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/08/16 11:20	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/08/16 11:20	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/08/16 11:20	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/08/16 11:20	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/08/16 11:20	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/08/16 11:20	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 11:20	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 11:20	10061-02-6	
Ethanol	ND	ug/L	500	1		06/08/16 11:20	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/08/16 11:20	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/08/16 11:20	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/08/16 11:20	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/08/16 11:20	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/08/16 11:20	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/08/16 11:20	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/08/16 11:20	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/08/16 11:20	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/08/16 11:20	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/08/16 11:20	127-18-4	
Toluene	ND	ug/L	0.50	1		06/08/16 11:20	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/08/16 11:20	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/08/16 11:20	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/08/16 11:20	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/08/16 11:20	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/08/16 11:20	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/08/16 11:20	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/08/16 11:20	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	103	%	72-126	1		06/08/16 11:20	1868-53-7	
4-Bromofluorobenzene (S)	101	%	68-124	1		06/08/16 11:20	460-00-4	
Toluene-d8 (S)	98	%	79-119	1		06/08/16 11:20	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

Sample: B 1	Lab ID: 2037647003	Collected: 06/03/16 09:45	Received: 06/03/16 10:55	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/08/16 08:36	06/09/16 14:44		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/08/16 08:36	06/09/16 14:44		
<b>Surrogates</b>								
n-Pentacosane (S)	47	%	16-137	1	06/08/16 08:36	06/09/16 14:44	629-99-2	
o-Terphenyl (S)	61	%	10-121	1	06/08/16 08:36	06/09/16 14:44	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/09/16 17:13		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	89	%	44-148	1		06/09/16 17:13	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	<b>0.0029</b>	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:00	7440-38-2	
Chromium	<b>0.0025</b>	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:00	7440-47-3	
Lead	<b>0.0013</b>	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:00	7439-92-1	
Vanadium	<b>0.011</b>	mg/L	0.0050	1	06/09/16 08:33	06/10/16 11:00	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/08/16 09:38	06/08/16 16:08	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:35	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:35	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:35	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:35	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:35	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:35	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:35	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:35	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:35	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:35	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:35	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:35	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:35	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	82	%	25-150	1	06/10/16 10:58	06/13/16 17:35	321-60-8	
Terphenyl-d14 (S)	92	%	25-150	1	06/10/16 10:58	06/13/16 17:35	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	<b>7.8</b>	ug/L	4.0	1		06/08/16 12:14	67-64-1	
Benzene	ND	ug/L	0.50	1		06/08/16 12:14	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/08/16 12:14	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/08/16 12:14	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/08/16 12:14	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/08/16 12:14	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/08/16 12:14	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

Sample: B 1	Lab ID: 2037647003	Collected: 06/03/16 09:45	Received: 06/03/16 10:55	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>	Analytical Method: EPA 5030B/8260							
Carbon disulfide	ND	ug/L	1.0	1		06/08/16 12:14	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/08/16 12:14	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/08/16 12:14	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/08/16 12:14	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/08/16 12:14	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/08/16 12:14	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/08/16 12:14	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/08/16 12:14	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/08/16 12:14	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/08/16 12:14	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/08/16 12:14	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/08/16 12:14	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/08/16 12:14	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/08/16 12:14	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/08/16 12:14	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/08/16 12:14	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 12:14	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 12:14	10061-02-6	
Ethanol	ND	ug/L	500	1		06/08/16 12:14	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/08/16 12:14	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/08/16 12:14	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/08/16 12:14	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/08/16 12:14	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/08/16 12:14	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/08/16 12:14	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/08/16 12:14	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/08/16 12:14	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/08/16 12:14	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/08/16 12:14	127-18-4	
Toluene	ND	ug/L	0.50	1		06/08/16 12:14	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/08/16 12:14	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/08/16 12:14	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/08/16 12:14	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/08/16 12:14	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/08/16 12:14	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/08/16 12:14	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/08/16 12:14	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	101	%	72-126	1		06/08/16 12:14	1868-53-7	
4-Bromofluorobenzene (S)	101	%	68-124	1		06/08/16 12:14	460-00-4	
Toluene-d8 (S)	100	%	79-119	1		06/08/16 12:14	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

Sample: DUP 2	Lab ID: 2037647004	Collected: 06/03/16 00:00	Received: 06/03/16 10:55	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/08/16 08:36	06/09/16 15:12		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/08/16 08:36	06/09/16 15:12		
<b>Surrogates</b>								
n-Pentacosane (S)	42	%	16-137	1	06/08/16 08:36	06/09/16 15:12	629-99-2	
o-Terphenyl (S)	66	%	10-121	1	06/08/16 08:36	06/09/16 15:12	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/09/16 17:40		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	89	%	44-148	1		06/09/16 17:40	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	<b>0.0042</b>	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:03	7440-38-2	
Chromium	<b>0.0028</b>	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:03	7440-47-3	
Lead	<b>0.0014</b>	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:03	7439-92-1	
Vanadium	<b>0.011</b>	mg/L	0.0050	1	06/09/16 08:33	06/10/16 11:03	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/08/16 09:38	06/08/16 16:10	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/08/16 10:51	06/13/16 20:48	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/08/16 10:51	06/13/16 20:48	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/08/16 10:51	06/13/16 20:48	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/08/16 10:51	06/13/16 20:48	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/08/16 10:51	06/13/16 20:48	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/08/16 10:51	06/13/16 20:48	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/08/16 10:51	06/13/16 20:48	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/08/16 10:51	06/13/16 20:48	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/08/16 10:51	06/13/16 20:48	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/08/16 10:51	06/13/16 20:48	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/08/16 10:51	06/13/16 20:48	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/08/16 10:51	06/13/16 20:48	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/08/16 10:51	06/13/16 20:48	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	76	%	25-150	1	06/08/16 10:51	06/13/16 20:48	321-60-8	
Terphenyl-d14 (S)	89	%	25-150	1	06/08/16 10:51	06/13/16 20:48	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	<b>9.7</b>	ug/L	4.0	1		06/08/16 12:31	67-64-1	
Benzene	ND	ug/L	0.50	1		06/08/16 12:31	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/08/16 12:31	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/08/16 12:31	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/08/16 12:31	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/08/16 12:31	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/08/16 12:31	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

Sample: DUP 2	Lab ID: 2037647004	Collected: 06/03/16 00:00	Received: 06/03/16 10:55	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/08/16 12:31	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/08/16 12:31	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/08/16 12:31	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/08/16 12:31	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/08/16 12:31	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/08/16 12:31	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/08/16 12:31	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/08/16 12:31	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/08/16 12:31	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/08/16 12:31	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/08/16 12:31	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/08/16 12:31	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/08/16 12:31	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/08/16 12:31	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/08/16 12:31	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/08/16 12:31	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 12:31	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 12:31	10061-02-6	
Ethanol	ND	ug/L	500	1		06/08/16 12:31	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/08/16 12:31	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/08/16 12:31	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/08/16 12:31	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/08/16 12:31	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/08/16 12:31	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/08/16 12:31	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/08/16 12:31	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/08/16 12:31	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/08/16 12:31	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/08/16 12:31	127-18-4	
Toluene	ND	ug/L	0.50	1		06/08/16 12:31	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/08/16 12:31	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/08/16 12:31	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/08/16 12:31	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/08/16 12:31	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/08/16 12:31	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/08/16 12:31	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/08/16 12:31	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	103	%	72-126	1		06/08/16 12:31	1868-53-7	
4-Bromofluorobenzene (S)	100	%	68-124	1		06/08/16 12:31	460-00-4	
Toluene-d8 (S)	98	%	79-119	1		06/08/16 12:31	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

Sample: <b>FB 060316</b>	Lab ID: <b>2037647005</b>	Collected: 06/03/16 09:50	Received: 06/03/16 10:55	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/09/16 18:07		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	90	%	44-148	1		06/09/16 18:07	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	<b>12.5</b>	ug/L	4.0	1		06/08/16 12:49	67-64-1	
Benzene	ND	ug/L	0.50	1		06/08/16 12:49	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/08/16 12:49	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/08/16 12:49	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/08/16 12:49	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/08/16 12:49	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/08/16 12:49	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/08/16 12:49	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/08/16 12:49	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/08/16 12:49	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/08/16 12:49	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/08/16 12:49	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/08/16 12:49	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/08/16 12:49	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/08/16 12:49	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/08/16 12:49	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/08/16 12:49	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/08/16 12:49	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/08/16 12:49	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/08/16 12:49	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/08/16 12:49	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/08/16 12:49	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/08/16 12:49	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 12:49	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 12:49	10061-02-6	
Ethanol	ND	ug/L	500	1		06/08/16 12:49	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/08/16 12:49	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/08/16 12:49	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/08/16 12:49	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/08/16 12:49	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/08/16 12:49	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/08/16 12:49	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/08/16 12:49	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/08/16 12:49	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/08/16 12:49	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/08/16 12:49	127-18-4	
Toluene	ND	ug/L	0.50	1		06/08/16 12:49	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/08/16 12:49	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/08/16 12:49	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/08/16 12:49	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/08/16 12:49	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/08/16 12:49	75-01-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037647

Sample: <b>FB 060316</b>		Lab ID: <b>2037647005</b>		Collected: 06/03/16 09:50	Received: 06/03/16 10:55	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
m&p-Xylene	ND	ug/L	2.0	1		06/08/16 12:49	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/08/16 12:49	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	101	%	72-126	1		06/08/16 12:49	1868-53-7	
4-Bromofluorobenzene (S)	100	%	68-124	1		06/08/16 12:49	460-00-4	
Toluene-d8 (S)	98	%	79-119	1		06/08/16 12:49	2037-26-5	

Sample: <b>TRIP BLANK</b>		Lab ID: <b>2037647006</b>		Collected: 06/03/16 00:00	Received: 06/03/16 10:55	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/09/16 18:34		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	92	%	44-148	1		06/09/16 18:34	460-00-4	

<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Acetone	81.2	ug/L	4.0	1		06/08/16 13:07	67-64-1	
Benzene	ND	ug/L	0.50	1		06/08/16 13:07	71-43-2	
Bromodichloromethane	0.54	ug/L	0.50	1		06/08/16 13:07	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/08/16 13:07	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/08/16 13:07	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/08/16 13:07	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/08/16 13:07	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/08/16 13:07	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/08/16 13:07	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/08/16 13:07	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/08/16 13:07	75-00-3	
Chloroform	1.6	ug/L	0.50	1		06/08/16 13:07	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/08/16 13:07	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/08/16 13:07	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/08/16 13:07	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/08/16 13:07	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/08/16 13:07	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/08/16 13:07	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/08/16 13:07	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/08/16 13:07	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/08/16 13:07	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/08/16 13:07	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/08/16 13:07	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 13:07	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 13:07	10061-02-6	
Ethanol	ND	ug/L	500	1		06/08/16 13:07	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/08/16 13:07	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/08/16 13:07	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/08/16 13:07	98-82-8	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

Sample: TRIP BLANK		Lab ID: 2037647006		Collected: 06/03/16 00:00		Received: 06/03/16 10:55		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Methyl acetate	ND	ug/L	2.0	1		06/08/16 13:07	79-20-9		
Methylene Chloride	ND	ug/L	0.50	1		06/08/16 13:07	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/08/16 13:07	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/08/16 13:07	1634-04-4		
Styrene	ND	ug/L	1.0	1		06/08/16 13:07	100-42-5		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/08/16 13:07	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		06/08/16 13:07	127-18-4		
Toluene	ND	ug/L	0.50	1		06/08/16 13:07	108-88-3		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/08/16 13:07	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/08/16 13:07	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		06/08/16 13:07	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/08/16 13:07	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/08/16 13:07	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		06/08/16 13:07	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		06/08/16 13:07	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	103	%.	72-126	1		06/08/16 13:07	1868-53-7		
4-Bromofluorobenzene (S)	101	%.	68-124	1		06/08/16 13:07	460-00-4		
Toluene-d8 (S)	96	%.	79-119	1		06/08/16 13:07	2037-26-5		

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037647

QC Batch: GCV/2848 Analysis Method: EPA 8015/8021  
QC Batch Method: EPA 8015/8021 Analysis Description: 8021 W GCV BTEX , MTBE, GRO  
Associated Lab Samples: 2037647001, 2037647002, 2037647003, 2037647004, 2037647005, 2037647006

METHOD BLANK: 232417 Matrix: Water  
Associated Lab Samples: 2037647001, 2037647002, 2037647003, 2037647004, 2037647005, 2037647006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	06/09/16 14:00	
4-Bromofluorobenzene (S)	%.	91	44-148	06/09/16 14:00	

LABORATORY CONTROL SAMPLE: 232418

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	410	82	61-136	
4-Bromofluorobenzene (S)	%.			92	44-148	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 232419 232420

Parameter	Units	2037647002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Gasoline Range Organics	ug/L	ND	500	500	440	411	81	75	15-147	7	20	
4-Bromofluorobenzene (S)	%.						93	95	44-148			

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037647

QC Batch: MERP/2752 Analysis Method: EPA 7470  
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
Associated Lab Samples: 2037647001, 2037647002, 2037647003, 2037647004

METHOD BLANK: 232311 Matrix: Water  
Associated Lab Samples: 2037647001, 2037647002, 2037647003, 2037647004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	06/08/16 15:52	

LABORATORY CONTROL SAMPLE: 232312

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	1.0	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 232313 232314

Parameter	Units	232313		232314		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2037647002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Mercury	ug/L	ND	1	1	0.86	0.87	86	87	75-125	1	20

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037647

QC Batch: MPRP/4343 Analysis Method: EPA 6020  
QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
Associated Lab Samples: 2037647001, 2037647002, 2037647003, 2037647004

METHOD BLANK: 232714 Matrix: Water  
Associated Lab Samples: 2037647001, 2037647002, 2037647003, 2037647004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	06/10/16 09:11	
Chromium	mg/L	ND	0.0010	06/10/16 09:11	
Lead	mg/L	ND	0.0010	06/10/16 09:11	
Vanadium	mg/L	ND	0.0050	06/10/16 09:11	

LABORATORY CONTROL SAMPLE: 232715

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.02	0.020	98	83-115	
Chromium	mg/L	.02	0.019	97	85-115	
Lead	mg/L	.02	0.019	97	84-115	
Vanadium	mg/L	.02	0.019	97	81-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 232716 232717

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2037647002 Result	Spike Conc.	Spike Conc.	Result						
Arsenic	mg/L	0.0013	.02	.02	0.020	0.020	95	94	80-120	0	20
Chromium	mg/L	ND	.02	.02	0.019	0.019	95	95	80-120	1	20
Lead	mg/L	ND	.02	.02	0.019	0.020	97	98	80-120	1	20
Vanadium	mg/L	ND	.02	.02	0.019	0.019	95	95	80-120	0	20

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037647

QC Batch: MSV/5035 Analysis Method: EPA 5030B/8260  
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Low Level  
Associated Lab Samples: 2037647001, 2037647002, 2037647003, 2037647004, 2037647005, 2037647006

METHOD BLANK: 232278 Matrix: Water  
Associated Lab Samples: 2037647001, 2037647002, 2037647003, 2037647004, 2037647005, 2037647006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	06/08/16 09:52	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	06/08/16 09:52	
1,1,2-Trichloroethane	ug/L	ND	0.50	06/08/16 09:52	
1,1-Dichloroethane	ug/L	ND	0.50	06/08/16 09:52	
1,1-Dichloroethene	ug/L	ND	0.50	06/08/16 09:52	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	06/08/16 09:52	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	06/08/16 09:52	
1,2-Dichloroethane	ug/L	ND	0.50	06/08/16 09:52	
1,2-Dichloropropane	ug/L	ND	0.50	06/08/16 09:52	
2-Butanone (MEK)	ug/L	ND	2.0	06/08/16 09:52	
2-Hexanone	ug/L	ND	1.0	06/08/16 09:52	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	06/08/16 09:52	
Acetone	ug/L	ND	4.0	06/08/16 09:52	
Benzene	ug/L	ND	0.50	06/08/16 09:52	
Bromodichloromethane	ug/L	ND	0.50	06/08/16 09:52	
Bromoform	ug/L	ND	0.50	06/08/16 09:52	
Bromomethane	ug/L	ND	0.50	06/08/16 09:52	
Carbon disulfide	ug/L	ND	1.0	06/08/16 09:52	
Carbon tetrachloride	ug/L	ND	0.50	06/08/16 09:52	
Chlorobenzene	ug/L	ND	0.50	06/08/16 09:52	
Chloroethane	ug/L	ND	0.50	06/08/16 09:52	
Chloroform	ug/L	ND	0.50	06/08/16 09:52	
Chloromethane	ug/L	ND	0.50	06/08/16 09:52	
cis-1,2-Dichloroethene	ug/L	ND	1.0	06/08/16 09:52	
cis-1,3-Dichloropropene	ug/L	ND	0.50	06/08/16 09:52	
Dibromochloromethane	ug/L	ND	0.50	06/08/16 09:52	
Dichlorodifluoromethane	ug/L	ND	1.0	06/08/16 09:52	
Ethanol	ug/L	ND	500	06/08/16 09:52	
Ethylbenzene	ug/L	ND	0.50	06/08/16 09:52	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	06/08/16 09:52	
m&p-Xylene	ug/L	ND	2.0	06/08/16 09:52	
Methyl acetate	ug/L	ND	2.0	06/08/16 09:52	
Methyl-tert-butyl ether	ug/L	ND	0.50	06/08/16 09:52	
Methylene Chloride	ug/L	ND	0.50	06/08/16 09:52	
o-Xylene	ug/L	ND	1.0	06/08/16 09:52	
Styrene	ug/L	ND	1.0	06/08/16 09:52	
tert-Butyl Alcohol	ug/L	ND	200	06/08/16 09:52	
Tetrachloroethene	ug/L	ND	0.50	06/08/16 09:52	
Toluene	ug/L	ND	0.50	06/08/16 09:52	
trans-1,2-Dichloroethene	ug/L	ND	0.50	06/08/16 09:52	
trans-1,3-Dichloropropene	ug/L	ND	0.50	06/08/16 09:52	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

METHOD BLANK: 232278

Matrix: Water

Associated Lab Samples: 2037647001, 2037647002, 2037647003, 2037647004, 2037647005, 2037647006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	0.50	06/08/16 09:52	
Trichlorofluoromethane	ug/L	ND	0.50	06/08/16 09:52	
Vinyl chloride	ug/L	ND	0.50	06/08/16 09:52	
4-Bromofluorobenzene (S)	%	99	68-124	06/08/16 09:52	
Dibromofluoromethane (S)	%	104	72-126	06/08/16 09:52	
Toluene-d8 (S)	%	96	79-119	06/08/16 09:52	

LABORATORY CONTROL SAMPLE: 232279

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	49.7	99	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	45.3	91	15-179	
1,1,2-Trichloroethane	ug/L	50	46.3	93	58-144	
1,1-Dichloroethane	ug/L	50	47.4	95	63-129	
1,1-Dichloroethene	ug/L	50	47.2	94	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	41.6	83	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	50.0	100	52-161	
1,2-Dichloroethane	ug/L	50	43.9	88	57-148	
1,2-Dichloropropane	ug/L	50	47.8	96	66-128	
2-Butanone (MEK)	ug/L	50	50.1	100	32-183	
2-Hexanone	ug/L	50	48.2	96	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	45.7	91	26-171	
Acetone	ug/L	50	54.4	109	22-165	
Benzene	ug/L	50	48.5	97	62-131	
Bromodichloromethane	ug/L	50	44.8	90	69-132	
Bromoform	ug/L	50	50.2	100	35-166	
Bromomethane	ug/L	50	50.5	101	34-158	
Carbon disulfide	ug/L	50	46.4	93	31-128	
Carbon tetrachloride	ug/L	50	53.4	107	54-144	
Chlorobenzene	ug/L	50	52.2	104	70-127	
Chloroethane	ug/L	50	41.6	83	17-195	
Chloroform	ug/L	50	45.5	91	73-134	
Chloromethane	ug/L	50	52.3	105	17-153	
cis-1,2-Dichloroethene	ug/L	50	50.4	101	68-129	
cis-1,3-Dichloropropene	ug/L	50	47.2	94	72-138	
Dibromochloromethane	ug/L	50	50.7	101	49-146	
Dichlorodifluoromethane	ug/L	50	46.5	93	10-179	
Ethylbenzene	ug/L	50	49.8	100	66-126	
Isopropylbenzene (Cumene)	ug/L	50	48.4	97	51-138	
m&p-Xylene	ug/L	100	105	105	65-129	
Methyl acetate	ug/L	50	47.4	95	20-142	
Methyl-tert-butyl ether	ug/L	50	45.9	92	37-166	
Methylene Chloride	ug/L	50	48.8	98	46-168	
o-Xylene	ug/L	50	53.1	106	65-124	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037647

LABORATORY CONTROL SAMPLE: 232279

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Styrene	ug/L	50	54.4	109	72-133	
Tetrachloroethene	ug/L	50	56.3	113	46-157	
Toluene	ug/L	50	48.5	97	69-126	
trans-1,2-Dichloroethene	ug/L	50	49.9	100	60-129	
trans-1,3-Dichloropropene	ug/L	50	46.0	92	59-149	
Trichloroethene	ug/L	50	49.6	99	67-132	
Trichlorofluoromethane	ug/L	50	66.8	134	39-171	
Vinyl chloride	ug/L	50	49.2	98	27-149	
4-Bromofluorobenzene (S)	%			103	68-124	
Dibromofluoromethane (S)	%			105	72-126	
Toluene-d8 (S)	%			98	79-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 232280 232281

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2037647002 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
1,1,1-Trichloroethane	ug/L	ND	50	50	58.7	51.1	117	102	54-137	14	20	
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	51.5	44.8	103	90	15-187	14	20	
1,1,2-Trichloroethane	ug/L	ND	50	50	53.8	47.7	108	95	59-148	12	20	
1,1-Dichloroethane	ug/L	ND	50	50	54.5	47.6	109	95	59-133	13	20	
1,1-Dichloroethene	ug/L	ND	50	50	51.4	45.7	103	91	44-146	12	20	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	47.1	43.2	94	86	23-166	9	20	
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	57.9	51.5	116	103	55-166	12	20	
1,2-Dichloroethane	ug/L	ND	50	50	49.1	43.2	98	86	56-154	13	20	
1,2-Dichloropropane	ug/L	ND	50	50	55.1	48.1	110	96	62-135	14	20	
2-Butanone (MEK)	ug/L	ND	50	50	53.1	48.0	106	96	20-205	10	20	
2-Hexanone	ug/L	ND	50	50	51.8	46.7	104	93	25-189	10	20	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	50	50.9	45.4	102	91	23-184	11	20	
Acetone	ug/L	8.6	50	50	62.4	57.2	108	97	11-217	9	20	
Benzene	ug/L	ND	50	50	56.2	48.5	112	97	52-141	15	20	
Bromodichloromethane	ug/L	ND	50	50	51.2	44.6	102	89	70-134	14	20	
Bromoform	ug/L	ND	50	50	57.7	51.0	115	102	37-171	12	20	
Bromomethane	ug/L	ND	50	50	54.8	47.5	110	95	34-155	14	20	
Carbon disulfide	ug/L	ND	50	50	53.7	44.6	107	89	28-130	19	20	
Carbon tetrachloride	ug/L	ND	50	50	61.0	51.3	122	103	48-146	17	20	
Chlorobenzene	ug/L	ND	50	50	59.8	51.8	120	104	67-129	14	20	
Chloroethane	ug/L	ND	50	50	47.7	41.1	95	82	12-192	15	20	
Chloroform	ug/L	ND	50	50	52.6	46.3	105	93	66-143	13	20	
Chloromethane	ug/L	ND	50	50	59.8	51.1	119	101	14-155	16	20	
cis-1,2-Dichloroethene	ug/L	ND	50	50	59.1	51.9	118	104	56-141	13	20	
cis-1,3-Dichloropropene	ug/L	ND	50	50	54.4	47.7	109	95	70-139	13	20	
Dibromochloromethane	ug/L	ND	50	50	58.5	52.1	117	104	50-150	12	20	
Dichlorodifluoromethane	ug/L	ND	50	50	54.1	46.4	108	93	10-173	15	20	
Ethylbenzene	ug/L	ND	50	50	56.8	49.6	114	99	57-135	13	20	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

Parameter	Units	232280		232281		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2037647002 Result	MS Spike Conc.	MSD Spike Conc.									
Isopropylbenzene (Cumene)	ug/L	ND	50	50	57.3	51.5	113	102	40-146	11	20		
m&p-Xylene	ug/L	ND	100	100	120	106	120	106	56-136	13	20		
Methyl acetate	ug/L	ND	50	50	51.4	45.4	103	91	10-142	12	20		
Methyl-tert-butyl ether	ug/L	ND	50	50	52.8	48.4	105	96	35-176	9	20		
Methylene Chloride	ug/L	ND	50	50	55.3	49.6	111	99	45-166	11	20		
o-Xylene	ug/L	ND	50	50	59.7	52.9	119	106	57-133	12	20		
Styrene	ug/L	ND	50	50	62.0	53.6	124	107	58-144	15	20		
Tetrachloroethene	ug/L	ND	50	50	65.3	57.4	131	115	48-143	13	20		
Toluene	ug/L	ND	50	50	56.5	48.7	113	97	59-136	15	20		
trans-1,2-Dichloroethene	ug/L	ND	50	50	59.6	50.8	119	102	57-132	16	20		
trans-1,3-Dichloropropene	ug/L	ND	50	50	53.6	47.0	107	94	59-154	13	20		
Trichloroethene	ug/L	ND	50	50	58.3	50.3	117	101	58-140	15	20		
Trichlorofluoromethane	ug/L	ND	50	50	76.6	66.5	153	133	24-175	14	20		
Vinyl chloride	ug/L	ND	50	50	57.5	49.8	115	100	21-150	14	20		
4-Bromofluorobenzene (S)	%.							103	103	68-124			
Dibromofluoromethane (S)	%.							107	107	72-126			
Toluene-d8 (S)	%.							99	99	79-119			

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037647

QC Batch: OEXT/9165 Analysis Method: EPA 8015B Modified  
QC Batch Method: EPA 3535 Analysis Description: EPA 8015 ORO  
Associated Lab Samples: 2037647001, 2037647002, 2037647003, 2037647004

METHOD BLANK: 232259 Matrix: Water  
Associated Lab Samples: 2037647001, 2037647002, 2037647003, 2037647004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	ND	0.25	06/09/16 11:53	
Oil Range Organics (>C28-C40)	mg/L	ND	0.50	06/09/16 11:53	
n-Pentacosane (S)	%	47	16-137	06/09/16 11:53	
o-Terphenyl (S)	%	51	10-121	06/09/16 11:53	

LABORATORY CONTROL SAMPLE: 232260

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	.4	ND	50	10-115	
n-Pentacosane (S)	%			63	16-137	
o-Terphenyl (S)	%			75	10-121	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 232261 232262

Parameter	Units	2037647002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diesel Range Organic (C10-C28)	mg/L	ND	.8	.8	0.98	0.88	72	58	10-122	11	20	
n-Pentacosane (S)	%						72	58	16-137			
o-Terphenyl (S)	%						99	85	10-121			

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037647

QC Batch: OEXT/9171      Analysis Method: EPA 8270 by SIM  
QC Batch Method: EPA 3510      Analysis Description: 8270 Water by SIM MSSV  
Associated Lab Samples: 2037647004

METHOD BLANK: 232332      Matrix: Water  
Associated Lab Samples: 2037647004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	06/13/16 20:05	
Anthracene	mg/L	ND	0.00010	06/13/16 20:05	
Benzo(a)anthracene	mg/L	ND	0.00010	06/13/16 20:05	
Benzo(a)pyrene	mg/L	ND	0.00010	06/13/16 20:05	
Benzo(b)fluoranthene	mg/L	ND	0.00010	06/13/16 20:05	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	06/13/16 20:05	
Benzo(k)fluoranthene	mg/L	ND	0.00010	06/13/16 20:05	
Chrysene	mg/L	ND	0.00010	06/13/16 20:05	
Fluoranthene	mg/L	ND	0.00010	06/13/16 20:05	
Fluorene	mg/L	ND	0.00010	06/13/16 20:05	
Naphthalene	mg/L	ND	0.00010	06/13/16 20:05	
Phenanthrene	mg/L	ND	0.00010	06/13/16 20:05	
Pyrene	mg/L	ND	0.00010	06/13/16 20:05	
2-Fluorobiphenyl (S)	%	76	25-150	06/13/16 20:05	
Terphenyl-d14 (S)	%	93	25-150	06/13/16 20:05	

LABORATORY CONTROL SAMPLE: 232333

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0030	76	35-150	
Anthracene	mg/L	.004	0.0038	95	35-150	
Benzo(a)anthracene	mg/L	.004	0.0035	88	35-150	
Benzo(a)pyrene	mg/L	.004	0.0036	90	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0036	91	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0036	89	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0039	96	35-150	
Chrysene	mg/L	.004	0.0036	90	35-150	
Fluoranthene	mg/L	.004	0.0037	92	35-150	
Fluorene	mg/L	.004	0.0031	78	35-150	
Naphthalene	mg/L	.004	0.0033	83	35-150	
Phenanthrene	mg/L	.004	0.0036	90	35-150	
Pyrene	mg/L	.004	0.0035	86	35-150	
2-Fluorobiphenyl (S)	%			84	25-150	
Terphenyl-d14 (S)	%			98	25-150	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037647

QC Batch: OEXT/9206 Analysis Method: EPA 8270 by SIM  
QC Batch Method: EPA 3510 Analysis Description: 8270 Water by SIM MSSV  
Associated Lab Samples: 2037647001, 2037647002, 2037647003

METHOD BLANK: 233338 Matrix: Water  
Associated Lab Samples: 2037647001, 2037647002, 2037647003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	06/13/16 15:04	
Anthracene	mg/L	ND	0.00010	06/13/16 15:04	
Benzo(a)anthracene	mg/L	ND	0.00010	06/13/16 15:04	
Benzo(a)pyrene	mg/L	ND	0.00010	06/13/16 15:04	
Benzo(b)fluoranthene	mg/L	ND	0.00010	06/13/16 15:04	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	06/13/16 15:04	
Benzo(k)fluoranthene	mg/L	ND	0.00010	06/13/16 15:04	
Chrysene	mg/L	ND	0.00010	06/13/16 15:04	
Fluoranthene	mg/L	ND	0.00010	06/13/16 15:04	
Fluorene	mg/L	ND	0.00010	06/13/16 15:04	
Naphthalene	mg/L	ND	0.00010	06/13/16 15:04	
Phenanthrene	mg/L	ND	0.00010	06/13/16 15:04	
Pyrene	mg/L	ND	0.00010	06/13/16 15:04	
2-Fluorobiphenyl (S)	%	77	25-150	06/13/16 15:04	
Terphenyl-d14 (S)	%	94	25-150	06/13/16 15:04	

LABORATORY CONTROL SAMPLE: 233339

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0026	64	35-150	
Anthracene	mg/L	.004	0.0031	77	35-150	
Benzo(a)anthracene	mg/L	.004	0.0029	72	35-150	
Benzo(a)pyrene	mg/L	.004	0.0030	75	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0032	81	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0030	75	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0031	77	35-150	
Chrysene	mg/L	.004	0.0030	75	35-150	
Fluoranthene	mg/L	.004	0.0030	76	35-150	
Fluorene	mg/L	.004	0.0026	66	35-150	
Naphthalene	mg/L	.004	0.0027	68	35-150	
Phenanthrene	mg/L	.004	0.0029	73	35-150	
Pyrene	mg/L	.004	0.0029	73	35-150	
2-Fluorobiphenyl (S)	%			87	25-150	
Terphenyl-d14 (S)	%			101	25-150	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

Parameter	Units	2037647002		233340		233341		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
Acenaphthene	mg/L	0.0011	.004	.004	0.0036	0.0042	65	78	35-150	14	20			
Anthracene	mg/L	ND	.004	.004	0.0040	0.0043	97	104	35-150	7	20			
Benzo(a)anthracene	mg/L	ND	.004	.004	0.0035	0.0039	86	96	35-150	11	20			
Benzo(a)pyrene	mg/L	ND	.004	.004	0.0034	0.0037	86	93	35-150	8	20			
Benzo(b)fluoranthene	mg/L	ND	.004	.004	0.0037	0.0038	92	95	35-150	3	20			
Benzo(g,h,i)perylene	mg/L	ND	.004	.004	0.0033	0.0034	82	86	35-150	5	20			
Benzo(k)fluoranthene	mg/L	ND	.004	.004	0.0036	0.0037	89	94	35-150	5	20			
Chrysene	mg/L	ND	.004	.004	0.0035	0.0038	87	95	35-150	9	20			
Fluoranthene	mg/L	ND	.004	.004	0.0037	0.0040	93	100	35-150	8	20			
Fluorene	mg/L	ND	.004	.004	0.0030	0.0033	76	83	35-150	9	20			
Naphthalene	mg/L	0.00048	.004	.004	0.0035	0.0040	75	89	35-150	14	20			
Phenanthrene	mg/L	0.00074	.004	.004	0.0042	0.0045	86	94	35-150	7	20			
Pyrene	mg/L	ND	.004	.004	0.0036	0.0038	89	95	35-150	7	20			
2-Fluorobiphenyl (S)	%						75	82	25-150		20			
Terphenyl-d14 (S)	%						92	100	25-150		20			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037647

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The Nelac Institute

### LABORATORIES

PASI-N Pace Analytical Services - New Orleans

### BATCH QUALIFIERS

Batch: MSSV/4065

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037647

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2037647001	EB 060316	EPA 3535	OEXT/9165	EPA 8015B Modified	GCSV/6617
2037647002	EB 101	EPA 3535	OEXT/9165	EPA 8015B Modified	GCSV/6617
2037647003	B 1	EPA 3535	OEXT/9165	EPA 8015B Modified	GCSV/6617
2037647004	DUP 2	EPA 3535	OEXT/9165	EPA 8015B Modified	GCSV/6617
2037647001	EB 060316	EPA 8015/8021	GCV/2848		
2037647002	EB 101	EPA 8015/8021	GCV/2848		
2037647003	B 1	EPA 8015/8021	GCV/2848		
2037647004	DUP 2	EPA 8015/8021	GCV/2848		
2037647005	FB 060316	EPA 8015/8021	GCV/2848		
2037647006	TRIP BLANK	EPA 8015/8021	GCV/2848		
2037647001	EB 060316	EPA 3010	MPRP/4343	EPA 6020	ICPM/1917
2037647002	EB 101	EPA 3010	MPRP/4343	EPA 6020	ICPM/1917
2037647003	B 1	EPA 3010	MPRP/4343	EPA 6020	ICPM/1917
2037647004	DUP 2	EPA 3010	MPRP/4343	EPA 6020	ICPM/1917
2037647001	EB 060316	EPA 7470	MERP/2752	EPA 7470	MERC/3376
2037647002	EB 101	EPA 7470	MERP/2752	EPA 7470	MERC/3376
2037647003	B 1	EPA 7470	MERP/2752	EPA 7470	MERC/3376
2037647004	DUP 2	EPA 7470	MERP/2752	EPA 7470	MERC/3376
2037647001	EB 060316	EPA 3510	OEXT/9206	EPA 8270 by SIM	MSSV/4064
2037647002	EB 101	EPA 3510	OEXT/9206	EPA 8270 by SIM	MSSV/4064
2037647003	B 1	EPA 3510	OEXT/9206	EPA 8270 by SIM	MSSV/4064
2037647004	DUP 2	EPA 3510	OEXT/9171	EPA 8270 by SIM	MSSV/4065
2037647001	EB 060316	EPA 5030B/8260	MSV/5035		
2037647002	EB 101	EPA 5030B/8260	MSV/5035		
2037647003	B 1	EPA 5030B/8260	MSV/5035		
2037647004	DUP 2	EPA 5030B/8260	MSV/5035		
2037647005	FB 060316	EPA 5030B/8260	MSV/5035		
2037647006	TRIP BLANK	EPA 5030B/8260	MSV/5035		

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2037647

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**2035838**

<b>Section A</b> Required Client Information:		<b>Section B</b> Required Project Information:		Invoice Information:	
Company: <b>Bol Caribe</b>	Report To: <b>Estación Calderón</b>	Attention:		REGULATORY AGENCY	
Address: <b>City View Plaza I Stc. 401 Guaynabo, PR</b>	Copy To:	Company Name:		<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER	
Email To: <b>rain.calderon@analabs.com</b>	Purchase Order No.:	Address:		Site Location: <b>Bayamón</b>	
Phone: <b>787-7744000</b> Fax:	Project Name: <b>Puma Terminal MW Sampling</b>	Pace Quote Reference:		STATE: <b>P.R.</b>	
Requested Due Date/TAT:	Project Number: <b>B0063767</b>	Pace Project Manager: <b>J. Redondo</b>		Pace Profile #: <b>7252</b>	

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Face Project No./ Lab I.D.
			COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other				
			DATE	TIME	DATE	TIME														
1	<b>EB-060316</b>	WTG			6/3/16	0740	9	4											2037647	
2	<b>EB-101</b>	WTG			6/3/16	0800	9	4												
3	<b>MSI MSD - EB-101</b>	WTG			6/3/16		9	4												
4	<b>B-1</b>	WTG			6/3/16	0945	9	4												
5	<b>Dup 2</b>	WTG			6/3/16		9	4												
6	<b>EB-060316</b>	WTG			6/3/16	0950	4	4												
7	<b>Trip blank</b>	WTG			6/3/16		4	4												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
<b>Level W</b>	<b>J. Redondo / Analabs</b>	6/3/16	1055	<b>ACE</b>	6/3/16	10:55	30	Y	N	Y
	<del><b>J. Redondo / Analabs</b></del>	6/6/16	17:00	<b>Fed Exp</b>						
	<b>Fed Exp</b>	6-7-16	1900	<b>J. Redondo / Pace</b>	6-7-16	0900		Y	Y	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	<b>Janisela Heredia / Hernandez Colon</b>				
SIGNATURE of SAMPLER:	<i>[Signature]</i>	DATE Signed (MM/DD/YY):	<b>6/3/16</b>		

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

WO#: 2037647

PM: JAR1 Due Date: 06/17/16

CLIENT: 98-ARCADISPR



Sample Condition

Urb. Jardines de Guaynabo
Calle Marginal Blq A-10
Guaynabo, PR 00969

Project #: 20

Courier: Pace Courier, Hired Courier, Fed X, UPS, DHL, USPS, Customer, Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes, No

Thermometer Used: Therm Fisher IR 4, IR 6, IR 7

Type of Ice: Wet, Blue, None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: [Signature] 6/3/2016

Temp must be measured from Temperature blank when present

Comments:

Table with 15 rows and 3 columns: Question, Yes/No/N/A checkboxes, and Comments. Includes items like 'Temperature Blank Present?', 'Chain of Custody Present', etc.

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_



1000 Riverbend, Blvd., Suite F  
St. Rose, LA 70087

### Sample Condition Upon Receipt

Project #: **20**

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 5  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 6-7-16 JMB

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



June 15, 2016

Efrain Calderon  
BBL Caribe Engineering P.S.C.  
48 City View Plaza1, Suite 401  
Road 16, Km. 1.2  
Guaynabo, PR 00968

RE: Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037727

Dear Efrain Calderon:

Enclosed are the analytical results for sample(s) received by the laboratory on June 06, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Juan Redondo  
juan.redondo@pacelabs.com  
Project Manager

Enclosures

cc: Sharon Colon  
Abner Hernandez  
Marianela Mercado-Burgos



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

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### New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:  
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):  
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):  
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):  
T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-  
00119

Commonwealth of Virginia (TNI): 480246

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### SAMPLE SUMMARY

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2037727001	EB-060616	Water	06/06/16 08:20	06/06/16 12:45
2037727002	16C	Water	06/06/16 09:15	06/06/16 12:45
2037727003	EB-102	Water	06/06/16 09:46	06/06/16 12:45
2037727004	EB-103	Water	06/06/16 10:45	06/06/16 12:45
2037727005	EB-104	Water	06/06/16 12:00	06/06/16 12:45
2037727006	FB-060616	Water	06/06/16 12:05	06/06/16 12:45
2037727007	TRIP BLANK	Water	06/06/16 00:00	06/06/16 12:45

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037727

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2037727001	EB-060616	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2037727002	16C	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2037727003	EB-102	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2037727004	EB-103	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2037727005	EB-104	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2037727006	FB-060616	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
2037727007	TRIP BLANK	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037727

---

**Method:** EPA 8015B Modified  
**Description:** 8015M DRO/ORO Organics  
**Client:** BBL Caribe / Arcadis PR  
**Date:** June 15, 2016

### General Information:

5 samples were analyzed for EPA 8015B Modified. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 3535 with any exceptions noted below.

QC Batch: OEXT/9165

P1: Routine initial sample volume or weight was not used for extraction, resulting in elevated reporting limits.

- EB-103 (Lab ID: 2037727004)
- EB-104 (Lab ID: 2037727005)

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: OEXT/9201

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

### Additional Comments:

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

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**Method:** EPA 8015/8021

**Description:** 8021 GCV BTEX, MTBE, GRO

**Client:** BBL Caribe / Arcadis PR

**Date:** June 15, 2016

**General Information:**

7 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

---

**Method:** EPA 6020

**Description:** 6020 MET ICPMS

**Client:** BBL Caribe / Arcadis PR

**Date:** June 15, 2016

**General Information:**

5 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

---

**Method:** EPA 7470

**Description:** 7470 Mercury

**Client:** BBL Caribe / Arcadis PR

**Date:** June 15, 2016

**General Information:**

5 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

---

**Method:** EPA 8270 by SIM

**Description:** 8270 MSSV PAH by SIM SEP

**Client:** BBL Caribe / Arcadis PR

**Date:** June 15, 2016

**General Information:**

5 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

---

**Method:** EPA 5030B/8260

**Description:** 8260 MSV Low Level

**Client:** BBL Caribe / Arcadis PR

**Date:** June 15, 2016

**General Information:**

7 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

Sample: EB-060616	Lab ID: 2037727001	Collected: 06/06/16 08:20	Received: 06/06/16 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/08/16 11:41	06/09/16 16:38		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/08/16 11:41	06/09/16 16:38		
<b>Surrogates</b>								
n-Pentacosane (S)	55	%	16-137	1	06/08/16 11:41	06/09/16 16:38	629-99-2	
o-Terphenyl (S)	65	%	10-121	1	06/08/16 11:41	06/09/16 16:38	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/09/16 19:00		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	91	%	44-148	1		06/09/16 19:00	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:07	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:07	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:07	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/09/16 08:33	06/10/16 11:07	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/08/16 11:12	06/08/16 16:19	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:57	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:57	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:57	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:57	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:57	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:57	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:57	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:57	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:57	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:57	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:57	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:57	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 17:57	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	79	%	25-150	1	06/10/16 10:58	06/13/16 17:57	321-60-8	
Terphenyl-d14 (S)	101	%	25-150	1	06/10/16 10:58	06/13/16 17:57	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	14.8	ug/L	4.0	1		06/08/16 13:25	67-64-1	
Benzene	ND	ug/L	0.50	1		06/08/16 13:25	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/08/16 13:25	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/08/16 13:25	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/08/16 13:25	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/08/16 13:25	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/08/16 13:25	75-65-0	

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

Sample: EB-060616	Lab ID: 2037727001	Collected: 06/06/16 08:20	Received: 06/06/16 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/08/16 13:25	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/08/16 13:25	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/08/16 13:25	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/08/16 13:25	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/08/16 13:25	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/08/16 13:25	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/08/16 13:25	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/08/16 13:25	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/08/16 13:25	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/08/16 13:25	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/08/16 13:25	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/08/16 13:25	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/08/16 13:25	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/08/16 13:25	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/08/16 13:25	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/08/16 13:25	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 13:25	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 13:25	10061-02-6	
Ethanol	ND	ug/L	500	1		06/08/16 13:25	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/08/16 13:25	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/08/16 13:25	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/08/16 13:25	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/08/16 13:25	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/08/16 13:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/08/16 13:25	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/08/16 13:25	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/08/16 13:25	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/08/16 13:25	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/08/16 13:25	127-18-4	
Toluene	ND	ug/L	0.50	1		06/08/16 13:25	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/08/16 13:25	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/08/16 13:25	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/08/16 13:25	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/08/16 13:25	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/08/16 13:25	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/08/16 13:25	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/08/16 13:25	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	103	%	72-126	1		06/08/16 13:25	1868-53-7	
4-Bromofluorobenzene (S)	102	%	68-124	1		06/08/16 13:25	460-00-4	
Toluene-d8 (S)	98	%	79-119	1		06/08/16 13:25	2037-26-5	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

Sample: 16C	Lab ID: 2037727002	Collected: 06/06/16 09:15	Received: 06/06/16 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/10/16 09:53	06/13/16 20:48		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/10/16 09:53	06/13/16 20:48		
<b>Surrogates</b>								
n-Pentacosane (S)	59	%	16-137	1	06/10/16 09:53	06/13/16 20:48	629-99-2	
o-Terphenyl (S)	65	%	10-121	1	06/10/16 09:53	06/13/16 20:48	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/09/16 19:28		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	90	%	44-148	1		06/09/16 19:28	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	<b>0.0038</b>	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:11	7440-38-2	
Chromium	<b>0.0052</b>	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:11	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:11	7439-92-1	
Vanadium	<b>0.034</b>	mg/L	0.0050	1	06/09/16 08:33	06/10/16 11:11	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/08/16 11:12	06/08/16 16:21	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:18	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:18	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:18	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:18	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:18	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:18	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:18	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:18	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:18	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:18	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:18	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:18	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:18	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	76	%	25-150	1	06/10/16 10:58	06/13/16 18:18	321-60-8	
Terphenyl-d14 (S)	95	%	25-150	1	06/10/16 10:58	06/13/16 18:18	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	<b>11.9</b>	ug/L	4.0	1		06/08/16 13:43	67-64-1	
Benzene	ND	ug/L	0.50	1		06/08/16 13:43	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/08/16 13:43	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/08/16 13:43	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/08/16 13:43	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/08/16 13:43	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/08/16 13:43	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

Sample: 16C	Lab ID: 2037727002	Collected: 06/06/16 09:15	Received: 06/06/16 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/08/16 13:43	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/08/16 13:43	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/08/16 13:43	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/08/16 13:43	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/08/16 13:43	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/08/16 13:43	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/08/16 13:43	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/08/16 13:43	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/08/16 13:43	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/08/16 13:43	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/08/16 13:43	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/08/16 13:43	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/08/16 13:43	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/08/16 13:43	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/08/16 13:43	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/08/16 13:43	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 13:43	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 13:43	10061-02-6	
Ethanol	ND	ug/L	500	1		06/08/16 13:43	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/08/16 13:43	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/08/16 13:43	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/08/16 13:43	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/08/16 13:43	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/08/16 13:43	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/08/16 13:43	108-10-1	
Methyl-tert-butyl ether	4.0	ug/L	0.50	1		06/08/16 13:43	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/08/16 13:43	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/08/16 13:43	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/08/16 13:43	127-18-4	
Toluene	ND	ug/L	0.50	1		06/08/16 13:43	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/08/16 13:43	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/08/16 13:43	79-00-5	
Trichloroethene	0.54	ug/L	0.50	1		06/08/16 13:43	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/08/16 13:43	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/08/16 13:43	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/08/16 13:43	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/08/16 13:43	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	103	%	72-126	1		06/08/16 13:43	1868-53-7	
4-Bromofluorobenzene (S)	101	%	68-124	1		06/08/16 13:43	460-00-4	
Toluene-d8 (S)	96	%	79-119	1		06/08/16 13:43	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

Sample: EB-102	Lab ID: 2037727003	Collected: 06/06/16 09:46	Received: 06/06/16 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	0.53	mg/L	0.50	1	06/08/16 11:41	06/09/16 17:34		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/08/16 11:41	06/09/16 17:34		
<b>Surrogates</b>								
n-Pentacosane (S)	68	%	16-137	1	06/08/16 11:41	06/09/16 17:34	629-99-2	
o-Terphenyl (S)	77	%	10-121	1	06/08/16 11:41	06/09/16 17:34	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/09/16 19:54		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	91	%	44-148	1		06/09/16 19:54	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:15	7440-38-2	
Chromium	0.0084	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:15	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:15	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/09/16 08:33	06/10/16 11:15	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/08/16 11:12	06/08/16 16:23	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:40	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:40	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:40	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:40	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:40	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:40	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:40	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:40	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:40	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:40	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:40	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:40	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 18:40	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	79	%	25-150	1	06/10/16 10:58	06/13/16 18:40	321-60-8	
Terphenyl-d14 (S)	97	%	25-150	1	06/10/16 10:58	06/13/16 18:40	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	12.3	ug/L	4.0	1		06/08/16 14:01	67-64-1	
Benzene	ND	ug/L	0.50	1		06/08/16 14:01	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/08/16 14:01	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/08/16 14:01	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/08/16 14:01	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/08/16 14:01	78-93-3	
tert-Butyl Alcohol	685	ug/L	200	1		06/08/16 14:01	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

Sample: EB-102		Lab ID: 2037727003		Collected: 06/06/16 09:46		Received: 06/06/16 12:45		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Carbon disulfide	ND	ug/L	1.0	1		06/08/16 14:01	75-15-0		
Carbon tetrachloride	ND	ug/L	0.50	1		06/08/16 14:01	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		06/08/16 14:01	108-90-7		
Chloroethane	ND	ug/L	0.50	1		06/08/16 14:01	75-00-3		
Chloroform	ND	ug/L	0.50	1		06/08/16 14:01	67-66-3		
Chloromethane	<b>0.75</b>	ug/L	0.50	1		06/08/16 14:01	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/08/16 14:01	96-12-8		
Dibromochloromethane	ND	ug/L	0.50	1		06/08/16 14:01	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/08/16 14:01	106-93-4		
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/08/16 14:01	75-71-8		
1,1-Dichloroethane	ND	ug/L	0.50	1		06/08/16 14:01	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		06/08/16 14:01	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		06/08/16 14:01	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/08/16 14:01	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/08/16 14:01	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		06/08/16 14:01	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 14:01	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 14:01	10061-02-6		
Ethanol	ND	ug/L	500	1		06/08/16 14:01	64-17-5		
Ethylbenzene	ND	ug/L	0.50	1		06/08/16 14:01	100-41-4		
2-Hexanone	ND	ug/L	1.0	1		06/08/16 14:01	591-78-6		
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/08/16 14:01	98-82-8		
Methyl acetate	ND	ug/L	2.0	1		06/08/16 14:01	79-20-9		
Methylene Chloride	ND	ug/L	0.50	1		06/08/16 14:01	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/08/16 14:01	108-10-1		
Methyl-tert-butyl ether	<b>2.5</b>	ug/L	0.50	1		06/08/16 14:01	1634-04-4		
Styrene	ND	ug/L	1.0	1		06/08/16 14:01	100-42-5		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/08/16 14:01	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		06/08/16 14:01	127-18-4		
Toluene	ND	ug/L	0.50	1		06/08/16 14:01	108-88-3		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/08/16 14:01	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/08/16 14:01	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		06/08/16 14:01	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/08/16 14:01	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/08/16 14:01	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		06/08/16 14:01	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		06/08/16 14:01	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	104	%	72-126	1		06/08/16 14:01	1868-53-7		
4-Bromofluorobenzene (S)	102	%	68-124	1		06/08/16 14:01	460-00-4		
Toluene-d8 (S)	98	%	79-119	1		06/08/16 14:01	2037-26-5		

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

Sample: EB-103	Lab ID: 2037727004	Collected: 06/06/16 10:45	Received: 06/06/16 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	1.0	1	06/08/16 11:41	06/09/16 18:03		P1
Oil Range Organics (>C28-C40)	ND	mg/L	2.0	1	06/08/16 11:41	06/09/16 18:03		
<b>Surrogates</b>								
n-Pentacosane (S)	45	%	16-137	1	06/08/16 11:41	06/09/16 18:03	629-99-2	
o-Terphenyl (S)	65	%	10-121	1	06/08/16 11:41	06/09/16 18:03	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	<b>55.3</b>	ug/L	50.0	1		06/09/16 20:21		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	91	%	44-148	1		06/09/16 20:21	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:19	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:19	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:19	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/09/16 08:33	06/10/16 11:19	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/08/16 11:12	06/08/16 16:25	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:01	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:01	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:01	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:01	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:01	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:01	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:01	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:01	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:01	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:01	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:01	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:01	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:01	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	77	%	25-150	1	06/10/16 10:58	06/13/16 19:01	321-60-8	
Terphenyl-d14 (S)	92	%	25-150	1	06/10/16 10:58	06/13/16 19:01	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	<b>11.3</b>	ug/L	4.0	1		06/08/16 14:19	67-64-1	
Benzene	ND	ug/L	0.50	1		06/08/16 14:19	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/08/16 14:19	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/08/16 14:19	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/08/16 14:19	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/08/16 14:19	78-93-3	
tert-Butyl Alcohol	<b>1220</b>	ug/L	400	2		06/08/16 17:17	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

Sample: EB-103	Lab ID: 2037727004	Collected: 06/06/16 10:45	Received: 06/06/16 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/08/16 14:19	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/08/16 14:19	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/08/16 14:19	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/08/16 14:19	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/08/16 14:19	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/08/16 14:19	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/08/16 14:19	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/08/16 14:19	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/08/16 14:19	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/08/16 14:19	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/08/16 14:19	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/08/16 14:19	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/08/16 14:19	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/08/16 14:19	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/08/16 14:19	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/08/16 14:19	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 14:19	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 14:19	10061-02-6	
Ethanol	ND	ug/L	500	1		06/08/16 14:19	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/08/16 14:19	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/08/16 14:19	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/08/16 14:19	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/08/16 14:19	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/08/16 14:19	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/08/16 14:19	108-10-1	
Methyl-tert-butyl ether	47.6	ug/L	0.50	1		06/08/16 14:19	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/08/16 14:19	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/08/16 14:19	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/08/16 14:19	127-18-4	
Toluene	ND	ug/L	0.50	1		06/08/16 14:19	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/08/16 14:19	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/08/16 14:19	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/08/16 14:19	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/08/16 14:19	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/08/16 14:19	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/08/16 14:19	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/08/16 14:19	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	103	%	72-126	1		06/08/16 14:19	1868-53-7	
Dibromofluoromethane (S)	103	%	72-126	2		06/08/16 17:17	1868-53-7	
4-Bromofluorobenzene (S)	99	%	68-124	2		06/08/16 17:17	460-00-4	
4-Bromofluorobenzene (S)	101	%	68-124	1		06/08/16 14:19	460-00-4	
Toluene-d8 (S)	98	%	79-119	2		06/08/16 17:17	2037-26-5	
Toluene-d8 (S)	97	%	79-119	1		06/08/16 14:19	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

Sample: EB-104	Lab ID: 2037727005	Collected: 06/06/16 12:00	Received: 06/06/16 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	1.0	1	06/08/16 11:41	06/09/16 18:31		P1
Oil Range Organics (>C28-C40)	ND	mg/L	2.0	1	06/08/16 11:41	06/09/16 18:31		
<b>Surrogates</b>								
n-Pentacosane (S)	36	%	16-137	1	06/08/16 11:41	06/09/16 18:31	629-99-2	
o-Terphenyl (S)	66	%	10-121	1	06/08/16 11:41	06/09/16 18:31	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	75.2	ug/L	50.0	1		06/09/16 20:48		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	91	%	44-148	1		06/09/16 20:48	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	0.0012	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:31	7440-38-2	
Chromium	0.020	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:31	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:31	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/09/16 08:33	06/10/16 11:31	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/08/16 11:12	06/08/16 16:31	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:22	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:22	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:22	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:22	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:22	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:22	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:22	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:22	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:22	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:22	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:22	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:22	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/10/16 10:58	06/13/16 19:22	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	78	%	25-150	1	06/10/16 10:58	06/13/16 19:22	321-60-8	
Terphenyl-d14 (S)	94	%	25-150	1	06/10/16 10:58	06/13/16 19:22	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	7.7	ug/L	4.0	1		06/08/16 14:37	67-64-1	
Benzene	ND	ug/L	0.50	1		06/08/16 14:37	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/08/16 14:37	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/08/16 14:37	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/08/16 14:37	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/08/16 14:37	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/08/16 14:37	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

Sample: EB-104	Lab ID: 2037727005	Collected: 06/06/16 12:00	Received: 06/06/16 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/08/16 14:37	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/08/16 14:37	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/08/16 14:37	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/08/16 14:37	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/08/16 14:37	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/08/16 14:37	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/08/16 14:37	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/08/16 14:37	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/08/16 14:37	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/08/16 14:37	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/08/16 14:37	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/08/16 14:37	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/08/16 14:37	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/08/16 14:37	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/08/16 14:37	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/08/16 14:37	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 14:37	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 14:37	10061-02-6	
Ethanol	ND	ug/L	500	1		06/08/16 14:37	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/08/16 14:37	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/08/16 14:37	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/08/16 14:37	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/08/16 14:37	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/08/16 14:37	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/08/16 14:37	108-10-1	
Methyl-tert-butyl ether	76.4	ug/L	0.50	1		06/08/16 14:37	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/08/16 14:37	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/08/16 14:37	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/08/16 14:37	127-18-4	
Toluene	ND	ug/L	0.50	1		06/08/16 14:37	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/08/16 14:37	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/08/16 14:37	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/08/16 14:37	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/08/16 14:37	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/08/16 14:37	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/08/16 14:37	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/08/16 14:37	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	104	%	72-126	1		06/08/16 14:37	1868-53-7	
4-Bromofluorobenzene (S)	100	%	68-124	1		06/08/16 14:37	460-00-4	
Toluene-d8 (S)	98	%	79-119	1		06/08/16 14:37	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

Sample: <b>FB-060616</b>	Lab ID: <b>2037727006</b>	Collected: 06/06/16 12:05	Received: 06/06/16 12:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/09/16 21:15		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	91	%	44-148	1		06/09/16 21:15	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	<b>13.1</b>	ug/L	4.0	1		06/08/16 14:54	67-64-1	
Benzene	ND	ug/L	0.50	1		06/08/16 14:54	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/08/16 14:54	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/08/16 14:54	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/08/16 14:54	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/08/16 14:54	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/08/16 14:54	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/08/16 14:54	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/08/16 14:54	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/08/16 14:54	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/08/16 14:54	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/08/16 14:54	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/08/16 14:54	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/08/16 14:54	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/08/16 14:54	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/08/16 14:54	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/08/16 14:54	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/08/16 14:54	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/08/16 14:54	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/08/16 14:54	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/08/16 14:54	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/08/16 14:54	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/08/16 14:54	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 14:54	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 14:54	10061-02-6	
Ethanol	ND	ug/L	500	1		06/08/16 14:54	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/08/16 14:54	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/08/16 14:54	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/08/16 14:54	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/08/16 14:54	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/08/16 14:54	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/08/16 14:54	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/08/16 14:54	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/08/16 14:54	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/08/16 14:54	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/08/16 14:54	127-18-4	
Toluene	ND	ug/L	0.50	1		06/08/16 14:54	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/08/16 14:54	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/08/16 14:54	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/08/16 14:54	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/08/16 14:54	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/08/16 14:54	75-01-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

Sample: <b>FB-060616</b>		Lab ID: <b>2037727006</b>		Collected: 06/06/16 12:05	Received: 06/06/16 12:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
m&p-Xylene	ND	ug/L	2.0	1		06/08/16 14:54	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/08/16 14:54	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	102	%	72-126	1		06/08/16 14:54	1868-53-7	
4-Bromofluorobenzene (S)	101	%	68-124	1		06/08/16 14:54	460-00-4	
Toluene-d8 (S)	97	%	79-119	1		06/08/16 14:54	2037-26-5	

Sample: <b>TRIP BLANK</b>		Lab ID: <b>2037727007</b>		Collected: 06/06/16 00:00	Received: 06/06/16 12:45	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/09/16 21:42		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	90	%	44-148	1		06/09/16 21:42	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	<b>121</b>	ug/L	4.0	1		06/08/16 15:12	67-64-1	
Benzene	ND	ug/L	0.50	1		06/08/16 15:12	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/08/16 15:12	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/08/16 15:12	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/08/16 15:12	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/08/16 15:12	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/08/16 15:12	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/08/16 15:12	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/08/16 15:12	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/08/16 15:12	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/08/16 15:12	75-00-3	
Chloroform	<b>1.4</b>	ug/L	0.50	1		06/08/16 15:12	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/08/16 15:12	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/08/16 15:12	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/08/16 15:12	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/08/16 15:12	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/08/16 15:12	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/08/16 15:12	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/08/16 15:12	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/08/16 15:12	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/08/16 15:12	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/08/16 15:12	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/08/16 15:12	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 15:12	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 15:12	10061-02-6	
Ethanol	ND	ug/L	500	1		06/08/16 15:12	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/08/16 15:12	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/08/16 15:12	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/08/16 15:12	98-82-8	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

Sample: TRIP BLANK		Lab ID: 2037727007		Collected: 06/06/16 00:00		Received: 06/06/16 12:45		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Methyl acetate	ND	ug/L	2.0	1		06/08/16 15:12	79-20-9		
Methylene Chloride	ND	ug/L	0.50	1		06/08/16 15:12	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/08/16 15:12	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/08/16 15:12	1634-04-4		
Styrene	ND	ug/L	1.0	1		06/08/16 15:12	100-42-5		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/08/16 15:12	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		06/08/16 15:12	127-18-4		
Toluene	ND	ug/L	0.50	1		06/08/16 15:12	108-88-3		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/08/16 15:12	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/08/16 15:12	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		06/08/16 15:12	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/08/16 15:12	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/08/16 15:12	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		06/08/16 15:12	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		06/08/16 15:12	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	102	%.	72-126	1		06/08/16 15:12	1868-53-7		
4-Bromofluorobenzene (S)	99	%.	68-124	1		06/08/16 15:12	460-00-4		
Toluene-d8 (S)	98	%.	79-119	1		06/08/16 15:12	2037-26-5		

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037727

QC Batch: GCV/2848 Analysis Method: EPA 8015/8021  
QC Batch Method: EPA 8015/8021 Analysis Description: 8021 W GCV BTEX, MTBE, GRO  
Associated Lab Samples: 2037727001, 2037727002, 2037727003, 2037727004, 2037727005, 2037727006, 2037727007

METHOD BLANK: 232417 Matrix: Water  
Associated Lab Samples: 2037727001, 2037727002, 2037727003, 2037727004, 2037727005, 2037727006, 2037727007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	06/09/16 14:00	
4-Bromofluorobenzene (S)	%.	91	44-148	06/09/16 14:00	

LABORATORY CONTROL SAMPLE: 232418

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	410	82	61-136	
4-Bromofluorobenzene (S)	%.			92	44-148	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 232419 232420

Parameter	Units	2037647002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Gasoline Range Organics	ug/L	ND	500	500	440	411	81	75	15-147	7	20	
4-Bromofluorobenzene (S)	%.						93	95	44-148			

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

QC Batch: MERP/2752

Analysis Method: EPA 7470

QC Batch Method: EPA 7470

Analysis Description: 7470 Mercury

Associated Lab Samples: 2037727001, 2037727002, 2037727003, 2037727004, 2037727005

METHOD BLANK: 232311

Matrix: Water

Associated Lab Samples: 2037727001, 2037727002, 2037727003, 2037727004, 2037727005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	06/08/16 15:52	

LABORATORY CONTROL SAMPLE: 232312

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	1.0	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 232313 232314

Parameter	Units	2037647002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	1	1	0.86	0.87	86	87	75-125	1	20	

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037727

QC Batch: MPRP/4343 Analysis Method: EPA 6020  
QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
Associated Lab Samples: 2037727001, 2037727002, 2037727003, 2037727004, 2037727005

METHOD BLANK: 232714 Matrix: Water  
Associated Lab Samples: 2037727001, 2037727002, 2037727003, 2037727004, 2037727005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	06/10/16 09:11	
Chromium	mg/L	ND	0.0010	06/10/16 09:11	
Lead	mg/L	ND	0.0010	06/10/16 09:11	
Vanadium	mg/L	ND	0.0050	06/10/16 09:11	

LABORATORY CONTROL SAMPLE: 232715

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.02	0.020	98	83-115	
Chromium	mg/L	.02	0.019	97	85-115	
Lead	mg/L	.02	0.019	97	84-115	
Vanadium	mg/L	.02	0.019	97	81-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 232716 232717

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2037647002 Result	Spike Conc.	Spike Conc.	Result						
Arsenic	mg/L	0.0013	.02	.02	0.020	0.020	95	94	80-120	0	20
Chromium	mg/L	ND	.02	.02	0.019	0.019	95	95	80-120	1	20
Lead	mg/L	ND	.02	.02	0.019	0.020	97	98	80-120	1	20
Vanadium	mg/L	ND	.02	.02	0.019	0.019	95	95	80-120	0	20

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

QC Batch: MSV/5035 Analysis Method: EPA 5030B/8260  
 QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Low Level  
 Associated Lab Samples: 2037727001, 2037727002, 2037727003, 2037727004, 2037727005, 2037727006, 2037727007

METHOD BLANK: 232278 Matrix: Water  
 Associated Lab Samples: 2037727001, 2037727002, 2037727003, 2037727004, 2037727005, 2037727006, 2037727007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	06/08/16 09:52	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	06/08/16 09:52	
1,1,2-Trichloroethane	ug/L	ND	0.50	06/08/16 09:52	
1,1-Dichloroethane	ug/L	ND	0.50	06/08/16 09:52	
1,1-Dichloroethene	ug/L	ND	0.50	06/08/16 09:52	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	06/08/16 09:52	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	06/08/16 09:52	
1,2-Dichloroethane	ug/L	ND	0.50	06/08/16 09:52	
1,2-Dichloropropane	ug/L	ND	0.50	06/08/16 09:52	
2-Butanone (MEK)	ug/L	ND	2.0	06/08/16 09:52	
2-Hexanone	ug/L	ND	1.0	06/08/16 09:52	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	06/08/16 09:52	
Acetone	ug/L	ND	4.0	06/08/16 09:52	
Benzene	ug/L	ND	0.50	06/08/16 09:52	
Bromodichloromethane	ug/L	ND	0.50	06/08/16 09:52	
Bromoform	ug/L	ND	0.50	06/08/16 09:52	
Bromomethane	ug/L	ND	0.50	06/08/16 09:52	
Carbon disulfide	ug/L	ND	1.0	06/08/16 09:52	
Carbon tetrachloride	ug/L	ND	0.50	06/08/16 09:52	
Chlorobenzene	ug/L	ND	0.50	06/08/16 09:52	
Chloroethane	ug/L	ND	0.50	06/08/16 09:52	
Chloroform	ug/L	ND	0.50	06/08/16 09:52	
Chloromethane	ug/L	ND	0.50	06/08/16 09:52	
cis-1,2-Dichloroethene	ug/L	ND	1.0	06/08/16 09:52	
cis-1,3-Dichloropropene	ug/L	ND	0.50	06/08/16 09:52	
Dibromochloromethane	ug/L	ND	0.50	06/08/16 09:52	
Dichlorodifluoromethane	ug/L	ND	1.0	06/08/16 09:52	
Ethanol	ug/L	ND	500	06/08/16 09:52	
Ethylbenzene	ug/L	ND	0.50	06/08/16 09:52	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	06/08/16 09:52	
m&p-Xylene	ug/L	ND	2.0	06/08/16 09:52	
Methyl acetate	ug/L	ND	2.0	06/08/16 09:52	
Methyl-tert-butyl ether	ug/L	ND	0.50	06/08/16 09:52	
Methylene Chloride	ug/L	ND	0.50	06/08/16 09:52	
o-Xylene	ug/L	ND	1.0	06/08/16 09:52	
Styrene	ug/L	ND	1.0	06/08/16 09:52	
tert-Butyl Alcohol	ug/L	ND	200	06/08/16 09:52	
Tetrachloroethene	ug/L	ND	0.50	06/08/16 09:52	
Toluene	ug/L	ND	0.50	06/08/16 09:52	
trans-1,2-Dichloroethene	ug/L	ND	0.50	06/08/16 09:52	
trans-1,3-Dichloropropene	ug/L	ND	0.50	06/08/16 09:52	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

METHOD BLANK: 232278

Matrix: Water

Associated Lab Samples: 2037727001, 2037727002, 2037727003, 2037727004, 2037727005, 2037727006, 2037727007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	0.50	06/08/16 09:52	
Trichlorofluoromethane	ug/L	ND	0.50	06/08/16 09:52	
Vinyl chloride	ug/L	ND	0.50	06/08/16 09:52	
4-Bromofluorobenzene (S)	%	99	68-124	06/08/16 09:52	
Dibromofluoromethane (S)	%	104	72-126	06/08/16 09:52	
Toluene-d8 (S)	%	96	79-119	06/08/16 09:52	

LABORATORY CONTROL SAMPLE: 232279

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	49.7	99	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	45.3	91	15-179	
1,1,2-Trichloroethane	ug/L	50	46.3	93	58-144	
1,1-Dichloroethane	ug/L	50	47.4	95	63-129	
1,1-Dichloroethene	ug/L	50	47.2	94	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	41.6	83	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	50.0	100	52-161	
1,2-Dichloroethane	ug/L	50	43.9	88	57-148	
1,2-Dichloropropane	ug/L	50	47.8	96	66-128	
2-Butanone (MEK)	ug/L	50	50.1	100	32-183	
2-Hexanone	ug/L	50	48.2	96	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	45.7	91	26-171	
Acetone	ug/L	50	54.4	109	22-165	
Benzene	ug/L	50	48.5	97	62-131	
Bromodichloromethane	ug/L	50	44.8	90	69-132	
Bromoform	ug/L	50	50.2	100	35-166	
Bromomethane	ug/L	50	50.5	101	34-158	
Carbon disulfide	ug/L	50	46.4	93	31-128	
Carbon tetrachloride	ug/L	50	53.4	107	54-144	
Chlorobenzene	ug/L	50	52.2	104	70-127	
Chloroethane	ug/L	50	41.6	83	17-195	
Chloroform	ug/L	50	45.5	91	73-134	
Chloromethane	ug/L	50	52.3	105	17-153	
cis-1,2-Dichloroethene	ug/L	50	50.4	101	68-129	
cis-1,3-Dichloropropene	ug/L	50	47.2	94	72-138	
Dibromochloromethane	ug/L	50	50.7	101	49-146	
Dichlorodifluoromethane	ug/L	50	46.5	93	10-179	
Ethylbenzene	ug/L	50	49.8	100	66-126	
Isopropylbenzene (Cumene)	ug/L	50	48.4	97	51-138	
m&p-Xylene	ug/L	100	105	105	65-129	
Methyl acetate	ug/L	50	47.4	95	20-142	
Methyl-tert-butyl ether	ug/L	50	45.9	92	37-166	
Methylene Chloride	ug/L	50	48.8	98	46-168	
o-Xylene	ug/L	50	53.1	106	65-124	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

LABORATORY CONTROL SAMPLE: 232279

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Styrene	ug/L	50	54.4	109	72-133	
Tetrachloroethene	ug/L	50	56.3	113	46-157	
Toluene	ug/L	50	48.5	97	69-126	
trans-1,2-Dichloroethene	ug/L	50	49.9	100	60-129	
trans-1,3-Dichloropropene	ug/L	50	46.0	92	59-149	
Trichloroethene	ug/L	50	49.6	99	67-132	
Trichlorofluoromethane	ug/L	50	66.8	134	39-171	
Vinyl chloride	ug/L	50	49.2	98	27-149	
4-Bromofluorobenzene (S)	%			103	68-124	
Dibromofluoromethane (S)	%			105	72-126	
Toluene-d8 (S)	%			98	79-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 232280 232281

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2037647002 Result	Spike Conc.	Spike Conc.	MS Result						
1,1,1-Trichloroethane	ug/L	ND	50	50	58.7	51.1	117	102	54-137	14	20
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	51.5	44.8	103	90	15-187	14	20
1,1,2-Trichloroethane	ug/L	ND	50	50	53.8	47.7	108	95	59-148	12	20
1,1-Dichloroethane	ug/L	ND	50	50	54.5	47.6	109	95	59-133	13	20
1,1-Dichloroethene	ug/L	ND	50	50	51.4	45.7	103	91	44-146	12	20
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	47.1	43.2	94	86	23-166	9	20
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	57.9	51.5	116	103	55-166	12	20
1,2-Dichloroethane	ug/L	ND	50	50	49.1	43.2	98	86	56-154	13	20
1,2-Dichloropropane	ug/L	ND	50	50	55.1	48.1	110	96	62-135	14	20
2-Butanone (MEK)	ug/L	ND	50	50	53.1	48.0	106	96	20-205	10	20
2-Hexanone	ug/L	ND	50	50	51.8	46.7	104	93	25-189	10	20
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	50	50.9	45.4	102	91	23-184	11	20
Acetone	ug/L	8.6	50	50	62.4	57.2	108	97	11-217	9	20
Benzene	ug/L	ND	50	50	56.2	48.5	112	97	52-141	15	20
Bromodichloromethane	ug/L	ND	50	50	51.2	44.6	102	89	70-134	14	20
Bromoform	ug/L	ND	50	50	57.7	51.0	115	102	37-171	12	20
Bromomethane	ug/L	ND	50	50	54.8	47.5	110	95	34-155	14	20
Carbon disulfide	ug/L	ND	50	50	53.7	44.6	107	89	28-130	19	20
Carbon tetrachloride	ug/L	ND	50	50	61.0	51.3	122	103	48-146	17	20
Chlorobenzene	ug/L	ND	50	50	59.8	51.8	120	104	67-129	14	20
Chloroethane	ug/L	ND	50	50	47.7	41.1	95	82	12-192	15	20
Chloroform	ug/L	ND	50	50	52.6	46.3	105	93	66-143	13	20
Chloromethane	ug/L	ND	50	50	59.8	51.1	119	101	14-155	16	20
cis-1,2-Dichloroethene	ug/L	ND	50	50	59.1	51.9	118	104	56-141	13	20
cis-1,3-Dichloropropene	ug/L	ND	50	50	54.4	47.7	109	95	70-139	13	20
Dibromochloromethane	ug/L	ND	50	50	58.5	52.1	117	104	50-150	12	20
Dichlorodifluoromethane	ug/L	ND	50	50	54.1	46.4	108	93	10-173	15	20
Ethylbenzene	ug/L	ND	50	50	56.8	49.6	114	99	57-135	13	20

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

Parameter	Units	232280		232281		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2037647002 Result	MS Spike Conc.	MSD Spike Conc.									
Isopropylbenzene (Cumene)	ug/L	ND	50	50	57.3	51.5	113	102	40-146	11	20		
m&p-Xylene	ug/L	ND	100	100	120	106	120	106	56-136	13	20		
Methyl acetate	ug/L	ND	50	50	51.4	45.4	103	91	10-142	12	20		
Methyl-tert-butyl ether	ug/L	ND	50	50	52.8	48.4	105	96	35-176	9	20		
Methylene Chloride	ug/L	ND	50	50	55.3	49.6	111	99	45-166	11	20		
o-Xylene	ug/L	ND	50	50	59.7	52.9	119	106	57-133	12	20		
Styrene	ug/L	ND	50	50	62.0	53.6	124	107	58-144	15	20		
Tetrachloroethene	ug/L	ND	50	50	65.3	57.4	131	115	48-143	13	20		
Toluene	ug/L	ND	50	50	56.5	48.7	113	97	59-136	15	20		
trans-1,2-Dichloroethene	ug/L	ND	50	50	59.6	50.8	119	102	57-132	16	20		
trans-1,3-Dichloropropene	ug/L	ND	50	50	53.6	47.0	107	94	59-154	13	20		
Trichloroethene	ug/L	ND	50	50	58.3	50.3	117	101	58-140	15	20		
Trichlorofluoromethane	ug/L	ND	50	50	76.6	66.5	153	133	24-175	14	20		
Vinyl chloride	ug/L	ND	50	50	57.5	49.8	115	100	21-150	14	20		
4-Bromofluorobenzene (S)	%.						103	103	68-124				
Dibromofluoromethane (S)	%.						107	107	72-126				
Toluene-d8 (S)	%.						99	99	79-119				

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037727

QC Batch: OEXT/9165 Analysis Method: EPA 8015B Modified  
QC Batch Method: EPA 3535 Analysis Description: EPA 8015 ORO  
Associated Lab Samples: 2037727001, 2037727003, 2037727004, 2037727005

METHOD BLANK: 232259 Matrix: Water  
Associated Lab Samples: 2037727001, 2037727003, 2037727004, 2037727005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	ND	0.25	06/09/16 11:53	
Oil Range Organics (>C28-C40)	mg/L	ND	0.50	06/09/16 11:53	
n-Pentacosane (S)	%	47	16-137	06/09/16 11:53	
o-Terphenyl (S)	%	51	10-121	06/09/16 11:53	

LABORATORY CONTROL SAMPLE: 232260

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	.4	ND	50	10-115	
n-Pentacosane (S)	%			63	16-137	
o-Terphenyl (S)	%			75	10-121	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 232261 232262

Parameter	Units	2037647002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diesel Range Organic (C10-C28)	mg/L	ND	.8	.8	0.98	0.88	72	58	10-122	11	20	
n-Pentacosane (S)	%						72	58	16-137			
o-Terphenyl (S)	%						99	85	10-121			

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

QC Batch:	OEXT/9201	Analysis Method:	EPA 8015B Modified
QC Batch Method:	EPA 3535	Analysis Description:	EPA 8015 ORO
Associated Lab Samples:	2037727002		

METHOD BLANK: 233193 Matrix: Water

Associated Lab Samples: 2037727002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	ND	0.25	06/13/16 12:48	
Oil Range Organics (>C28-C40)	mg/L	ND	0.50	06/13/16 12:48	
n-Pentacosane (S)	%	71	16-137	06/13/16 12:48	
o-Terphenyl (S)	%	70	10-121	06/13/16 12:48	

LABORATORY CONTROL SAMPLE: 233194

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	.4	ND	51	10-115	
n-Pentacosane (S)	%			72	16-137	
o-Terphenyl (S)	%			80	10-121	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037727

QC Batch: OEXT/9206 Analysis Method: EPA 8270 by SIM  
QC Batch Method: EPA 3510 Analysis Description: 8270 Water by SIM MSSV  
Associated Lab Samples: 2037727001, 2037727002, 2037727003, 2037727004, 2037727005

METHOD BLANK: 233338 Matrix: Water  
Associated Lab Samples: 2037727001, 2037727002, 2037727003, 2037727004, 2037727005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	06/13/16 15:04	
Anthracene	mg/L	ND	0.00010	06/13/16 15:04	
Benzo(a)anthracene	mg/L	ND	0.00010	06/13/16 15:04	
Benzo(a)pyrene	mg/L	ND	0.00010	06/13/16 15:04	
Benzo(b)fluoranthene	mg/L	ND	0.00010	06/13/16 15:04	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	06/13/16 15:04	
Benzo(k)fluoranthene	mg/L	ND	0.00010	06/13/16 15:04	
Chrysene	mg/L	ND	0.00010	06/13/16 15:04	
Fluoranthene	mg/L	ND	0.00010	06/13/16 15:04	
Fluorene	mg/L	ND	0.00010	06/13/16 15:04	
Naphthalene	mg/L	ND	0.00010	06/13/16 15:04	
Phenanthrene	mg/L	ND	0.00010	06/13/16 15:04	
Pyrene	mg/L	ND	0.00010	06/13/16 15:04	
2-Fluorobiphenyl (S)	%	77	25-150	06/13/16 15:04	
Terphenyl-d14 (S)	%	94	25-150	06/13/16 15:04	

LABORATORY CONTROL SAMPLE: 233339

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0026	64	35-150	
Anthracene	mg/L	.004	0.0031	77	35-150	
Benzo(a)anthracene	mg/L	.004	0.0029	72	35-150	
Benzo(a)pyrene	mg/L	.004	0.0030	75	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0032	81	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0030	75	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0031	77	35-150	
Chrysene	mg/L	.004	0.0030	75	35-150	
Fluoranthene	mg/L	.004	0.0030	76	35-150	
Fluorene	mg/L	.004	0.0026	66	35-150	
Naphthalene	mg/L	.004	0.0027	68	35-150	
Phenanthrene	mg/L	.004	0.0029	73	35-150	
Pyrene	mg/L	.004	0.0029	73	35-150	
2-Fluorobiphenyl (S)	%			87	25-150	
Terphenyl-d14 (S)	%			101	25-150	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

Parameter	Units	233340		233341		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Acenaphthene	mg/L	0.0011	.004	.004	0.0036	0.0042	65	78	35-150	14	20
Anthracene	mg/L	ND	.004	.004	0.0040	0.0043	97	104	35-150	7	20
Benzo(a)anthracene	mg/L	ND	.004	.004	0.0035	0.0039	86	96	35-150	11	20
Benzo(a)pyrene	mg/L	ND	.004	.004	0.0034	0.0037	86	93	35-150	8	20
Benzo(b)fluoranthene	mg/L	ND	.004	.004	0.0037	0.0038	92	95	35-150	3	20
Benzo(g,h,i)perylene	mg/L	ND	.004	.004	0.0033	0.0034	82	86	35-150	5	20
Benzo(k)fluoranthene	mg/L	ND	.004	.004	0.0036	0.0037	89	94	35-150	5	20
Chrysene	mg/L	ND	.004	.004	0.0035	0.0038	87	95	35-150	9	20
Fluoranthene	mg/L	ND	.004	.004	0.0037	0.0040	93	100	35-150	8	20
Fluorene	mg/L	ND	.004	.004	0.0030	0.0033	76	83	35-150	9	20
Naphthalene	mg/L	0.00048	.004	.004	0.0035	0.0040	75	89	35-150	14	20
Phenanthrene	mg/L	0.00074	.004	.004	0.0042	0.0045	86	94	35-150	7	20
Pyrene	mg/L	ND	.004	.004	0.0036	0.0038	89	95	35-150	7	20
2-Fluorobiphenyl (S)	%						75	82	25-150		20
Terphenyl-d14 (S)	%						92	100	25-150		20

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## QUALIFIERS

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037727

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.  
ND - Not Detected at or above adjusted reporting limit.  
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.  
MDL - Adjusted Method Detection Limit.  
PQL - Practical Quantitation Limit.  
RL - Reporting Limit.  
S - Surrogate  
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.  
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.  
LCS(D) - Laboratory Control Sample (Duplicate)  
MS(D) - Matrix Spike (Duplicate)  
DUP - Sample Duplicate  
RPD - Relative Percent Difference  
NC - Not Calculable.  
SG - Silica Gel - Clean-Up  
U - Indicates the compound was analyzed for, but not detected.  
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.  
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.  
TNI - The Nelac Institute

### LABORATORIES

PASI-N Pace Analytical Services - New Orleans

### BATCH QUALIFIERS

Batch: GCSV/6636

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### ANALYTE QUALIFIERS

P1 Routine initial sample volume or weight was not used for extraction, resulting in elevated reporting limits.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037727

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2037727001	EB-060616	EPA 3535	OEXT/9165	EPA 8015B Modified	GCSV/6617
2037727002	16C	EPA 3535	OEXT/9201	EPA 8015B Modified	GCSV/6636
2037727003	EB-102	EPA 3535	OEXT/9165	EPA 8015B Modified	GCSV/6617
2037727004	EB-103	EPA 3535	OEXT/9165	EPA 8015B Modified	GCSV/6617
2037727005	EB-104	EPA 3535	OEXT/9165	EPA 8015B Modified	GCSV/6617
2037727001	EB-060616	EPA 8015/8021	GCV/2848		
2037727002	16C	EPA 8015/8021	GCV/2848		
2037727003	EB-102	EPA 8015/8021	GCV/2848		
2037727004	EB-103	EPA 8015/8021	GCV/2848		
2037727005	EB-104	EPA 8015/8021	GCV/2848		
2037727006	FB-060616	EPA 8015/8021	GCV/2848		
2037727007	TRIP BLANK	EPA 8015/8021	GCV/2848		
2037727001	EB-060616	EPA 3010	MPRP/4343	EPA 6020	ICPM/1917
2037727002	16C	EPA 3010	MPRP/4343	EPA 6020	ICPM/1917
2037727003	EB-102	EPA 3010	MPRP/4343	EPA 6020	ICPM/1917
2037727004	EB-103	EPA 3010	MPRP/4343	EPA 6020	ICPM/1917
2037727005	EB-104	EPA 3010	MPRP/4343	EPA 6020	ICPM/1917
2037727001	EB-060616	EPA 7470	MERP/2752	EPA 7470	MERC/3376
2037727002	16C	EPA 7470	MERP/2752	EPA 7470	MERC/3376
2037727003	EB-102	EPA 7470	MERP/2752	EPA 7470	MERC/3376
2037727004	EB-103	EPA 7470	MERP/2752	EPA 7470	MERC/3376
2037727005	EB-104	EPA 7470	MERP/2752	EPA 7470	MERC/3376
2037727001	EB-060616	EPA 3510	OEXT/9206	EPA 8270 by SIM	MSSV/4064
2037727002	16C	EPA 3510	OEXT/9206	EPA 8270 by SIM	MSSV/4064
2037727003	EB-102	EPA 3510	OEXT/9206	EPA 8270 by SIM	MSSV/4064
2037727004	EB-103	EPA 3510	OEXT/9206	EPA 8270 by SIM	MSSV/4064
2037727005	EB-104	EPA 3510	OEXT/9206	EPA 8270 by SIM	MSSV/4064
2037727001	EB-060616	EPA 5030B/8260	MSV/5035		
2037727002	16C	EPA 5030B/8260	MSV/5035		
2037727003	EB-102	EPA 5030B/8260	MSV/5035		
2037727004	EB-103	EPA 5030B/8260	MSV/5035		
2037727005	EB-104	EPA 5030B/8260	MSV/5035		
2037727006	FB-060616	EPA 5030B/8260	MSV/5035		
2037727007	TRIP BLANK	EPA 5030B/8260	MSV/5035		

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WO#: 2037727

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A  
Required Client Inform



2037727

Section C  
Invoice Information:

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2035841

Company: <b>BBL Caube</b>	Report To: <b>Efrain Calderon</b>	Attention:
Address: <b>City View Plaza I ste 401, Guaynabo, PR</b>	Copy To:	Company Name:
Email To: <b>efrain-calderon@arcadis.com</b>	Purchase Order No.:	Address:
Phone: <b>787-777-4000 787-777-8085</b>	Project Name:	Pace Quote Reference:
Requested Due Date/TAT:	Project Number: <b>B0063767</b>	Pace Project Manager: <b>J Redondo</b>
		Pace Profile #: <b>7252</b>

REGULATORY AGENCY		
<input type="checkbox"/> NPDES	<input type="checkbox"/> GROUND WATER	<input type="checkbox"/> DRINKING WATER
<input type="checkbox"/> UST	<input type="checkbox"/> RCRA	<input type="checkbox"/> OTHER
Site Location: <b>Bayamon</b>	STATE: <b>PR</b>	

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓ Y/N	Residual Chlorine (Y/N)	Face Project No./ Lab I.D.
			COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other			
			DATE	TIME	DATE	TIME													
1	EB-060616	DWG	6/6/16	0830	6/6/16	0830	9	4											2037727
2	16C	DWG	6/6/16	0915	6/6/16	0915	9	4											
3	EB-102	DWG	6/6/16	0946	6/6/16	0946	9	4											
4	EB-103	DWG	6/6/16	1045	6/6/16	1045	11	6											
5	EB-104	DWG	6/6/16	1200	6/6/16	1200	11	6											
6	EB-060616	DWG	6/6/16	1205	6/6/16	1205	4												
7	TP blank	DWG	6/6/16	0700	6/6/16	0700	4												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Level IV	Melania Mercado Arcadis	6/6/16	12:45	J. P. Pace	6/6/16	12:45	30	Y	N	Y
	FedEx	6/7/16	12:00	J. P. Pace	6/6/16	830	3.2	Y	Y	Y
		6/8/16	830				4.1	Y	Y	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE		Temp C	Refrigerated on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Mariánela Mercado Burgos/Fernando Colon				
SIGNATURE OF SAMPLER:	[Signature]				
DATE Signed (MM/DD/YY):		6/6/16			

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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Sample Condition Upon Receipt

Urb. Jardines de Guaynabo
Calle Marginal Blq A-10
Guaynabo, PR 00988

WO#: 2037727

PM: JAR1

Due Date: 06/20/16

CLIENT: 98-ARCADISPR

Project #:

Courier: Pace Courier, Hired Courier, Fed X, UPS, DHL, USPS, Customer, Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes, No

Thermometer Used: Therm Fisher IR 4, Therm Fisher IR 6, Therm Fisher IR 7

Type of Ice: Wet, Blue, None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 6-7-16 [Signature]

Temp must be measured from Temperature blank when present

Comments:

Table with 15 rows and 3 columns: Question, Yes/No/N/A checkboxes, and Comments. Includes items like 'Temperature Blank Present?', 'Chain of Custody Present', etc.

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_



1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

### Sample Condition Upon Receipt

Project #: 20 37727

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 5  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 10-8-16 JMB

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15 <u>3 voa vials &gt; 6 mm</u>

#### Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

June 15, 2016

Efrain Calderon  
BBL Caribe Engineering P.S.C.  
48 City View Plaza1, Suite 401  
Road 16, Km. 1.2  
Guaynabo, PR 00968

RE: Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037731

Dear Efrain Calderon:

Enclosed are the analytical results for sample(s) received by the laboratory on June 07, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Juan Redondo  
juan.redondo@pacelabs.com  
Project Manager

Enclosures

cc: Sharon Colon  
Abner Hernandez  
Marianela Mercado-Burgos



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

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### New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:  
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):  
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):  
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):  
T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-  
00119

Commonwealth of Virginia (TNI): 480246

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2037731001	EB-060716	Water	06/07/16 10:35	06/07/16 13:40
2037731002	EB-105	Water	06/07/16 11:44	06/07/16 13:40
2037731003	EB-106	Water	06/07/16 12:43	06/07/16 13:40
2037731004	FB-060716	Water	06/07/16 12:45	06/07/16 13:40
2037731005	TRIP BLANK	Water	06/07/16 12:45	06/07/16 13:40

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2037731001	EB-060716	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2037731002	EB-105	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2037731003	EB-106	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2037731004	FB-060716	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2037731005	TRIP BLANK	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037731

---

**Method:** EPA 8015B Modified  
**Description:** 8015M DRO/ORO Organics  
**Client:** BBL Caribe / Arcadis PR  
**Date:** June 15, 2016

**General Information:**

3 samples were analyzed for EPA 8015B Modified. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3535 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

---

**Method:** EPA 8015/8021

**Description:** 8021 GCV BTEX, MTBE, GRO

**Client:** BBL Caribe / Arcadis PR

**Date:** June 15, 2016

**General Information:**

5 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

---

**Method:** EPA 6020

**Description:** 6020 MET ICPMS

**Client:** BBL Caribe / Arcadis PR

**Date:** June 15, 2016

**General Information:**

3 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

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**Method:** EPA 7470

**Description:** 7470 Mercury

**Client:** BBL Caribe / Arcadis PR

**Date:** June 15, 2016

**General Information:**

3 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

---

**Method:** EPA 8270 by SIM

**Description:** 8270 MSSV PAH by SIM SEP

**Client:** BBL Caribe / Arcadis PR

**Date:** June 15, 2016

**General Information:**

3 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: OEXT/9215

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

---

**Method:** EPA 5030B/8260

**Description:** 8260 MSV Low Level

**Client:** BBL Caribe / Arcadis PR

**Date:** June 15, 2016

**General Information:**

5 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

Sample: EB-060716	Lab ID: 2037731001	Collected: 06/07/16 10:35	Received: 06/07/16 13:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/08/16 11:41	06/09/16 19:00		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/08/16 11:41	06/09/16 19:00		
<b>Surrogates</b>								
n-Pentacosane (S)	48	%	16-137	1	06/08/16 11:41	06/09/16 19:00	629-99-2	
o-Terphenyl (S)	56	%	10-121	1	06/08/16 11:41	06/09/16 19:00	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/09/16 22:36		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	91	%	44-148	1		06/09/16 22:36	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:35	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:35	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:35	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/09/16 08:33	06/10/16 11:35	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/08/16 11:12	06/08/16 16:33	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:00	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:00	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:00	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:00	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:00	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:00	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:00	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:00	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:00	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:00	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:00	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:00	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:00	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	82	%	25-150	1	06/10/16 12:21	06/13/16 14:00	321-60-8	
Terphenyl-d14 (S)	102	%	25-150	1	06/10/16 12:21	06/13/16 14:00	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	11.1	ug/L	4.0	1		06/08/16 15:30	67-64-1	
Benzene	ND	ug/L	0.50	1		06/08/16 15:30	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/08/16 15:30	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/08/16 15:30	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/08/16 15:30	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/08/16 15:30	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/08/16 15:30	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

Sample: EB-060716	Lab ID: 2037731001	Collected: 06/07/16 10:35	Received: 06/07/16 13:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/08/16 15:30	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/08/16 15:30	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/08/16 15:30	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/08/16 15:30	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/08/16 15:30	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/08/16 15:30	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/08/16 15:30	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/08/16 15:30	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/08/16 15:30	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/08/16 15:30	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/08/16 15:30	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/08/16 15:30	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/08/16 15:30	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/08/16 15:30	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/08/16 15:30	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/08/16 15:30	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 15:30	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 15:30	10061-02-6	
Ethanol	ND	ug/L	500	1		06/08/16 15:30	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/08/16 15:30	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/08/16 15:30	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/08/16 15:30	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/08/16 15:30	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/08/16 15:30	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/08/16 15:30	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/08/16 15:30	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/08/16 15:30	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/08/16 15:30	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/08/16 15:30	127-18-4	
Toluene	ND	ug/L	0.50	1		06/08/16 15:30	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/08/16 15:30	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/08/16 15:30	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/08/16 15:30	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/08/16 15:30	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/08/16 15:30	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/08/16 15:30	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/08/16 15:30	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	101	%	72-126	1		06/08/16 15:30	1868-53-7	
4-Bromofluorobenzene (S)	100	%	68-124	1		06/08/16 15:30	460-00-4	
Toluene-d8 (S)	96	%	79-119	1		06/08/16 15:30	2037-26-5	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

Sample: EB-105	Lab ID: 2037731002	Collected: 06/07/16 11:44	Received: 06/07/16 13:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/08/16 11:41	06/09/16 19:28		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/08/16 11:41	06/09/16 19:28		
<b>Surrogates</b>								
n-Pentacosane (S)	44	%	16-137	1	06/08/16 11:41	06/09/16 19:28	629-99-2	
o-Terphenyl (S)	66	%	10-121	1	06/08/16 11:41	06/09/16 19:28	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/09/16 22:09		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	90	%	44-148	1		06/09/16 22:09	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	<b>0.013</b>	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:38	7440-38-2	
Chromium	<b>0.026</b>	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:38	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:38	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/09/16 08:33	06/10/16 11:38	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/08/16 11:12	06/08/16 16:35	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:22	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:22	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:22	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:22	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:22	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:22	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:22	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:22	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:22	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:22	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:22	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:22	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:22	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	78	%	25-150	1	06/10/16 12:21	06/13/16 14:22	321-60-8	
Terphenyl-d14 (S)	90	%	25-150	1	06/10/16 12:21	06/13/16 14:22	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	<b>8.3</b>	ug/L	4.0	1		06/08/16 15:48	67-64-1	
Benzene	ND	ug/L	0.50	1		06/08/16 15:48	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/08/16 15:48	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/08/16 15:48	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/08/16 15:48	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/08/16 15:48	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/08/16 15:48	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

Sample: EB-105	Lab ID: 2037731002	Collected: 06/07/16 11:44	Received: 06/07/16 13:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/08/16 15:48	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/08/16 15:48	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/08/16 15:48	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/08/16 15:48	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/08/16 15:48	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/08/16 15:48	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/08/16 15:48	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/08/16 15:48	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/08/16 15:48	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/08/16 15:48	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/08/16 15:48	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/08/16 15:48	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/08/16 15:48	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/08/16 15:48	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/08/16 15:48	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/08/16 15:48	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 15:48	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 15:48	10061-02-6	
Ethanol	ND	ug/L	500	1		06/08/16 15:48	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/08/16 15:48	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/08/16 15:48	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/08/16 15:48	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/08/16 15:48	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/08/16 15:48	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/08/16 15:48	108-10-1	
Methyl-tert-butyl ether	7.4	ug/L	0.50	1		06/08/16 15:48	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/08/16 15:48	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/08/16 15:48	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/08/16 15:48	127-18-4	
Toluene	ND	ug/L	0.50	1		06/08/16 15:48	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/08/16 15:48	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/08/16 15:48	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/08/16 15:48	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/08/16 15:48	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/08/16 15:48	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/08/16 15:48	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/08/16 15:48	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	102	%	72-126	1		06/08/16 15:48	1868-53-7	
4-Bromofluorobenzene (S)	101	%	68-124	1		06/08/16 15:48	460-00-4	
Toluene-d8 (S)	98	%	79-119	1		06/08/16 15:48	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

Sample: EB-106	Lab ID: 2037731003	Collected: 06/07/16 12:43	Received: 06/07/16 13:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	0.80	mg/L	0.50	1	06/08/16 11:41	06/09/16 19:56		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/08/16 11:41	06/09/16 19:56		
<b>Surrogates</b>								
n-Pentacosane (S)	74	%	16-137	1	06/08/16 11:41	06/09/16 19:56	629-99-2	
o-Terphenyl (S)	94	%	10-121	1	06/08/16 11:41	06/09/16 19:56	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/10/16 01:44		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	92	%	44-148	1		06/10/16 01:44	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	0.0031	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:42	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:42	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/09/16 08:33	06/10/16 11:42	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/09/16 08:33	06/10/16 11:42	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/08/16 11:12	06/08/16 16:37	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:43	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:43	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:43	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:43	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:43	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:43	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:43	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:43	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:43	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:43	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:43	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:43	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/10/16 12:21	06/13/16 14:43	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	78	%	25-150	1	06/10/16 12:21	06/13/16 14:43	321-60-8	
Terphenyl-d14 (S)	90	%	25-150	1	06/10/16 12:21	06/13/16 14:43	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	11.6	ug/L	4.0	1		06/08/16 16:06	67-64-1	
Benzene	ND	ug/L	0.50	1		06/08/16 16:06	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/08/16 16:06	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/08/16 16:06	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/08/16 16:06	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/08/16 16:06	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/08/16 16:06	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

Sample: EB-106	Lab ID: 2037731003	Collected: 06/07/16 12:43	Received: 06/07/16 13:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/08/16 16:06	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/08/16 16:06	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/08/16 16:06	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/08/16 16:06	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/08/16 16:06	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/08/16 16:06	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/08/16 16:06	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/08/16 16:06	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/08/16 16:06	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/08/16 16:06	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/08/16 16:06	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/08/16 16:06	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/08/16 16:06	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/08/16 16:06	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/08/16 16:06	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/08/16 16:06	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 16:06	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 16:06	10061-02-6	
Ethanol	ND	ug/L	500	1		06/08/16 16:06	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/08/16 16:06	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/08/16 16:06	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/08/16 16:06	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/08/16 16:06	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/08/16 16:06	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/08/16 16:06	108-10-1	
Methyl-tert-butyl ether	4.2	ug/L	0.50	1		06/08/16 16:06	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/08/16 16:06	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/08/16 16:06	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/08/16 16:06	127-18-4	
Toluene	ND	ug/L	0.50	1		06/08/16 16:06	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/08/16 16:06	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/08/16 16:06	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/08/16 16:06	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/08/16 16:06	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/08/16 16:06	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/08/16 16:06	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/08/16 16:06	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	102	%	72-126	1		06/08/16 16:06	1868-53-7	
4-Bromofluorobenzene (S)	100	%	68-124	1		06/08/16 16:06	460-00-4	
Toluene-d8 (S)	98	%	79-119	1		06/08/16 16:06	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

Sample: FB-060716	Lab ID: 2037731004	Collected: 06/07/16 12:45	Received: 06/07/16 13:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>	Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		06/10/16 02:10		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	91	%	44-148	1		06/10/16 02:10	460-00-4	
<b>8260 MSV Low Level</b>	Analytical Method: EPA 5030B/8260							
Acetone	15.0	ug/L	4.0	1		06/08/16 16:24	67-64-1	
Benzene	ND	ug/L	0.50	1		06/08/16 16:24	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/08/16 16:24	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/08/16 16:24	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/08/16 16:24	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/08/16 16:24	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/08/16 16:24	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/08/16 16:24	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/08/16 16:24	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/08/16 16:24	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/08/16 16:24	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/08/16 16:24	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/08/16 16:24	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/08/16 16:24	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/08/16 16:24	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/08/16 16:24	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/08/16 16:24	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/08/16 16:24	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/08/16 16:24	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/08/16 16:24	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/08/16 16:24	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/08/16 16:24	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/08/16 16:24	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 16:24	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 16:24	10061-02-6	
Ethanol	ND	ug/L	500	1		06/08/16 16:24	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/08/16 16:24	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/08/16 16:24	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/08/16 16:24	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/08/16 16:24	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/08/16 16:24	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/08/16 16:24	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/08/16 16:24	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/08/16 16:24	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/08/16 16:24	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/08/16 16:24	127-18-4	
Toluene	ND	ug/L	0.50	1		06/08/16 16:24	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/08/16 16:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/08/16 16:24	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/08/16 16:24	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/08/16 16:24	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/08/16 16:24	75-01-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

Sample: FB-060716		Lab ID: 2037731004		Collected: 06/07/16 12:45		Received: 06/07/16 13:40		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
m&p-Xylene	ND	ug/L	2.0	1		06/08/16 16:24	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		06/08/16 16:24	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	102	%	72-126	1		06/08/16 16:24	1868-53-7		
4-Bromofluorobenzene (S)	101	%	68-124	1		06/08/16 16:24	460-00-4		
Toluene-d8 (S)	97	%	79-119	1		06/08/16 16:24	2037-26-5		

Sample: TRIP BLANK		Lab ID: 2037731005		Collected: 06/07/16 12:45		Received: 06/07/16 13:40		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		06/10/16 02:37			
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	92	%	44-148	1		06/10/16 02:37	460-00-4		
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Acetone	136	ug/L	4.0	1		06/08/16 16:41	67-64-1		
Benzene	ND	ug/L	0.50	1		06/08/16 16:41	71-43-2		
Bromodichloromethane	ND	ug/L	0.50	1		06/08/16 16:41	75-27-4		
Bromoform	ND	ug/L	0.50	1		06/08/16 16:41	75-25-2		
Bromomethane	ND	ug/L	0.50	1		06/08/16 16:41	74-83-9		
2-Butanone (MEK)	ND	ug/L	2.0	1		06/08/16 16:41	78-93-3		
tert-Butyl Alcohol	ND	ug/L	200	1		06/08/16 16:41	75-65-0		
Carbon disulfide	ND	ug/L	1.0	1		06/08/16 16:41	75-15-0		
Carbon tetrachloride	ND	ug/L	0.50	1		06/08/16 16:41	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		06/08/16 16:41	108-90-7		
Chloroethane	ND	ug/L	0.50	1		06/08/16 16:41	75-00-3		
Chloroform	1.3	ug/L	0.50	1		06/08/16 16:41	67-66-3		
Chloromethane	0.51	ug/L	0.50	1		06/08/16 16:41	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/08/16 16:41	96-12-8		
Dibromochloromethane	ND	ug/L	0.50	1		06/08/16 16:41	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/08/16 16:41	106-93-4		
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/08/16 16:41	75-71-8		
1,1-Dichloroethane	ND	ug/L	0.50	1		06/08/16 16:41	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		06/08/16 16:41	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		06/08/16 16:41	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/08/16 16:41	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/08/16 16:41	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		06/08/16 16:41	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 16:41	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/08/16 16:41	10061-02-6		
Ethanol	ND	ug/L	500	1		06/08/16 16:41	64-17-5		
Ethylbenzene	ND	ug/L	0.50	1		06/08/16 16:41	100-41-4		
2-Hexanone	ND	ug/L	1.0	1		06/08/16 16:41	591-78-6		
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/08/16 16:41	98-82-8		

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

Sample: TRIP BLANK	Lab ID: 2037731005	Collected: 06/07/16 12:45	Received: 06/07/16 13:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>	Analytical Method: EPA 5030B/8260							
Methyl acetate	ND	ug/L	2.0	1		06/08/16 16:41	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/08/16 16:41	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/08/16 16:41	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/08/16 16:41	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/08/16 16:41	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/08/16 16:41	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/08/16 16:41	127-18-4	
Toluene	ND	ug/L	0.50	1		06/08/16 16:41	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/08/16 16:41	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/08/16 16:41	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/08/16 16:41	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/08/16 16:41	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/08/16 16:41	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/08/16 16:41	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/08/16 16:41	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	102	%.	72-126	1		06/08/16 16:41	1868-53-7	
4-Bromofluorobenzene (S)	101	%.	68-124	1		06/08/16 16:41	460-00-4	
Toluene-d8 (S)	96	%.	79-119	1		06/08/16 16:41	2037-26-5	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037731

QC Batch: GCV/2848 Analysis Method: EPA 8015/8021  
QC Batch Method: EPA 8015/8021 Analysis Description: 8021 W GCV BTEX , MTBE, GRO  
Associated Lab Samples: 2037731001, 2037731002, 2037731003, 2037731004, 2037731005

METHOD BLANK: 232417 Matrix: Water  
Associated Lab Samples: 2037731001, 2037731002, 2037731003, 2037731004, 2037731005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	06/09/16 14:00	
4-Bromofluorobenzene (S)	%.	91	44-148	06/09/16 14:00	

LABORATORY CONTROL SAMPLE: 232418

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	410	82	61-136	
4-Bromofluorobenzene (S)	%.			92	44-148	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 232419 232420

Parameter	Units	2037647002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Gasoline Range Organics	ug/L	ND	500	500	440	411	81	75	15-147	7	20	
4-Bromofluorobenzene (S)	%.						93	95	44-148			

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037731

QC Batch: MERP/2752 Analysis Method: EPA 7470  
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
Associated Lab Samples: 2037731001, 2037731002, 2037731003

METHOD BLANK: 232311 Matrix: Water  
Associated Lab Samples: 2037731001, 2037731002, 2037731003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	06/08/16 15:52	

LABORATORY CONTROL SAMPLE: 232312

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	1.0	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 232313 232314

Parameter	Units	2037647002 Result	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	Conc.	Spike Conc.	Conc.	% Rec	% Rec						
Mercury	ug/L	ND	1	1	0.86	0.87	86	87	75-125	1	20			

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037731

QC Batch: MPRP/4343 Analysis Method: EPA 6020  
QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
Associated Lab Samples: 2037731001, 2037731002, 2037731003

METHOD BLANK: 232714 Matrix: Water  
Associated Lab Samples: 2037731001, 2037731002, 2037731003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	06/10/16 09:11	
Chromium	mg/L	ND	0.0010	06/10/16 09:11	
Lead	mg/L	ND	0.0010	06/10/16 09:11	
Vanadium	mg/L	ND	0.0050	06/10/16 09:11	

LABORATORY CONTROL SAMPLE: 232715

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.02	0.020	98	83-115	
Chromium	mg/L	.02	0.019	97	85-115	
Lead	mg/L	.02	0.019	97	84-115	
Vanadium	mg/L	.02	0.019	97	81-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 232716 232717

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2037647002 Result	Spike Conc.	Spike Conc.	Result						
Arsenic	mg/L	0.0013	.02	.02	0.020	0.020	95	94	80-120	0	20
Chromium	mg/L	ND	.02	.02	0.019	0.019	95	95	80-120	1	20
Lead	mg/L	ND	.02	.02	0.019	0.020	97	98	80-120	1	20
Vanadium	mg/L	ND	.02	.02	0.019	0.019	95	95	80-120	0	20

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

QC Batch: MSV/5035 Analysis Method: EPA 5030B/8260  
 QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Low Level  
 Associated Lab Samples: 2037731001, 2037731002, 2037731003, 2037731004, 2037731005

METHOD BLANK: 232278 Matrix: Water  
 Associated Lab Samples: 2037731001, 2037731002, 2037731003, 2037731004, 2037731005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	06/08/16 09:52	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	06/08/16 09:52	
1,1,2-Trichloroethane	ug/L	ND	0.50	06/08/16 09:52	
1,1-Dichloroethane	ug/L	ND	0.50	06/08/16 09:52	
1,1-Dichloroethene	ug/L	ND	0.50	06/08/16 09:52	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	06/08/16 09:52	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	06/08/16 09:52	
1,2-Dichloroethane	ug/L	ND	0.50	06/08/16 09:52	
1,2-Dichloropropane	ug/L	ND	0.50	06/08/16 09:52	
2-Butanone (MEK)	ug/L	ND	2.0	06/08/16 09:52	
2-Hexanone	ug/L	ND	1.0	06/08/16 09:52	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	06/08/16 09:52	
Acetone	ug/L	ND	4.0	06/08/16 09:52	
Benzene	ug/L	ND	0.50	06/08/16 09:52	
Bromodichloromethane	ug/L	ND	0.50	06/08/16 09:52	
Bromoform	ug/L	ND	0.50	06/08/16 09:52	
Bromomethane	ug/L	ND	0.50	06/08/16 09:52	
Carbon disulfide	ug/L	ND	1.0	06/08/16 09:52	
Carbon tetrachloride	ug/L	ND	0.50	06/08/16 09:52	
Chlorobenzene	ug/L	ND	0.50	06/08/16 09:52	
Chloroethane	ug/L	ND	0.50	06/08/16 09:52	
Chloroform	ug/L	ND	0.50	06/08/16 09:52	
Chloromethane	ug/L	ND	0.50	06/08/16 09:52	
cis-1,2-Dichloroethene	ug/L	ND	1.0	06/08/16 09:52	
cis-1,3-Dichloropropene	ug/L	ND	0.50	06/08/16 09:52	
Dibromochloromethane	ug/L	ND	0.50	06/08/16 09:52	
Dichlorodifluoromethane	ug/L	ND	1.0	06/08/16 09:52	
Ethanol	ug/L	ND	500	06/08/16 09:52	
Ethylbenzene	ug/L	ND	0.50	06/08/16 09:52	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	06/08/16 09:52	
m&p-Xylene	ug/L	ND	2.0	06/08/16 09:52	
Methyl acetate	ug/L	ND	2.0	06/08/16 09:52	
Methyl-tert-butyl ether	ug/L	ND	0.50	06/08/16 09:52	
Methylene Chloride	ug/L	ND	0.50	06/08/16 09:52	
o-Xylene	ug/L	ND	1.0	06/08/16 09:52	
Styrene	ug/L	ND	1.0	06/08/16 09:52	
tert-Butyl Alcohol	ug/L	ND	200	06/08/16 09:52	
Tetrachloroethene	ug/L	ND	0.50	06/08/16 09:52	
Toluene	ug/L	ND	0.50	06/08/16 09:52	
trans-1,2-Dichloroethene	ug/L	ND	0.50	06/08/16 09:52	
trans-1,3-Dichloropropene	ug/L	ND	0.50	06/08/16 09:52	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

METHOD BLANK: 232278

Matrix: Water

Associated Lab Samples: 2037731001, 2037731002, 2037731003, 2037731004, 2037731005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	0.50	06/08/16 09:52	
Trichlorofluoromethane	ug/L	ND	0.50	06/08/16 09:52	
Vinyl chloride	ug/L	ND	0.50	06/08/16 09:52	
4-Bromofluorobenzene (S)	%	99	68-124	06/08/16 09:52	
Dibromofluoromethane (S)	%	104	72-126	06/08/16 09:52	
Toluene-d8 (S)	%	96	79-119	06/08/16 09:52	

LABORATORY CONTROL SAMPLE: 232279

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	49.7	99	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	45.3	91	15-179	
1,1,2-Trichloroethane	ug/L	50	46.3	93	58-144	
1,1-Dichloroethane	ug/L	50	47.4	95	63-129	
1,1-Dichloroethene	ug/L	50	47.2	94	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	41.6	83	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	50.0	100	52-161	
1,2-Dichloroethane	ug/L	50	43.9	88	57-148	
1,2-Dichloropropane	ug/L	50	47.8	96	66-128	
2-Butanone (MEK)	ug/L	50	50.1	100	32-183	
2-Hexanone	ug/L	50	48.2	96	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	45.7	91	26-171	
Acetone	ug/L	50	54.4	109	22-165	
Benzene	ug/L	50	48.5	97	62-131	
Bromodichloromethane	ug/L	50	44.8	90	69-132	
Bromoform	ug/L	50	50.2	100	35-166	
Bromomethane	ug/L	50	50.5	101	34-158	
Carbon disulfide	ug/L	50	46.4	93	31-128	
Carbon tetrachloride	ug/L	50	53.4	107	54-144	
Chlorobenzene	ug/L	50	52.2	104	70-127	
Chloroethane	ug/L	50	41.6	83	17-195	
Chloroform	ug/L	50	45.5	91	73-134	
Chloromethane	ug/L	50	52.3	105	17-153	
cis-1,2-Dichloroethene	ug/L	50	50.4	101	68-129	
cis-1,3-Dichloropropene	ug/L	50	47.2	94	72-138	
Dibromochloromethane	ug/L	50	50.7	101	49-146	
Dichlorodifluoromethane	ug/L	50	46.5	93	10-179	
Ethylbenzene	ug/L	50	49.8	100	66-126	
Isopropylbenzene (Cumene)	ug/L	50	48.4	97	51-138	
m&p-Xylene	ug/L	100	105	105	65-129	
Methyl acetate	ug/L	50	47.4	95	20-142	
Methyl-tert-butyl ether	ug/L	50	45.9	92	37-166	
Methylene Chloride	ug/L	50	48.8	98	46-168	
o-Xylene	ug/L	50	53.1	106	65-124	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

LABORATORY CONTROL SAMPLE: 232279

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Styrene	ug/L	50	54.4	109	72-133	
Tetrachloroethene	ug/L	50	56.3	113	46-157	
Toluene	ug/L	50	48.5	97	69-126	
trans-1,2-Dichloroethene	ug/L	50	49.9	100	60-129	
trans-1,3-Dichloropropene	ug/L	50	46.0	92	59-149	
Trichloroethene	ug/L	50	49.6	99	67-132	
Trichlorofluoromethane	ug/L	50	66.8	134	39-171	
Vinyl chloride	ug/L	50	49.2	98	27-149	
4-Bromofluorobenzene (S)	%			103	68-124	
Dibromofluoromethane (S)	%			105	72-126	
Toluene-d8 (S)	%			98	79-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 232280 232281

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2037647002 Result	Spike Conc.	Spike Conc.	MS Result						
1,1,1-Trichloroethane	ug/L	ND	50	50	58.7	51.1	117	102	54-137	14	20
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	51.5	44.8	103	90	15-187	14	20
1,1,2-Trichloroethane	ug/L	ND	50	50	53.8	47.7	108	95	59-148	12	20
1,1-Dichloroethane	ug/L	ND	50	50	54.5	47.6	109	95	59-133	13	20
1,1-Dichloroethene	ug/L	ND	50	50	51.4	45.7	103	91	44-146	12	20
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	47.1	43.2	94	86	23-166	9	20
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	57.9	51.5	116	103	55-166	12	20
1,2-Dichloroethane	ug/L	ND	50	50	49.1	43.2	98	86	56-154	13	20
1,2-Dichloropropane	ug/L	ND	50	50	55.1	48.1	110	96	62-135	14	20
2-Butanone (MEK)	ug/L	ND	50	50	53.1	48.0	106	96	20-205	10	20
2-Hexanone	ug/L	ND	50	50	51.8	46.7	104	93	25-189	10	20
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	50	50.9	45.4	102	91	23-184	11	20
Acetone	ug/L	8.6	50	50	62.4	57.2	108	97	11-217	9	20
Benzene	ug/L	ND	50	50	56.2	48.5	112	97	52-141	15	20
Bromodichloromethane	ug/L	ND	50	50	51.2	44.6	102	89	70-134	14	20
Bromoform	ug/L	ND	50	50	57.7	51.0	115	102	37-171	12	20
Bromomethane	ug/L	ND	50	50	54.8	47.5	110	95	34-155	14	20
Carbon disulfide	ug/L	ND	50	50	53.7	44.6	107	89	28-130	19	20
Carbon tetrachloride	ug/L	ND	50	50	61.0	51.3	122	103	48-146	17	20
Chlorobenzene	ug/L	ND	50	50	59.8	51.8	120	104	67-129	14	20
Chloroethane	ug/L	ND	50	50	47.7	41.1	95	82	12-192	15	20
Chloroform	ug/L	ND	50	50	52.6	46.3	105	93	66-143	13	20
Chloromethane	ug/L	ND	50	50	59.8	51.1	119	101	14-155	16	20
cis-1,2-Dichloroethene	ug/L	ND	50	50	59.1	51.9	118	104	56-141	13	20
cis-1,3-Dichloropropene	ug/L	ND	50	50	54.4	47.7	109	95	70-139	13	20
Dibromochloromethane	ug/L	ND	50	50	58.5	52.1	117	104	50-150	12	20
Dichlorodifluoromethane	ug/L	ND	50	50	54.1	46.4	108	93	10-173	15	20
Ethylbenzene	ug/L	ND	50	50	56.8	49.6	114	99	57-135	13	20

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

Parameter	Units	2037647002		232280		232281		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Isopropylbenzene (Cumene)	ug/L	ND	50	50	57.3	51.5	113	102	40-146	11	20		
m&p-Xylene	ug/L	ND	100	100	120	106	120	106	56-136	13	20		
Methyl acetate	ug/L	ND	50	50	51.4	45.4	103	91	10-142	12	20		
Methyl-tert-butyl ether	ug/L	ND	50	50	52.8	48.4	105	96	35-176	9	20		
Methylene Chloride	ug/L	ND	50	50	55.3	49.6	111	99	45-166	11	20		
o-Xylene	ug/L	ND	50	50	59.7	52.9	119	106	57-133	12	20		
Styrene	ug/L	ND	50	50	62.0	53.6	124	107	58-144	15	20		
Tetrachloroethene	ug/L	ND	50	50	65.3	57.4	131	115	48-143	13	20		
Toluene	ug/L	ND	50	50	56.5	48.7	113	97	59-136	15	20		
trans-1,2-Dichloroethene	ug/L	ND	50	50	59.6	50.8	119	102	57-132	16	20		
trans-1,3-Dichloropropene	ug/L	ND	50	50	53.6	47.0	107	94	59-154	13	20		
Trichloroethene	ug/L	ND	50	50	58.3	50.3	117	101	58-140	15	20		
Trichlorofluoromethane	ug/L	ND	50	50	76.6	66.5	153	133	24-175	14	20		
Vinyl chloride	ug/L	ND	50	50	57.5	49.8	115	100	21-150	14	20		
4-Bromofluorobenzene (S)	%.						103	103	68-124				
Dibromofluoromethane (S)	%.						107	107	72-126				
Toluene-d8 (S)	%.						99	99	79-119				

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037731

QC Batch: OEXT/9165 Analysis Method: EPA 8015B Modified  
QC Batch Method: EPA 3535 Analysis Description: EPA 8015 ORO  
Associated Lab Samples: 2037731001, 2037731002, 2037731003

METHOD BLANK: 232259 Matrix: Water  
Associated Lab Samples: 2037731001, 2037731002, 2037731003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	ND	0.25	06/09/16 11:53	
Oil Range Organics (>C28-C40)	mg/L	ND	0.50	06/09/16 11:53	
n-Pentacosane (S)	%	47	16-137	06/09/16 11:53	
o-Terphenyl (S)	%	51	10-121	06/09/16 11:53	

LABORATORY CONTROL SAMPLE: 232260

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	.4	ND	50	10-115	
n-Pentacosane (S)	%			63	16-137	
o-Terphenyl (S)	%			75	10-121	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 232261 232262

Parameter	Units	2037647002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diesel Range Organic (C10-C28)	mg/L	ND	.8	.8	0.98	0.88	72	58	10-122	11	20	
n-Pentacosane (S)	%						72	58	16-137			
o-Terphenyl (S)	%						99	85	10-121			

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL B0063767  
Pace Project No.: 2037731

QC Batch: OEXT/9215 Analysis Method: EPA 8270 by SIM  
QC Batch Method: EPA 3510 Analysis Description: 8270 Water by SIM MSSV  
Associated Lab Samples: 2037731001, 2037731002, 2037731003

METHOD BLANK: 233459 Matrix: Water  
Associated Lab Samples: 2037731001, 2037731002, 2037731003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	06/13/16 11:51	
Anthracene	mg/L	ND	0.00010	06/13/16 11:51	
Benzo(a)anthracene	mg/L	ND	0.00010	06/13/16 11:51	
Benzo(a)pyrene	mg/L	ND	0.00010	06/13/16 11:51	
Benzo(b)fluoranthene	mg/L	ND	0.00010	06/13/16 11:51	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	06/13/16 11:51	
Benzo(k)fluoranthene	mg/L	ND	0.00010	06/13/16 11:51	
Chrysene	mg/L	ND	0.00010	06/13/16 11:51	
Fluoranthene	mg/L	ND	0.00010	06/13/16 11:51	
Fluorene	mg/L	ND	0.00010	06/13/16 11:51	
Naphthalene	mg/L	ND	0.00010	06/13/16 11:51	
Phenanthrene	mg/L	ND	0.00010	06/13/16 11:51	
Pyrene	mg/L	ND	0.00010	06/13/16 11:51	
2-Fluorobiphenyl (S)	%	78	25-150	06/13/16 11:51	
Terphenyl-d14 (S)	%	96	25-150	06/13/16 11:51	

LABORATORY CONTROL SAMPLE: 233460

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0023	57	35-150	
Anthracene	mg/L	.004	0.0028	69	35-150	
Benzo(a)anthracene	mg/L	.004	0.0026	64	35-150	
Benzo(a)pyrene	mg/L	.004	0.0026	66	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0028	69	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0025	62	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0027	68	35-150	
Chrysene	mg/L	.004	0.0027	67	35-150	
Fluoranthene	mg/L	.004	0.0027	69	35-150	
Fluorene	mg/L	.004	0.0023	58	35-150	
Naphthalene	mg/L	.004	0.0024	61	35-150	
Phenanthrene	mg/L	.004	0.0026	65	35-150	
Pyrene	mg/L	.004	0.0026	64	35-150	
2-Fluorobiphenyl (S)	%			74	25-150	
Terphenyl-d14 (S)	%			86	25-150	

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## QUALIFIERS

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The Nelac Institute

### LABORATORIES

PASI-N Pace Analytical Services - New Orleans

### BATCH QUALIFIERS

Batch: MSSV/4063

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PUMA TERMINAL B0063767

Pace Project No.: 2037731

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2037731001	EB-060716	EPA 3535	OEXT/9165	EPA 8015B Modified	GCSV/6617
2037731002	EB-105	EPA 3535	OEXT/9165	EPA 8015B Modified	GCSV/6617
2037731003	EB-106	EPA 3535	OEXT/9165	EPA 8015B Modified	GCSV/6617
2037731001	EB-060716	EPA 8015/8021	GCV/2848		
2037731002	EB-105	EPA 8015/8021	GCV/2848		
2037731003	EB-106	EPA 8015/8021	GCV/2848		
2037731004	FB-060716	EPA 8015/8021	GCV/2848		
2037731005	TRIP BLANK	EPA 8015/8021	GCV/2848		
2037731001	EB-060716	EPA 3010	MPRP/4343	EPA 6020	ICPM/1917
2037731002	EB-105	EPA 3010	MPRP/4343	EPA 6020	ICPM/1917
2037731003	EB-106	EPA 3010	MPRP/4343	EPA 6020	ICPM/1917
2037731001	EB-060716	EPA 7470	MERP/2752	EPA 7470	MERC/3376
2037731002	EB-105	EPA 7470	MERP/2752	EPA 7470	MERC/3376
2037731003	EB-106	EPA 7470	MERP/2752	EPA 7470	MERC/3376
2037731001	EB-060716	EPA 3510	OEXT/9215	EPA 8270 by SIM	MSSV/4063
2037731002	EB-105	EPA 3510	OEXT/9215	EPA 8270 by SIM	MSSV/4063
2037731003	EB-106	EPA 3510	OEXT/9215	EPA 8270 by SIM	MSSV/4063
2037731001	EB-060716	EPA 5030B/8260	MSV/5035		
2037731002	EB-105	EPA 5030B/8260	MSV/5035		
2037731003	EB-106	EPA 5030B/8260	MSV/5035		
2037731004	FB-060716	EPA 5030B/8260	MSV/5035		
2037731005	TRIP BLANK	EPA 5030B/8260	MSV/5035		

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WO#: 2037731

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information

2037731

Section C Invoice Information:

Page: 1 of 11
2035840

Company: BOL Cambi Arados
Address: City View Plaza I
Email: chain-caldern@arados.com
Project Name: Puma Terminal MW Sample

REGULATORY AGENCY
NPDES GROUND WATER DRINKING WATER
UST RCRA OTHER
Site Location: Bayamon PR
STATE: PR

Table with columns: Section D, Matrix Codes, COLLECTED, Preservatives, Analysis Test, Residual Chlorine. Includes handwritten data for samples EB-060716, EB-105, EB-106, EB-060716, Trip blank.

Table with columns: ADDITIONAL COMMENTS, RELINQUISHED BY / AFFILIATION, DATE, TIME, ACCEPTED BY / AFFILIATION, DATE, TIME, SAMPLE CONDITIONS. Includes handwritten signatures and dates.

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER:
SIGNATURE of SAMPLER:
DATE Signed: 6/7/16



Urb. Jardines de Guaynabo  
Calle Marginal Bldg A-10  
Guaynabo, PR 00969

Sample Condition Upon Receipt

WO#: 2037731

PM: JAR1

Due Date: 06/21/16

CLIENT: 98-ARCADISPR

Project #

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 4  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 6-21-16 JJS

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	1	
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14	
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15	

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_



1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

### Sample Condition Upon Receipt

Project #: 20 37731

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 5  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 6-8-16 JMB

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	1
Chain of Custody Present: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G). <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____	
Headspace in VOA Vials (>6mm): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14
Trip Blank Present: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15 <u>4 voa vials &gt; 6mm</u>

#### Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



June 28, 2016

Efrain Calderon  
BBL Caribe Engineering P.S.C.  
48 City View Plaza1, Suite 401  
Road 16, Km. 1.2  
Guaynabo, PR 00968

RE: Project: B0063767  
Pace Project No.: 2038028

Dear Efrain Calderon:

Enclosed are the analytical results for sample(s) received by the laboratory on June 10, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Juan Redondo  
juan.redondo@pacelabs.com  
Project Manager

Enclosures

cc: Sharon Colon  
Abner Hernandez  
Marianela Mercado-Burgos



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## CERTIFICATIONS

Project: B0063767  
Pace Project No.: 2038028

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### New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:  
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):  
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):  
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):  
T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-  
00119

Commonwealth of Virginia (TNI): 480246

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: B0063767

Pace Project No.: 2038028

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2038028001	EB-061016	Water	06/10/16 07:18	06/10/16 12:34
2038028002	MP-5A	Water	06/10/16 11:50	06/10/16 12:34
2038028003	15A	Water	06/10/16 10:20	06/10/16 12:34
2038028004	DP5	Water	06/10/16 11:16	06/10/16 12:34
2038028005	15B2	Water	06/10/16 09:22	06/10/16 12:34
2038028006	B-9	Water	06/10/16 07:46	06/10/16 12:34
2038028007	15B	Water	06/10/16 08:43	06/10/16 12:34
2038028008	TRIP BLANK	Water	06/10/16 00:00	06/10/16 12:34
2038028009	FB-061016	Water	06/10/16 11:55	06/10/16 12:34

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: B0063767  
Pace Project No.: 2038028

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2038028001	EB-061016	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038028002	MP-5A	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038028003	15A	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038028004	DP5	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038028005	15B2	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038028006	B-9	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038028007	15B	EPA 8015B Modified	JG1	4	PASI-N

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### SAMPLE ANALYTE COUNT

Project: B0063767

Pace Project No.: 2038028

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
<b>2038028008</b>	<b>TRIP BLANK</b>	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
<b>2038028009</b>	<b>FB-061016</b>	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: B0063767

Pace Project No.: 2038028

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**Method:** EPA 8015B Modified

**Description:** 8015M DRO/ORO Organics

**Client:** BBL Caribe / Arcadis PR

**Date:** June 28, 2016

**General Information:**

7 samples were analyzed for EPA 8015B Modified. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3535 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: OEXT/9261

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: B0063767

Pace Project No.: 2038028

---

**Method:** EPA 8015/8021

**Description:** 8021 GCV BTEX, MTBE, GRO

**Client:** BBL Caribe / Arcadis PR

**Date:** June 28, 2016

**General Information:**

9 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: GCV/2867

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: B0063767

Pace Project No.: 2038028

---

**Method:** EPA 6020

**Description:** 6020 MET ICPMS

**Client:** BBL Caribe / Arcadis PR

**Date:** June 28, 2016

**General Information:**

7 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

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## PROJECT NARRATIVE

Project: B0063767  
Pace Project No.: 2038028

---

**Method:** EPA 7470  
**Description:** 7470 Mercury  
**Client:** BBL Caribe / Arcadis PR  
**Date:** June 28, 2016

**General Information:**

7 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: B0063767

Pace Project No.: 2038028

---

**Method:** EPA 8270 by SIM

**Description:** 8270 MSSV PAH by SIM SEP

**Client:** BBL Caribe / Arcadis PR

**Date:** June 28, 2016

**General Information:**

7 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: OEXT/9253

L0: Analyte recovery in the laboratory control sample (LCS) was outside QC limits.

- LCS (Lab ID: 234572)
  - Fluoranthene
  - Naphthalene
  - Phenanthrene

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: OEXT/9253

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: OEXT/9279

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: B0063767

Pace Project No.: 2038028

---

**Method:** EPA 8270 by SIM

**Description:** 8270 MSSV PAH by SIM SEP

**Client:** BBL Caribe / Arcadis PR

**Date:** June 28, 2016

**Additional Comments:**

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## PROJECT NARRATIVE

Project: B0063767

Pace Project No.: 2038028

---

**Method:** EPA 5030B/8260

**Description:** 8260 MSV Low Level

**Client:** BBL Caribe / Arcadis PR

**Date:** June 28, 2016

**General Information:**

9 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

Analyte Comments:

QC Batch: MSV/5068

C9: Common Laboratory Contaminant.

- BLANK (Lab ID: 234142)
- Methylene Chloride

This data package has been reviewed for quality and completeness and is approved for release.

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### ANALYTICAL RESULTS

Project: B0063767  
Pace Project No.: 2038028

Sample: EB-061016	Lab ID: 2038028001	Collected: 06/10/16 07:18	Received: 06/10/16 12:34	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/16/16 11:23	06/17/16 16:07		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/16/16 11:23	06/17/16 16:07		
<b>Surrogates</b>								
n-Pentacosane (S)	70	%	16-137	1	06/16/16 11:23	06/17/16 16:07	629-99-2	
o-Terphenyl (S)	71	%	10-121	1	06/16/16 11:23	06/17/16 16:07	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/17/16 01:04		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	88	%	44-148	1		06/17/16 01:04	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/15/16 05:00	06/16/16 11:59	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/15/16 05:00	06/16/16 11:59	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/15/16 05:00	06/16/16 11:59	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/15/16 05:00	06/16/16 11:59	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/14/16 16:40	06/15/16 10:49	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 15:56	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 15:56	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 15:56	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 15:56	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 15:56	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 15:56	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 15:56	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 15:56	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 15:56	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 15:56	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 15:56	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 15:56	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 15:56	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	82	%	25-150	1	06/17/16 14:48	06/21/16 15:56	321-60-8	
Terphenyl-d14 (S)	92	%	25-150	1	06/17/16 14:48	06/21/16 15:56	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	30.1	ug/L	4.0	1		06/14/16 17:51	67-64-1	
Benzene	ND	ug/L	0.50	1		06/14/16 17:51	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/14/16 17:51	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/14/16 17:51	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/14/16 17:51	74-83-9	
2-Butanone (MEK)	2.3	ug/L	2.0	1		06/14/16 17:51	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/14/16 17:51	75-65-0	

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### ANALYTICAL RESULTS

Project: B0063767

Pace Project No.: 2038028

Sample: EB-061016	Lab ID: 2038028001	Collected: 06/10/16 07:18	Received: 06/10/16 12:34	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/14/16 17:51	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/14/16 17:51	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/14/16 17:51	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/14/16 17:51	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/14/16 17:51	67-66-3	
Chloromethane	<b>0.95</b>	ug/L	0.50	1		06/14/16 17:51	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/14/16 17:51	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/14/16 17:51	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/14/16 17:51	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/14/16 17:51	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/14/16 17:51	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/14/16 17:51	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/14/16 17:51	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/14/16 17:51	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/14/16 17:51	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/14/16 17:51	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/14/16 17:51	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/14/16 17:51	10061-02-6	
Ethanol	ND	ug/L	500	1		06/14/16 17:51	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/14/16 17:51	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/14/16 17:51	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/14/16 17:51	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/14/16 17:51	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/14/16 17:51	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/14/16 17:51	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/14/16 17:51	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/14/16 17:51	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/14/16 17:51	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/14/16 17:51	127-18-4	
Toluene	ND	ug/L	0.50	1		06/14/16 17:51	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/14/16 17:51	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/14/16 17:51	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/14/16 17:51	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/14/16 17:51	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/14/16 17:51	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/14/16 17:51	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/14/16 17:51	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	99	%	72-126	1		06/14/16 17:51	1868-53-7	
4-Bromofluorobenzene (S)	95	%	68-124	1		06/14/16 17:51	460-00-4	
Toluene-d8 (S)	109	%	79-119	1		06/14/16 17:51	2037-26-5	

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### ANALYTICAL RESULTS

Project: B0063767  
Pace Project No.: 2038028

Sample: MP-5A	Lab ID: 2038028002	Collected: 06/10/16 11:50	Received: 06/10/16 12:34	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/16/16 11:23	06/17/16 16:35		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/16/16 11:23	06/17/16 16:35		
<b>Surrogates</b>								
n-Pentacosane (S)	52	%	16-137	1	06/16/16 11:23	06/17/16 16:35	629-99-2	
o-Terphenyl (S)	72	%	10-121	1	06/16/16 11:23	06/17/16 16:35	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/17/16 00:12		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	90	%	44-148	1		06/17/16 00:12	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	<b>0.0077</b>	mg/L	0.0010	1	06/15/16 05:00	06/16/16 11:34	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/15/16 05:00	06/16/16 11:34	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/15/16 05:00	06/16/16 11:34	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/15/16 05:00	06/16/16 11:34	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/14/16 16:40	06/15/16 10:42	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 14:59	91-20-3	L3
Acenaphthene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 14:59	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 14:59	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 14:59	85-01-8	L3
Anthracene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 14:59	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 14:59	206-44-0	L3
Pyrene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 14:59	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 14:59	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 14:59	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 14:59	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 14:59	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 14:59	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 14:59	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	77	%	25-150	1	06/15/16 12:21	06/16/16 14:59	321-60-8	
Terphenyl-d14 (S)	95	%	25-150	1	06/15/16 12:21	06/16/16 14:59	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	<b>29.7</b>	ug/L	4.0	1		06/14/16 17:33	67-64-1	
Benzene	ND	ug/L	0.50	1		06/14/16 17:33	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/14/16 17:33	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/14/16 17:33	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/14/16 17:33	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/14/16 17:33	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/14/16 17:33	75-65-0	

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### ANALYTICAL RESULTS

Project: B0063767

Pace Project No.: 2038028

Sample: MP-5A	Lab ID: 2038028002	Collected: 06/10/16 11:50	Received: 06/10/16 12:34	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/14/16 17:33	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/14/16 17:33	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/14/16 17:33	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/14/16 17:33	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/14/16 17:33	67-66-3	
Chloromethane	<b>0.90</b>	ug/L	0.50	1		06/14/16 17:33	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/14/16 17:33	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/14/16 17:33	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/14/16 17:33	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/14/16 17:33	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/14/16 17:33	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/14/16 17:33	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/14/16 17:33	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/14/16 17:33	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/14/16 17:33	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/14/16 17:33	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/14/16 17:33	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/14/16 17:33	10061-02-6	
Ethanol	ND	ug/L	500	1		06/14/16 17:33	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/14/16 17:33	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/14/16 17:33	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/14/16 17:33	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/14/16 17:33	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/14/16 17:33	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/14/16 17:33	108-10-1	
Methyl-tert-butyl ether	<b>2.1</b>	ug/L	0.50	1		06/14/16 17:33	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/14/16 17:33	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/14/16 17:33	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/14/16 17:33	127-18-4	
Toluene	ND	ug/L	0.50	1		06/14/16 17:33	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/14/16 17:33	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/14/16 17:33	79-00-5	
Trichloroethene	<b>1.4</b>	ug/L	0.50	1		06/14/16 17:33	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/14/16 17:33	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/14/16 17:33	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/14/16 17:33	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/14/16 17:33	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	98	%	72-126	1		06/14/16 17:33	1868-53-7	
4-Bromofluorobenzene (S)	95	%	68-124	1		06/14/16 17:33	460-00-4	
Toluene-d8 (S)	108	%	79-119	1		06/14/16 17:33	2037-26-5	

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### ANALYTICAL RESULTS

Project: B0063767  
Pace Project No.: 2038028

Sample: 15A	Lab ID: 2038028003	Collected: 06/10/16 10:20	Received: 06/10/16 12:34	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/16/16 11:23	06/17/16 17:03		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/16/16 11:23	06/17/16 17:03		
<b>Surrogates</b>								
n-Pentacosane (S)	69	%	16-137	1	06/16/16 11:23	06/17/16 17:03	629-99-2	
o-Terphenyl (S)	71	%	10-121	1	06/16/16 11:23	06/17/16 17:03	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/17/16 00:38		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	91	%	44-148	1		06/17/16 00:38	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	<b>0.0028</b>	mg/L	0.0010	1	06/15/16 05:00	06/16/16 12:03	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/15/16 05:00	06/16/16 12:03	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/15/16 05:00	06/16/16 12:03	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/15/16 05:00	06/16/16 12:03	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/14/16 16:40	06/15/16 10:51	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:21	91-20-3	L3
Acenaphthene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:21	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:21	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:21	85-01-8	L3
Anthracene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:21	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:21	206-44-0	L3
Pyrene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:21	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:21	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:21	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:21	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:21	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:21	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:21	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	72	%	25-150	1	06/15/16 12:21	06/16/16 15:21	321-60-8	
Terphenyl-d14 (S)	88	%	25-150	1	06/15/16 12:21	06/16/16 15:21	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	<b>33.0</b>	ug/L	4.0	1		06/14/16 18:09	67-64-1	
Benzene	ND	ug/L	0.50	1		06/14/16 18:09	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/14/16 18:09	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/14/16 18:09	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/14/16 18:09	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/14/16 18:09	78-93-3	
tert-Butyl Alcohol	<b>4520</b>	ug/L	2000	10		06/16/16 14:44	75-65-0	

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### ANALYTICAL RESULTS

Project: B0063767  
Pace Project No.: 2038028

Sample: 15A	Lab ID: 2038028003	Collected: 06/10/16 10:20	Received: 06/10/16 12:34	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/14/16 18:09	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/14/16 18:09	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/14/16 18:09	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/14/16 18:09	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/14/16 18:09	67-66-3	
Chloromethane	1.5	ug/L	0.50	1		06/14/16 18:09	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/14/16 18:09	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/14/16 18:09	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/14/16 18:09	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/14/16 18:09	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/14/16 18:09	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/14/16 18:09	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/14/16 18:09	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/14/16 18:09	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/14/16 18:09	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/14/16 18:09	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/14/16 18:09	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/14/16 18:09	10061-02-6	
Ethanol	ND	ug/L	500	1		06/14/16 18:09	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/14/16 18:09	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/14/16 18:09	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/14/16 18:09	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/14/16 18:09	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/14/16 18:09	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/14/16 18:09	108-10-1	
Methyl-tert-butyl ether	5.8	ug/L	0.50	1		06/14/16 18:09	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/14/16 18:09	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/14/16 18:09	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/14/16 18:09	127-18-4	
Toluene	ND	ug/L	0.50	1		06/14/16 18:09	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/14/16 18:09	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/14/16 18:09	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/14/16 18:09	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/14/16 18:09	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/14/16 18:09	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/14/16 18:09	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/14/16 18:09	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	97	%	72-126	1		06/14/16 18:09	1868-53-7	
Dibromofluoromethane (S)	98	%	72-126	10		06/16/16 14:44	1868-53-7	
4-Bromofluorobenzene (S)	96	%	68-124	10		06/16/16 14:44	460-00-4	
4-Bromofluorobenzene (S)	96	%	68-124	1		06/14/16 18:09	460-00-4	
Toluene-d8 (S)	108	%	79-119	1		06/14/16 18:09	2037-26-5	
Toluene-d8 (S)	108	%	79-119	10		06/16/16 14:44	2037-26-5	

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### ANALYTICAL RESULTS

Project: B0063767  
Pace Project No.: 2038028

Sample: DP5	Lab ID: 2038028004	Collected: 06/10/16 11:16	Received: 06/10/16 12:34	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/16/16 11:23	06/22/16 16:40		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/16/16 11:23	06/22/16 16:40		
<b>Surrogates</b>								
n-Pentacosane (S)	74	%	16-137	1	06/16/16 11:23	06/22/16 16:40	629-99-2	
o-Terphenyl (S)	78	%	10-121	1	06/16/16 11:23	06/22/16 16:40	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/17/16 01:31		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	90	%	44-148	1		06/17/16 01:31	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/15/16 05:00	06/16/16 12:07	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/15/16 05:00	06/16/16 12:07	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/15/16 05:00	06/16/16 12:07	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/15/16 05:00	06/16/16 12:07	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/14/16 16:40	06/15/16 10:53	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:42	91-20-3	L3
Acenaphthene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:42	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:42	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:42	85-01-8	L3
Anthracene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:42	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:42	206-44-0	L3
Pyrene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:42	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:42	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:42	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:42	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:42	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:42	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 15:42	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	63	%	25-150	1	06/15/16 12:21	06/16/16 15:42	321-60-8	
Terphenyl-d14 (S)	84	%	25-150	1	06/15/16 12:21	06/16/16 15:42	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	19.2	ug/L	4.0	1		06/14/16 18:27	67-64-1	
Benzene	ND	ug/L	0.50	1		06/14/16 18:27	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/14/16 18:27	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/14/16 18:27	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/14/16 18:27	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/14/16 18:27	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/14/16 18:27	75-65-0	

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### ANALYTICAL RESULTS

Project: B0063767  
Pace Project No.: 2038028

Sample: DP5	Lab ID: 2038028004	Collected: 06/10/16 11:16	Received: 06/10/16 12:34	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/14/16 18:27	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/14/16 18:27	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/14/16 18:27	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/14/16 18:27	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/14/16 18:27	67-66-3	
Chloromethane	<b>0.75</b>	ug/L	0.50	1		06/14/16 18:27	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/14/16 18:27	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/14/16 18:27	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/14/16 18:27	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/14/16 18:27	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/14/16 18:27	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/14/16 18:27	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/14/16 18:27	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/14/16 18:27	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/14/16 18:27	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/14/16 18:27	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/14/16 18:27	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/14/16 18:27	10061-02-6	
Ethanol	ND	ug/L	500	1		06/14/16 18:27	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/14/16 18:27	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/14/16 18:27	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/14/16 18:27	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/14/16 18:27	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/14/16 18:27	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/14/16 18:27	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/14/16 18:27	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/14/16 18:27	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/14/16 18:27	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/14/16 18:27	127-18-4	
Toluene	ND	ug/L	0.50	1		06/14/16 18:27	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/14/16 18:27	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/14/16 18:27	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/14/16 18:27	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/14/16 18:27	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/14/16 18:27	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/14/16 18:27	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/14/16 18:27	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	98	%	72-126	1		06/14/16 18:27	1868-53-7	
4-Bromofluorobenzene (S)	96	%	68-124	1		06/14/16 18:27	460-00-4	
Toluene-d8 (S)	108	%	79-119	1		06/14/16 18:27	2037-26-5	

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### ANALYTICAL RESULTS

Project: B0063767  
Pace Project No.: 2038028

Sample: 15B2	Lab ID: 2038028005	Collected: 06/10/16 09:22	Received: 06/10/16 12:34	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/16/16 11:23	06/22/16 17:08		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/16/16 11:23	06/22/16 17:08		
<b>Surrogates</b>								
n-Pentacosane (S)	61	%	16-137	1	06/16/16 11:23	06/22/16 17:08	629-99-2	
o-Terphenyl (S)	68	%	10-121	1	06/16/16 11:23	06/22/16 17:08	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/17/16 01:57		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	92	%	44-148	1		06/17/16 01:57	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	<b>0.016</b>	mg/L	0.0010	1	06/15/16 05:00	06/16/16 12:11	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/15/16 05:00	06/16/16 12:11	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/15/16 05:00	06/16/16 12:11	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/15/16 05:00	06/16/16 12:11	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/14/16 16:40	06/15/16 10:59	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:04	91-20-3	L3
Acenaphthene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:04	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:04	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:04	85-01-8	L3
Anthracene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:04	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:04	206-44-0	L3
Pyrene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:04	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:04	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:04	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:04	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:04	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:04	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:04	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	74	%	25-150	1	06/15/16 12:21	06/16/16 16:04	321-60-8	
Terphenyl-d14 (S)	95	%	25-150	1	06/15/16 12:21	06/16/16 16:04	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	<b>18.1</b>	ug/L	4.0	1		06/14/16 18:45	67-64-1	
Benzene	ND	ug/L	0.50	1		06/14/16 18:45	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/14/16 18:45	75-27-4	
Bromoform	<b>1.6</b>	ug/L	0.50	1		06/14/16 18:45	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/14/16 18:45	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/14/16 18:45	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/14/16 18:45	75-65-0	

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### ANALYTICAL RESULTS

Project: B0063767  
Pace Project No.: 2038028

Sample: 15B2	Lab ID: 2038028005	Collected: 06/10/16 09:22	Received: 06/10/16 12:34	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/14/16 18:45	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/14/16 18:45	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/14/16 18:45	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/14/16 18:45	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/14/16 18:45	67-66-3	
Chloromethane	<b>0.92</b>	ug/L	0.50	1		06/14/16 18:45	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/14/16 18:45	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/14/16 18:45	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/14/16 18:45	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/14/16 18:45	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/14/16 18:45	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/14/16 18:45	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/14/16 18:45	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/14/16 18:45	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/14/16 18:45	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/14/16 18:45	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/14/16 18:45	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/14/16 18:45	10061-02-6	
Ethanol	ND	ug/L	500	1		06/14/16 18:45	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/14/16 18:45	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/14/16 18:45	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/14/16 18:45	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/14/16 18:45	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/14/16 18:45	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/14/16 18:45	108-10-1	
Methyl-tert-butyl ether	<b>1.1</b>	ug/L	0.50	1		06/14/16 18:45	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/14/16 18:45	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/14/16 18:45	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/14/16 18:45	127-18-4	
Toluene	ND	ug/L	0.50	1		06/14/16 18:45	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/14/16 18:45	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/14/16 18:45	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/14/16 18:45	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/14/16 18:45	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/14/16 18:45	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/14/16 18:45	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/14/16 18:45	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	98	%	72-126	1		06/14/16 18:45	1868-53-7	
4-Bromofluorobenzene (S)	96	%	68-124	1		06/14/16 18:45	460-00-4	
Toluene-d8 (S)	106	%	79-119	1		06/14/16 18:45	2037-26-5	

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### ANALYTICAL RESULTS

Project: B0063767  
Pace Project No.: 2038028

Sample: B-9	Lab ID: 2038028006	Collected: 06/10/16 07:46	Received: 06/10/16 12:34	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/16/16 11:23	06/22/16 17:36		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/16/16 11:23	06/22/16 17:36		
<b>Surrogates</b>								
n-Pentacosane (S)	61	%	16-137	1	06/16/16 11:23	06/22/16 17:36	629-99-2	
o-Terphenyl (S)	77	%	10-121	1	06/16/16 11:23	06/22/16 17:36	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/17/16 02:23		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	90	%	44-148	1		06/17/16 02:23	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	<b>0.0013</b>	mg/L	0.0010	1	06/15/16 05:00	06/16/16 12:15	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/15/16 05:00	06/16/16 12:15	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/15/16 05:00	06/16/16 12:15	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/15/16 05:00	06/16/16 12:15	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/14/16 16:40	06/15/16 11:01	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 16:18	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 16:18	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 16:18	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 16:18	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 16:18	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 16:18	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 16:18	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 16:18	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 16:18	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 16:18	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 16:18	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 16:18	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/17/16 14:48	06/21/16 16:18	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	73	%	25-150	1	06/17/16 14:48	06/21/16 16:18	321-60-8	
Terphenyl-d14 (S)	81	%	25-150	1	06/17/16 14:48	06/21/16 16:18	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	<b>13.0</b>	ug/L	4.0	1		06/14/16 19:03	67-64-1	
Benzene	ND	ug/L	0.50	1		06/14/16 19:03	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/14/16 19:03	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/14/16 19:03	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/14/16 19:03	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/14/16 19:03	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/14/16 19:03	75-65-0	

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### ANALYTICAL RESULTS

Project: B0063767

Pace Project No.: 2038028

Sample: B-9	Lab ID: 2038028006	Collected: 06/10/16 07:46	Received: 06/10/16 12:34	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>	Analytical Method: EPA 5030B/8260							
Carbon disulfide	ND	ug/L	1.0	1		06/14/16 19:03	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/14/16 19:03	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/14/16 19:03	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/14/16 19:03	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/14/16 19:03	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/14/16 19:03	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/14/16 19:03	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/14/16 19:03	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/14/16 19:03	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/14/16 19:03	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/14/16 19:03	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/14/16 19:03	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/14/16 19:03	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/14/16 19:03	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/14/16 19:03	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/14/16 19:03	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/14/16 19:03	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/14/16 19:03	10061-02-6	
Ethanol	ND	ug/L	500	1		06/14/16 19:03	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/14/16 19:03	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/14/16 19:03	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/14/16 19:03	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/14/16 19:03	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/14/16 19:03	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/14/16 19:03	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/14/16 19:03	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/14/16 19:03	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/14/16 19:03	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/14/16 19:03	127-18-4	
Toluene	ND	ug/L	0.50	1		06/14/16 19:03	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/14/16 19:03	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/14/16 19:03	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/14/16 19:03	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/14/16 19:03	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/14/16 19:03	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/14/16 19:03	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/14/16 19:03	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	97	%	72-126	1		06/14/16 19:03	1868-53-7	
4-Bromofluorobenzene (S)	95	%	68-124	1		06/14/16 19:03	460-00-4	
Toluene-d8 (S)	108	%	79-119	1		06/14/16 19:03	2037-26-5	

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### ANALYTICAL RESULTS

Project: B0063767  
Pace Project No.: 2038028

Sample: 15B	Lab ID: 2038028007	Collected: 06/10/16 08:43	Received: 06/10/16 12:34	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/16/16 11:23	06/22/16 18:04		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/16/16 11:23	06/22/16 18:04		
<b>Surrogates</b>								
n-Pentacosane (S)	52	%	16-137	1	06/16/16 11:23	06/22/16 18:04	629-99-2	
o-Terphenyl (S)	65	%	10-121	1	06/16/16 11:23	06/22/16 18:04	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/17/16 02:49		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	92	%	44-148	1		06/17/16 02:49	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	<b>0.0018</b>	mg/L	0.0010	1	06/15/16 05:00	06/16/16 12:19	7440-38-2	
Chromium	<b>0.0028</b>	mg/L	0.0010	1	06/15/16 05:00	06/16/16 12:19	7440-47-3	
Lead	<b>0.0011</b>	mg/L	0.0010	1	06/15/16 05:00	06/16/16 12:19	7439-92-1	
Vanadium	<b>0.0059</b>	mg/L	0.0050	1	06/15/16 05:00	06/16/16 12:19	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/14/16 16:40	06/15/16 11:03	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:47	91-20-3	L3
Acenaphthene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:47	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:47	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:47	85-01-8	L3
Anthracene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:47	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:47	206-44-0	L3
Pyrene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:47	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:47	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:47	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:47	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:47	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:47	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/15/16 12:21	06/16/16 16:47	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	61	%	25-150	1	06/15/16 12:21	06/16/16 16:47	321-60-8	
Terphenyl-d14 (S)	72	%	25-150	1	06/15/16 12:21	06/16/16 16:47	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	<b>14.5</b>	ug/L	4.0	1		06/14/16 19:21	67-64-1	
Benzene	ND	ug/L	0.50	1		06/14/16 19:21	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/14/16 19:21	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/14/16 19:21	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/14/16 19:21	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/14/16 19:21	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/14/16 19:21	75-65-0	

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### ANALYTICAL RESULTS

Project: B0063767  
Pace Project No.: 2038028

Sample: 15B	Lab ID: 2038028007	Collected: 06/10/16 08:43	Received: 06/10/16 12:34	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/14/16 19:21	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/14/16 19:21	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/14/16 19:21	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/14/16 19:21	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/14/16 19:21	67-66-3	
Chloromethane	<b>0.96</b>	ug/L	0.50	1		06/14/16 19:21	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/14/16 19:21	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/14/16 19:21	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/14/16 19:21	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/14/16 19:21	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/14/16 19:21	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/14/16 19:21	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/14/16 19:21	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/14/16 19:21	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/14/16 19:21	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/14/16 19:21	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/14/16 19:21	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/14/16 19:21	10061-02-6	
Ethanol	ND	ug/L	500	1		06/14/16 19:21	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/14/16 19:21	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/14/16 19:21	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/14/16 19:21	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/14/16 19:21	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/14/16 19:21	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/14/16 19:21	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/14/16 19:21	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/14/16 19:21	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/14/16 19:21	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/14/16 19:21	127-18-4	
Toluene	ND	ug/L	0.50	1		06/14/16 19:21	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/14/16 19:21	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/14/16 19:21	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/14/16 19:21	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/14/16 19:21	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/14/16 19:21	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/14/16 19:21	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/14/16 19:21	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	98	%	72-126	1		06/14/16 19:21	1868-53-7	
4-Bromofluorobenzene (S)	95	%	68-124	1		06/14/16 19:21	460-00-4	
Toluene-d8 (S)	108	%	79-119	1		06/14/16 19:21	2037-26-5	

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### ANALYTICAL RESULTS

Project: B0063767  
Pace Project No.: 2038028

Sample: TRIP BLANK	Lab ID: 2038028008	Collected: 06/10/16 00:00	Received: 06/10/16 12:34	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/17/16 03:15		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	89	%	44-148	1		06/17/16 03:15	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	152	ug/L	4.0	1		06/14/16 19:39	67-64-1	
Benzene	ND	ug/L	0.50	1		06/14/16 19:39	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/14/16 19:39	75-27-4	
Bromoform	1.7	ug/L	0.50	1		06/14/16 19:39	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/14/16 19:39	74-83-9	
2-Butanone (MEK)	2.1	ug/L	2.0	1		06/14/16 19:39	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/14/16 19:39	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/14/16 19:39	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/14/16 19:39	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/14/16 19:39	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/14/16 19:39	75-00-3	
Chloroform	1.3	ug/L	0.50	1		06/14/16 19:39	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/14/16 19:39	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/14/16 19:39	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/14/16 19:39	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/14/16 19:39	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/14/16 19:39	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/14/16 19:39	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/14/16 19:39	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/14/16 19:39	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/14/16 19:39	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/14/16 19:39	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/14/16 19:39	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/14/16 19:39	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/14/16 19:39	10061-02-6	
Ethanol	ND	ug/L	500	1		06/14/16 19:39	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/14/16 19:39	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/14/16 19:39	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/14/16 19:39	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/14/16 19:39	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/14/16 19:39	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/14/16 19:39	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/14/16 19:39	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/14/16 19:39	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/14/16 19:39	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/14/16 19:39	127-18-4	
Toluene	ND	ug/L	0.50	1		06/14/16 19:39	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/14/16 19:39	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/14/16 19:39	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/14/16 19:39	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/14/16 19:39	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/14/16 19:39	75-01-4	

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### ANALYTICAL RESULTS

Project: B0063767

Pace Project No.: 2038028

Sample: TRIP BLANK		Lab ID: 2038028008	Collected: 06/10/16 00:00	Received: 06/10/16 12:34	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
m&p-Xylene	ND	ug/L	2.0	1		06/14/16 19:39	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/14/16 19:39	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	99	%	72-126	1		06/14/16 19:39	1868-53-7	
4-Bromofluorobenzene (S)	97	%	68-124	1		06/14/16 19:39	460-00-4	
Toluene-d8 (S)	108	%	79-119	1		06/14/16 19:39	2037-26-5	

Sample: FB-061016		Lab ID: 2038028009	Collected: 06/10/16 11:55	Received: 06/10/16 12:34	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/17/16 03:41		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	88	%	44-148	1		06/17/16 03:41	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	33.7	ug/L	4.0	1		06/14/16 19:57	67-64-1	
Benzene	ND	ug/L	0.50	1		06/14/16 19:57	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/14/16 19:57	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/14/16 19:57	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/14/16 19:57	74-83-9	
2-Butanone (MEK)	2.3	ug/L	2.0	1		06/14/16 19:57	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/14/16 19:57	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/14/16 19:57	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/14/16 19:57	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/14/16 19:57	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/14/16 19:57	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/14/16 19:57	67-66-3	
Chloromethane	0.77	ug/L	0.50	1		06/14/16 19:57	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/14/16 19:57	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/14/16 19:57	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/14/16 19:57	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/14/16 19:57	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/14/16 19:57	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/14/16 19:57	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/14/16 19:57	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/14/16 19:57	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/14/16 19:57	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/14/16 19:57	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/14/16 19:57	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/14/16 19:57	10061-02-6	
Ethanol	ND	ug/L	500	1		06/14/16 19:57	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/14/16 19:57	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/14/16 19:57	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/14/16 19:57	98-82-8	

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### ANALYTICAL RESULTS

Project: B0063767

Pace Project No.: 2038028

<b>Sample: FB-061016</b>		<b>Lab ID: 2038028009</b>		Collected: 06/10/16 11:55	Received: 06/10/16 12:34	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Methyl acetate	ND	ug/L	2.0	1		06/14/16 19:57	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/14/16 19:57	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/14/16 19:57	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/14/16 19:57	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/14/16 19:57	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/14/16 19:57	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/14/16 19:57	127-18-4	
Toluene	ND	ug/L	0.50	1		06/14/16 19:57	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/14/16 19:57	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/14/16 19:57	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/14/16 19:57	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/14/16 19:57	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/14/16 19:57	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/14/16 19:57	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/14/16 19:57	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	97	%.	72-126	1		06/14/16 19:57	1868-53-7	
4-Bromofluorobenzene (S)	96	%.	68-124	1		06/14/16 19:57	460-00-4	
Toluene-d8 (S)	108	%.	79-119	1		06/14/16 19:57	2037-26-5	

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**QUALITY CONTROL DATA**

Project: B0063767  
Pace Project No.: 2038028

QC Batch: GCV/2867                      Analysis Method: EPA 8015/8021  
QC Batch Method: EPA 8015/8021                      Analysis Description: 8021 W GCV BTEX , MTBE, GRO  
Associated Lab Samples: 2038028001, 2038028002, 2038028003, 2038028004, 2038028005, 2038028006, 2038028007, 2038028008, 2038028009

METHOD BLANK: 234398                      Matrix: Water  
Associated Lab Samples: 2038028001, 2038028002, 2038028003, 2038028004, 2038028005, 2038028006, 2038028007, 2038028008, 2038028009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	06/16/16 19:00	
4-Bromofluorobenzene (S)	%.	92	44-148	06/16/16 19:00	

LABORATORY CONTROL SAMPLE: 234399

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	423	85	61-136	
4-Bromofluorobenzene (S)	%.			93	44-148	
4-Bromofluorobenzene (S)	%.			93	44-148	

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### QUALITY CONTROL DATA

Project: B0063767  
Pace Project No.: 2038028

QC Batch: MERP/2765 Analysis Method: EPA 7470  
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
Associated Lab Samples: 2038028001, 2038028002, 2038028003, 2038028004, 2038028005, 2038028006, 2038028007

METHOD BLANK: 234334 Matrix: Water  
Associated Lab Samples: 2038028001, 2038028002, 2038028003, 2038028004, 2038028005, 2038028006, 2038028007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	06/15/16 10:38	

LABORATORY CONTROL SAMPLE: 234335

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	1.0	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 234336 234337

Parameter	Units	2038028002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	1	1	0.78	0.80	78	80	75-125	3	20	

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### QUALITY CONTROL DATA

Project: B0063767  
Pace Project No.: 2038028

QC Batch: MPRP/4369 Analysis Method: EPA 6020  
QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
Associated Lab Samples: 2038028001, 2038028002, 2038028003, 2038028004, 2038028005, 2038028006, 2038028007

METHOD BLANK: 234299 Matrix: Water  
Associated Lab Samples: 2038028001, 2038028002, 2038028003, 2038028004, 2038028005, 2038028006, 2038028007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	06/16/16 10:22	
Chromium	mg/L	ND	0.0010	06/16/16 10:22	
Lead	mg/L	ND	0.0010	06/16/16 10:22	
Vanadium	mg/L	ND	0.0050	06/16/16 10:22	

LABORATORY CONTROL SAMPLE: 234300

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.02	0.021	105	83-115	
Chromium	mg/L	.02	0.022	108	85-115	
Lead	mg/L	.02	0.021	104	84-115	
Vanadium	mg/L	.02	0.021	106	81-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 234301 234302

Parameter	Units	234301		234302		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2038028002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Arsenic	mg/L	0.0077	.02	.02	0.028	0.029	101	105	80-120	3	20
Chromium	mg/L	ND	.02	.02	0.020	0.021	101	103	80-120	3	20
Lead	mg/L	ND	.02	.02	0.021	0.022	106	108	80-120	2	20
Vanadium	mg/L	ND	.02	.02	0.021	0.021	103	104	80-120	1	20

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### QUALITY CONTROL DATA

Project: B0063767  
Pace Project No.: 2038028

QC Batch: MSV/5068 Analysis Method: EPA 5030B/8260  
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Low Level  
Associated Lab Samples: 2038028001, 2038028002, 2038028003, 2038028004, 2038028005, 2038028006, 2038028007, 2038028008, 2038028009

METHOD BLANK: 234142 Matrix: Water  
Associated Lab Samples: 2038028001, 2038028002, 2038028003, 2038028004, 2038028005, 2038028006, 2038028007, 2038028008, 2038028009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	06/14/16 16:03	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	06/14/16 16:03	
1,1,2-Trichloroethane	ug/L	ND	0.50	06/14/16 16:03	
1,1-Dichloroethane	ug/L	ND	0.50	06/14/16 16:03	
1,1-Dichloroethene	ug/L	ND	0.50	06/14/16 16:03	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	06/14/16 16:03	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	06/14/16 16:03	
1,2-Dichloroethane	ug/L	ND	0.50	06/14/16 16:03	
1,2-Dichloropropane	ug/L	ND	0.50	06/14/16 16:03	
2-Butanone (MEK)	ug/L	ND	2.0	06/14/16 16:03	
2-Hexanone	ug/L	ND	1.0	06/14/16 16:03	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	06/14/16 16:03	
Acetone	ug/L	ND	4.0	06/14/16 16:03	
Benzene	ug/L	ND	0.50	06/14/16 16:03	
Bromodichloromethane	ug/L	ND	0.50	06/14/16 16:03	
Bromoform	ug/L	ND	0.50	06/14/16 16:03	
Bromomethane	ug/L	ND	0.50	06/14/16 16:03	
Carbon disulfide	ug/L	ND	1.0	06/14/16 16:03	
Carbon tetrachloride	ug/L	ND	0.50	06/14/16 16:03	
Chlorobenzene	ug/L	ND	0.50	06/14/16 16:03	
Chloroethane	ug/L	ND	0.50	06/14/16 16:03	
Chloroform	ug/L	ND	0.50	06/14/16 16:03	
Chloromethane	ug/L	ND	0.50	06/14/16 16:03	
cis-1,2-Dichloroethene	ug/L	ND	1.0	06/14/16 16:03	
cis-1,3-Dichloropropene	ug/L	ND	0.50	06/14/16 16:03	
Dibromochloromethane	ug/L	ND	0.50	06/14/16 16:03	
Dichlorodifluoromethane	ug/L	ND	1.0	06/14/16 16:03	
Ethanol	ug/L	ND	500	06/14/16 16:03	
Ethylbenzene	ug/L	ND	0.50	06/14/16 16:03	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	06/14/16 16:03	
m&p-Xylene	ug/L	ND	2.0	06/14/16 16:03	
Methyl acetate	ug/L	ND	2.0	06/14/16 16:03	
Methyl-tert-butyl ether	ug/L	ND	0.50	06/14/16 16:03	
Methylene Chloride	ug/L	0.52	0.50	06/14/16 16:03	C9
o-Xylene	ug/L	ND	1.0	06/14/16 16:03	
Styrene	ug/L	ND	1.0	06/14/16 16:03	
tert-Butyl Alcohol	ug/L	ND	200	06/14/16 16:03	
Tetrachloroethene	ug/L	ND	0.50	06/14/16 16:03	
Toluene	ug/L	ND	0.50	06/14/16 16:03	
trans-1,2-Dichloroethene	ug/L	ND	0.50	06/14/16 16:03	

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### QUALITY CONTROL DATA

Project: B0063767  
Pace Project No.: 2038028

METHOD BLANK: 234142 Matrix: Water  
Associated Lab Samples: 2038028001, 2038028002, 2038028003, 2038028004, 2038028005, 2038028006, 2038028007, 2038028008, 2038028009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
trans-1,3-Dichloropropene	ug/L	ND	0.50	06/14/16 16:03	
Trichloroethene	ug/L	ND	0.50	06/14/16 16:03	
Trichlorofluoromethane	ug/L	ND	0.50	06/14/16 16:03	
Vinyl chloride	ug/L	ND	0.50	06/14/16 16:03	
4-Bromofluorobenzene (S)	%	97	68-124	06/14/16 16:03	
Dibromofluoromethane (S)	%	99	72-126	06/14/16 16:03	
Toluene-d8 (S)	%	108	79-119	06/14/16 16:03	

METHOD BLANK: 234681 Matrix: Water  
Associated Lab Samples: 2038028001, 2038028002, 2038028003, 2038028004, 2038028005, 2038028006, 2038028007, 2038028008, 2038028009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	06/16/16 11:09	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	06/16/16 11:09	
1,1,2-Trichloroethane	ug/L	ND	0.50	06/16/16 11:09	
1,1-Dichloroethane	ug/L	ND	0.50	06/16/16 11:09	
1,1-Dichloroethene	ug/L	ND	0.50	06/16/16 11:09	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	06/16/16 11:09	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	06/16/16 11:09	
1,2-Dichloroethane	ug/L	ND	0.50	06/16/16 11:09	
1,2-Dichloropropane	ug/L	ND	0.50	06/16/16 11:09	
2-Butanone (MEK)	ug/L	ND	2.0	06/16/16 11:09	
2-Hexanone	ug/L	ND	1.0	06/16/16 11:09	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	06/16/16 11:09	
Acetone	ug/L	ND	4.0	06/16/16 11:09	
Benzene	ug/L	ND	0.50	06/16/16 11:09	
Bromodichloromethane	ug/L	ND	0.50	06/16/16 11:09	
Bromoform	ug/L	ND	0.50	06/16/16 11:09	
Bromomethane	ug/L	ND	0.50	06/16/16 11:09	
Carbon disulfide	ug/L	ND	1.0	06/16/16 11:09	
Carbon tetrachloride	ug/L	ND	0.50	06/16/16 11:09	
Chlorobenzene	ug/L	ND	0.50	06/16/16 11:09	
Chloroethane	ug/L	ND	0.50	06/16/16 11:09	
Chloroform	ug/L	ND	0.50	06/16/16 11:09	
Chloromethane	ug/L	ND	0.50	06/16/16 11:09	
cis-1,2-Dichloroethene	ug/L	ND	1.0	06/16/16 11:09	
cis-1,3-Dichloropropene	ug/L	ND	0.50	06/16/16 11:09	
Dibromochloromethane	ug/L	ND	0.50	06/16/16 11:09	
Dichlorodifluoromethane	ug/L	ND	1.0	06/16/16 11:09	
Ethanol	ug/L	ND	500	06/16/16 11:09	
Ethylbenzene	ug/L	ND	0.50	06/16/16 11:09	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	06/16/16 11:09	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: B0063767

Pace Project No.: 2038028

METHOD BLANK: 234681

Matrix: Water

Associated Lab Samples: 2038028001, 2038028002, 2038028003, 2038028004, 2038028005, 2038028006, 2038028007, 2038028008, 2038028009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
m&p-Xylene	ug/L	ND	2.0	06/16/16 11:09	
Methyl acetate	ug/L	ND	2.0	06/16/16 11:09	
Methyl-tert-butyl ether	ug/L	ND	0.50	06/16/16 11:09	
Methylene Chloride	ug/L	ND	0.50	06/16/16 11:09	
o-Xylene	ug/L	ND	1.0	06/16/16 11:09	
Styrene	ug/L	ND	1.0	06/16/16 11:09	
tert-Butyl Alcohol	ug/L	ND	200	06/16/16 11:09	
Tetrachloroethene	ug/L	ND	0.50	06/16/16 11:09	
Toluene	ug/L	ND	0.50	06/16/16 11:09	
trans-1,2-Dichloroethene	ug/L	ND	0.50	06/16/16 11:09	
trans-1,3-Dichloropropene	ug/L	ND	0.50	06/16/16 11:09	
Trichloroethene	ug/L	ND	0.50	06/16/16 11:09	
Trichlorofluoromethane	ug/L	ND	0.50	06/16/16 11:09	
Vinyl chloride	ug/L	ND	0.50	06/16/16 11:09	
4-Bromofluorobenzene (S)	%	97	68-124	06/16/16 11:09	
Dibromofluoromethane (S)	%	97	72-126	06/16/16 11:09	
Toluene-d8 (S)	%	108	79-119	06/16/16 11:09	

LABORATORY CONTROL SAMPLE: 234143

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	49.5	99	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	55.1	110	15-179	
1,1,2-Trichloroethane	ug/L	50	48.5	97	58-144	
1,1-Dichloroethane	ug/L	50	49.8	100	63-129	
1,1-Dichloroethene	ug/L	50	41.8	84	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	56.2	112	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	51.5	103	52-161	
1,2-Dichloroethane	ug/L	50	53.4	107	57-148	
1,2-Dichloropropane	ug/L	50	54.8	110	66-128	
2-Butanone (MEK)	ug/L	50	59.3	119	32-183	
2-Hexanone	ug/L	50	60.9	122	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	60.4	121	26-171	
Acetone	ug/L	50	54.5	109	22-165	
Benzene	ug/L	50	50.5	101	62-131	
Bromodichloromethane	ug/L	50	50.3	101	69-132	
Bromoform	ug/L	50	39.1	78	35-166	
Bromomethane	ug/L	50	51.0	102	34-158	
Carbon disulfide	ug/L	50	41.9	84	31-128	
Carbon tetrachloride	ug/L	50	43.4	87	54-144	
Chlorobenzene	ug/L	50	48.5	97	70-127	
Chloroethane	ug/L	50	48.3	97	17-195	
Chloroform	ug/L	50	46.1	92	73-134	

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### QUALITY CONTROL DATA

Project: B0063767

Pace Project No.: 2038028

LABORATORY CONTROL SAMPLE: 234143

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloromethane	ug/L	50	47.5	95	17-153	
cis-1,2-Dichloroethene	ug/L	50	49.9	100	68-129	
cis-1,3-Dichloropropene	ug/L	50	47.3	95	72-138	
Dibromochloromethane	ug/L	50	43.6	87	49-146	
Dichlorodifluoromethane	ug/L	50	25.5	51	10-179	
Ethylbenzene	ug/L	50	51.9	104	66-126	
Isopropylbenzene (Cumene)	ug/L	50	55.7	111	51-138	
m&p-Xylene	ug/L	100	100	100	65-129	
Methyl acetate	ug/L	50	47.1	94	20-142	
Methyl-tert-butyl ether	ug/L	50	44.6	89	37-166	
Methylene Chloride	ug/L	50	45.6	91	46-168	
o-Xylene	ug/L	50	49.3	99	65-124	
Styrene	ug/L	50	52.8	106	72-133	
Tetrachloroethene	ug/L	50	45.0	90	46-157	
Toluene	ug/L	50	54.7	109	69-126	
trans-1,2-Dichloroethene	ug/L	50	46.5	93	60-129	
trans-1,3-Dichloropropene	ug/L	50	49.7	99	59-149	
Trichloroethene	ug/L	50	46.6	93	67-132	
Trichlorofluoromethane	ug/L	50	53.5	107	39-171	
Vinyl chloride	ug/L	50	42.2	84	27-149	
4-Bromofluorobenzene (S)	%			93	68-124	
Dibromofluoromethane (S)	%			99	72-126	
Toluene-d8 (S)	%			105	79-119	

LABORATORY CONTROL SAMPLE: 234682

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	50.2	100	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	57.0	114	15-179	
1,1,2-Trichloroethane	ug/L	50	50.1	100	58-144	
1,1-Dichloroethane	ug/L	50	51.1	102	63-129	
1,1-Dichloroethene	ug/L	50	43.7	87	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	58.1	116	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	52.6	105	52-161	
1,2-Dichloroethane	ug/L	50	53.5	107	57-148	
1,2-Dichloropropane	ug/L	50	55.4	111	66-128	
2-Butanone (MEK)	ug/L	50	61.1	122	32-183	
2-Hexanone	ug/L	50	62.3	125	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	61.4	123	26-171	
Acetone	ug/L	50	56.1	112	22-165	
Benzene	ug/L	50	51.0	102	62-131	
Bromodichloromethane	ug/L	50	51.5	103	69-132	
Bromoform	ug/L	50	40.8	82	35-166	
Bromomethane	ug/L	50	57.8	116	34-158	
Carbon disulfide	ug/L	50	44.8	90	31-128	

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### QUALITY CONTROL DATA

Project: B0063767  
Pace Project No.: 2038028

LABORATORY CONTROL SAMPLE: 234682

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbon tetrachloride	ug/L	50	44.7	89	54-144	
Chlorobenzene	ug/L	50	49.5	99	70-127	
Chloroethane	ug/L	50	53.1	106	17-195	
Chloroform	ug/L	50	46.7	93	73-134	
Chloromethane	ug/L	50	60.7	121	17-153	
cis-1,2-Dichloroethene	ug/L	50	49.9	100	68-129	
cis-1,3-Dichloropropene	ug/L	50	49.2	98	72-138	
Dibromochloromethane	ug/L	50	45.7	91	49-146	
Dichlorodifluoromethane	ug/L	50	44.8	90	10-179	
Ethylbenzene	ug/L	50	52.9	106	66-126	
Isopropylbenzene (Cumene)	ug/L	50	58.6	117	51-138	
m&p-Xylene	ug/L	100	103	103	65-129	
Methyl acetate	ug/L	50	49.1	98	20-142	
Methyl-tert-butyl ether	ug/L	50	46.6	93	37-166	
Methylene Chloride	ug/L	50	46.4	93	46-168	
o-Xylene	ug/L	50	50.6	101	65-124	
Styrene	ug/L	50	53.8	108	72-133	
Tetrachloroethene	ug/L	50	46.3	93	46-157	
Toluene	ug/L	50	55.3	111	69-126	
trans-1,2-Dichloroethene	ug/L	50	47.1	94	60-129	
trans-1,3-Dichloropropene	ug/L	50	51.4	103	59-149	
Trichloroethene	ug/L	50	47.6	95	67-132	
Trichlorofluoromethane	ug/L	50	60.4	121	39-171	
Vinyl chloride	ug/L	50	52.0	104	27-149	
4-Bromofluorobenzene (S)	%			94	68-124	
Dibromofluoromethane (S)	%			99	72-126	
Toluene-d8 (S)	%			105	79-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 234144 234145

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2038028002 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
1,1,1-Trichloroethane	ug/L	ND	50	50	56.7	55.5	113	111	54-137	2	20	
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	61.4	60.1	123	120	15-187	2	20	
1,1,2-Trichloroethane	ug/L	ND	50	50	53.1	52.4	106	105	59-148	1	20	
1,1-Dichloroethane	ug/L	ND	50	50	57.2	55.2	114	110	59-133	4	20	
1,1-Dichloroethene	ug/L	ND	50	50	49.7	47.1	99	94	44-146	5	20	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	61.8	60.9	124	122	23-166	1	20	
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	56.1	55.2	112	110	55-166	2	20	
1,2-Dichloroethane	ug/L	ND	50	50	59.1	57.8	118	116	56-154	2	20	
1,2-Dichloropropane	ug/L	ND	50	50	61.6	59.4	123	119	62-135	4	20	
2-Butanone (MEK)	ug/L	ND	50	50	65.6	63.9	130	126	20-205	3	20	
2-Hexanone	ug/L	ND	50	50	67.0	65.7	134	131	25-189	2	20	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	50	64.7	64.3	129	129	23-184	1	20	

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### QUALITY CONTROL DATA

Project: B0063767  
Pace Project No.: 2038028

Parameter	Units	234144		234145		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		2038028002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Acetone	ug/L	29.7	50	50	88.3	90.8	117	122	11-217	3	20	
Benzene	ug/L	ND	50	50	57.7	56.0	115	112	52-141	3	20	
Bromodichloromethane	ug/L	ND	50	50	56.7	54.6	113	109	70-134	4	20	
Bromoform	ug/L	ND	50	50	41.9	41.9	84	84	37-171	0	20	
Bromomethane	ug/L	ND	50	50	54.7	53.7	109	107	34-155	2	20	
Carbon disulfide	ug/L	ND	50	50	51.1	48.9	102	98	28-130	4	20	
Carbon tetrachloride	ug/L	ND	50	50	50.7	48.8	101	98	48-146	4	20	
Chlorobenzene	ug/L	ND	50	50	54.3	53.3	109	107	67-129	2	20	
Chloroethane	ug/L	ND	50	50	53.1	52.5	106	105	12-192	1	20	
Chloroform	ug/L	ND	50	50	51.7	49.8	103	100	66-143	4	20	
Chloromethane	ug/L	0.90	50	50	51.7	48.8	102	96	14-155	6	20	
cis-1,2-Dichloroethene	ug/L	ND	50	50	56.8	54.7	113	108	56-141	4	20	
cis-1,3-Dichloropropene	ug/L	ND	50	50	53.3	51.6	107	103	70-139	3	20	
Dibromochloromethane	ug/L	ND	50	50	49.3	47.9	99	96	50-150	3	20	
Dichlorodifluoromethane	ug/L	ND	50	50	28.5	27.2	57	54	10-173	5	20	
Ethylbenzene	ug/L	ND	50	50	59.1	57.4	118	114	57-135	3	20	
Isopropylbenzene (Cumene)	ug/L	ND	50	50	66.4	64.5	133	129	40-146	3	20	
m&p-Xylene	ug/L	ND	100	100	112	110	112	110	56-136	2	20	
Methyl acetate	ug/L	ND	50	50	45.0	45.3	90	91	10-142	1	20	
Methyl-tert-butyl ether	ug/L	2.1	50	50	52.2	51.3	100	98	35-176	2	20	
Methylene Chloride	ug/L	ND	50	50	49.9	48.3	100	97	45-166	3	20	
o-Xylene	ug/L	ND	50	50	55.8	54.5	112	109	57-133	2	20	
Styrene	ug/L	ND	50	50	58.4	57.4	117	115	58-144	2	20	
Tetrachloroethene	ug/L	ND	50	50	51.6	50.7	103	101	48-143	2	20	
Toluene	ug/L	ND	50	50	61.9	60.1	124	120	59-136	3	20	
trans-1,2-Dichloroethene	ug/L	ND	50	50	53.5	51.6	107	103	57-132	4	20	
trans-1,3-Dichloropropene	ug/L	ND	50	50	55.6	54.4	111	109	59-154	2	20	
Trichloroethene	ug/L	1.4	50	50	55.6	53.5	108	104	58-140	4	20	
Trichlorofluoromethane	ug/L	ND	50	50	59.1	59.3	118	119	24-175	0	20	
Vinyl chloride	ug/L	ND	50	50	49.1	46.9	98	94	21-150	5	20	
4-Bromofluorobenzene (S)	%						96	95	68-124			
Dibromofluoromethane (S)	%						99	99	72-126			
Toluene-d8 (S)	%						104	105	79-119			

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**QUALITY CONTROL DATA**

Project: B0063767  
 Pace Project No.: 2038028

QC Batch: OEXT/9261                      Analysis Method: EPA 8015B Modified  
 QC Batch Method: EPA 3535                Analysis Description: EPA 8015 ORO  
 Associated Lab Samples: 2038028001, 2038028002, 2038028003, 2038028004, 2038028005, 2038028006, 2038028007

METHOD BLANK: 234876                              Matrix: Water  
 Associated Lab Samples: 2038028001, 2038028002, 2038028003, 2038028004, 2038028005, 2038028006, 2038028007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	ND	0.25	06/17/16 14:43	
Oil Range Organics (>C28-C40)	mg/L	ND	0.50	06/17/16 14:43	
n-Pentacosane (S)	%	54	16-137	06/17/16 14:43	
o-Terphenyl (S)	%	55	10-121	06/17/16 14:43	

LABORATORY CONTROL SAMPLE: 234877

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	.4	ND	43	10-115	
n-Pentacosane (S)	%			66	16-137	
o-Terphenyl (S)	%			71	10-121	

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### QUALITY CONTROL DATA

Project: B0063767  
Pace Project No.: 2038028

QC Batch: OEXT/9253 Analysis Method: EPA 8270 by SIM  
QC Batch Method: EPA 3510 Analysis Description: 8270 Water by SIM MSSV  
Associated Lab Samples: 2038028002, 2038028003, 2038028004, 2038028005, 2038028007

METHOD BLANK: 234571 Matrix: Water  
Associated Lab Samples: 2038028002, 2038028003, 2038028004, 2038028005, 2038028007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	06/16/16 13:55	
Anthracene	mg/L	ND	0.00010	06/16/16 13:55	
Benzo(a)anthracene	mg/L	ND	0.00010	06/16/16 13:55	
Benzo(a)pyrene	mg/L	ND	0.00010	06/16/16 13:55	
Benzo(b)fluoranthene	mg/L	ND	0.00010	06/16/16 13:55	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	06/16/16 13:55	
Benzo(k)fluoranthene	mg/L	ND	0.00010	06/16/16 13:55	
Chrysene	mg/L	ND	0.00010	06/16/16 13:55	
Fluoranthene	mg/L	ND	0.00010	06/16/16 13:55	
Fluorene	mg/L	ND	0.00010	06/16/16 13:55	
Naphthalene	mg/L	ND	0.00010	06/16/16 13:55	
Phenanthrene	mg/L	ND	0.00010	06/16/16 13:55	
Pyrene	mg/L	ND	0.00010	06/16/16 13:55	
2-Fluorobiphenyl (S)	%	76	25-150	06/16/16 13:55	
Terphenyl-d14 (S)	%	95	25-150	06/16/16 13:55	

LABORATORY CONTROL SAMPLE: 234572

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0045	112	35-150	
Anthracene	mg/L	.004	0.0039	98	35-150	
Benzo(a)anthracene	mg/L	.004	0.0038	95	35-150	
Benzo(a)pyrene	mg/L	.004	0.0035	87	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0038	96	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0036	90	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0036	90	35-150	
Chrysene	mg/L	.004	0.0039	97	35-150	
Fluoranthene	mg/L	.004	0.0064	160	35-150 L0	
Fluorene	mg/L	.004	0.0047	116	35-150	
Naphthalene	mg/L	.004	0.0094	235	35-150 L0	
Phenanthrene	mg/L	.004	0.0091	228	35-150 L0	
Pyrene	mg/L	.004	0.0051	127	35-150	
2-Fluorobiphenyl (S)	%			84	25-150	
Terphenyl-d14 (S)	%			107	25-150	

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### QUALITY CONTROL DATA

Project: B0063767  
Pace Project No.: 2038028

QC Batch: OEXT/9279      Analysis Method: EPA 8270 by SIM  
QC Batch Method: EPA 3510      Analysis Description: 8270 Water by SIM MSSV  
Associated Lab Samples: 2038028001, 2038028006

METHOD BLANK: 235622      Matrix: Water  
Associated Lab Samples: 2038028001, 2038028006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	06/21/16 12:22	
Anthracene	mg/L	ND	0.00010	06/21/16 12:22	
Benzo(a)anthracene	mg/L	ND	0.00010	06/21/16 12:22	
Benzo(a)pyrene	mg/L	ND	0.00010	06/21/16 12:22	
Benzo(b)fluoranthene	mg/L	ND	0.00010	06/21/16 12:22	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	06/21/16 12:22	
Benzo(k)fluoranthene	mg/L	ND	0.00010	06/21/16 12:22	
Chrysene	mg/L	ND	0.00010	06/21/16 12:22	
Fluoranthene	mg/L	ND	0.00010	06/21/16 12:22	
Fluorene	mg/L	ND	0.00010	06/21/16 12:22	
Naphthalene	mg/L	ND	0.00010	06/21/16 12:22	
Phenanthrene	mg/L	ND	0.00010	06/21/16 12:22	
Pyrene	mg/L	ND	0.00010	06/21/16 12:22	
2-Fluorobiphenyl (S)	%	82	25-150	06/21/16 12:22	
Terphenyl-d14 (S)	%	103	25-150	06/21/16 12:22	

LABORATORY CONTROL SAMPLE: 235623

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0027	68	35-150	
Anthracene	mg/L	.004	0.0033	82	35-150	
Benzo(a)anthracene	mg/L	.004	0.0032	80	35-150	
Benzo(a)pyrene	mg/L	.004	0.0032	81	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0034	85	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0032	80	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0034	84	35-150	
Chrysene	mg/L	.004	0.0033	82	35-150	
Fluoranthene	mg/L	.004	0.0036	89	35-150	
Fluorene	mg/L	.004	0.0028	71	35-150	
Naphthalene	mg/L	.004	0.0030	75	35-150	
Phenanthrene	mg/L	.004	0.0033	81	35-150	
Pyrene	mg/L	.004	0.0031	76	35-150	
2-Fluorobiphenyl (S)	%			78	25-150	
Terphenyl-d14 (S)	%			89	25-150	

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## QUALIFIERS

Project: B0063767  
Pace Project No.: 2038028

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.  
ND - Not Detected at or above adjusted reporting limit.  
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.  
MDL - Adjusted Method Detection Limit.  
PQL - Practical Quantitation Limit.  
RL - Reporting Limit.  
S - Surrogate  
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.  
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.  
LCS(D) - Laboratory Control Sample (Duplicate)  
MS(D) - Matrix Spike (Duplicate)  
DUP - Sample Duplicate  
RPD - Relative Percent Difference  
NC - Not Calculable.  
SG - Silica Gel - Clean-Up  
U - Indicates the compound was analyzed for, but not detected.  
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.  
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.  
TNI - The Nelac Institute

### LABORATORIES

PASI-N Pace Analytical Services - New Orleans

### BATCH QUALIFIERS

Batch: GCV/2867

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/4094

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: GCSV/6679

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/4105

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### ANALYTE QUALIFIERS

C9 Common Laboratory Contaminant.  
L0 Analyte recovery in the laboratory control sample (LCS) was outside QC limits.  
L3 Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: B0063767  
Pace Project No.: 2038028

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2038028001	EB-061016	EPA 3535	OEXT/9261	EPA 8015B Modified	GCSV/6679
2038028002	MP-5A	EPA 3535	OEXT/9261	EPA 8015B Modified	GCSV/6679
2038028003	15A	EPA 3535	OEXT/9261	EPA 8015B Modified	GCSV/6679
2038028004	DP5	EPA 3535	OEXT/9261	EPA 8015B Modified	GCSV/6679
2038028005	15B2	EPA 3535	OEXT/9261	EPA 8015B Modified	GCSV/6679
2038028006	B-9	EPA 3535	OEXT/9261	EPA 8015B Modified	GCSV/6679
2038028007	15B	EPA 3535	OEXT/9261	EPA 8015B Modified	GCSV/6679
2038028001	EB-061016	EPA 8015/8021	GCV/2867		
2038028002	MP-5A	EPA 8015/8021	GCV/2867		
2038028003	15A	EPA 8015/8021	GCV/2867		
2038028004	DP5	EPA 8015/8021	GCV/2867		
2038028005	15B2	EPA 8015/8021	GCV/2867		
2038028006	B-9	EPA 8015/8021	GCV/2867		
2038028007	15B	EPA 8015/8021	GCV/2867		
2038028008	TRIP BLANK	EPA 8015/8021	GCV/2867		
2038028009	FB-061016	EPA 8015/8021	GCV/2867		
2038028001	EB-061016	EPA 3010	MPRP/4369	EPA 6020	ICPM/1925
2038028002	MP-5A	EPA 3010	MPRP/4369	EPA 6020	ICPM/1925
2038028003	15A	EPA 3010	MPRP/4369	EPA 6020	ICPM/1925
2038028004	DP5	EPA 3010	MPRP/4369	EPA 6020	ICPM/1925
2038028005	15B2	EPA 3010	MPRP/4369	EPA 6020	ICPM/1925
2038028006	B-9	EPA 3010	MPRP/4369	EPA 6020	ICPM/1925
2038028007	15B	EPA 3010	MPRP/4369	EPA 6020	ICPM/1925
2038028001	EB-061016	EPA 7470	MERP/2765	EPA 7470	MERC/3394
2038028002	MP-5A	EPA 7470	MERP/2765	EPA 7470	MERC/3394
2038028003	15A	EPA 7470	MERP/2765	EPA 7470	MERC/3394
2038028004	DP5	EPA 7470	MERP/2765	EPA 7470	MERC/3394
2038028005	15B2	EPA 7470	MERP/2765	EPA 7470	MERC/3394
2038028006	B-9	EPA 7470	MERP/2765	EPA 7470	MERC/3394
2038028007	15B	EPA 7470	MERP/2765	EPA 7470	MERC/3394
2038028001	EB-061016	EPA 3510	OEXT/9279	EPA 8270 by SIM	MSSV/4105
2038028002	MP-5A	EPA 3510	OEXT/9253	EPA 8270 by SIM	MSSV/4094
2038028003	15A	EPA 3510	OEXT/9253	EPA 8270 by SIM	MSSV/4094
2038028004	DP5	EPA 3510	OEXT/9253	EPA 8270 by SIM	MSSV/4094
2038028005	15B2	EPA 3510	OEXT/9253	EPA 8270 by SIM	MSSV/4094
2038028006	B-9	EPA 3510	OEXT/9279	EPA 8270 by SIM	MSSV/4105
2038028007	15B	EPA 3510	OEXT/9253	EPA 8270 by SIM	MSSV/4094
2038028001	EB-061016	EPA 5030B/8260	MSV/5068		
2038028002	MP-5A	EPA 5030B/8260	MSV/5068		
2038028003	15A	EPA 5030B/8260	MSV/5068		
2038028004	DP5	EPA 5030B/8260	MSV/5068		
2038028005	15B2	EPA 5030B/8260	MSV/5068		
2038028006	B-9	EPA 5030B/8260	MSV/5068		
2038028007	15B	EPA 5030B/8260	MSV/5068		
2038028008	TRIP BLANK	EPA 5030B/8260	MSV/5068		

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: B0063767

Pace Project No.: 2038028

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<b>Lab ID</b>	<b>Sample ID</b>	<b>QC Batch Method</b>	<b>QC Batch</b>	<b>Analytical Method</b>	<b>Analytical Batch</b>
2038028009	FB-061016	EPA 5030B/8260	MSV/5068		

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**WO# : 2038028**

**I-OF-CUSTODY / Analytical Request Document**

of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



**2038028**

**Section A**  
Required Client Information:

Company: *Arcadis*  
Address: *City View Plaza I  
Ste 401, Guaynabo, PR*  
Email To: *Efrain Calderin @ arcadis.com*  
Phone: *787-777-4000*  
Requested Due Date/TAT:

Report To: *Efrain Calderin*  
Copy To:  
Purchase Order No.:  
Project Name:  
Project Number: *BUD63767*

**Section C**  
Invoice Information:

Attention:  
Company Name:  
Address:  
Pace Quote Reference:  
Pace Project Manager: *J- Redondo*  
Pace Profile #:

Page: *1* of *1*  
**2035839**

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER \_\_\_\_\_  
Site Location: *Bayamon*  
STATE: *P.R.*

**Section D**  
Required Client Information

**Matrix Codes**  
MATRIX / CODE  
Drinking Water DW  
Water WT  
Waste Water WW  
Product P  
Soil/Solid SL  
Oil OL  
Wipe WP  
Air AR  
Tissue TS  
Other OT

**SAMPLE ID**  
(A-Z, 0-9 /, -)  
Sample IDs MUST BE UNIQUE

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test	Requested Analysis Filtered (Y/N)												Residual Chlorine (Y/N)														
				DATE	TIME	DATE	TIME			Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol		Other																										
1	EB-061016		S			6/10/16	0918	9	4																																			
2	MP-SA		S			6/10/16	1550	9	4																																			
3	ISA		S			6/10/16	1020	9	4																																			
4	DPS		S			6/10/16	1116	9	4																																			
5	15B2		S			6/10/16	0922	9	4																																			
6	B9		S			6/10/16	0746	9	4																																			
7	15B		S			6/10/16	0843	9	4																																			
8	Trip blank		S			6/10/16	0000	4	4																																			
9	FB-061016		S			6/10/16	1155	4	4																																			

*2038028*

Pace Project No./ Lab I.D.

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<i>Relax by Arcadis</i>	<i>6/10/16</i>	<i>12:34</i>	<i>Relax by Arcadis</i>	<i>6-10-16</i>	<i>12:34</i>	
	<i>Relax by Arcadis</i>	<i>6-13-16</i>	<i>10:00</i>	<i>Relax by Arcadis</i>	<i>6-14-16</i>	<i>855</i>	
	<i>Fed EX</i>	<i>6-14-16</i>	<i>855</i>	<i>Fed EX</i>	<i>6-14-16</i>	<i>855</i>	<i>1.2</i> <i>1.0</i>

ORIGINAL

**SAMPLER NAME AND SIGNATURE**  
PRINT Name of SAMPLER: *Mariangela Mercado Fernandez Olom*  
SIGNATURE of SAMPLER: *[Signature]*  
DATE Signed (MM/DD/YY): *6/10/16*

Temp in °C  
Received on Ice (Y/N)  
Custody Sealed Cooler (Y/N)  
Samples Intact (Y/N)

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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Sample Condition Upon Receipt

WO#: 2038028

Urb. Jardines de Guaynabo
Calle Mrginal Blq A-10
Guaynabo, PR 00969

PM: JAR1 Due Date: 06/24/16
CLIENT: 98-ARCADISPR

Project :

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 4 Therm Fisher IR 6 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 6-13-16

Temp must be measured from Temperature blank when present

Comments:

Table with 15 rows and 2 columns. Rows include: Temperature Blank Present?, Chain of Custody Present, Chain of Custody Complete, Chain of Custody Relinquished, Sampler Name & Signature on COC, Samples Arrived within Hold Time, Sufficient Volume, Correct Containers Used, Filtered vol. Rec. for Diss. tests, Sample Labels match COC, All containers received within manufacture's precautionary and/or expiration dates, All containers needing chemical preservation have been checked, All containers preservation checked found to be in compliance with EPA recommendation, Headspace in VOA Vials (>6mm), Trip Blank Present.

Client Notification/ Resolution:

Person Contacted: Date/Time:

Comments/ Resolution:



1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

### Sample Condition Upon Receipt

Project #: **20 38028**

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 5  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 6-15-16 MS

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15

#### Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

June 30, 2016

Efrain Calderon  
BBL Caribe Engineering P.S.C.  
48 City View Plaza1, Suite 401  
Road 16, Km. 1.2  
Guaynabo, PR 00968

RE: Project: PUMA TERMINAL WELL SAMPLING  
Pace Project No.: 2038404

Dear Efrain Calderon:

Enclosed are the analytical results for sample(s) received by the laboratory on June 16, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Juan Redondo  
juan.redondo@pacelabs.com  
Project Manager

Enclosures

cc: Sharon Colon  
Abner Hernandez  
Marianela Mercado-Burgos



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

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### New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:  
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):  
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):  
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):  
T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-  
00119

Commonwealth of Virginia (TNI): 480246

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2038404001	EB-061516	Water	06/15/16 12:00	06/16/16 16:20
2038404002	TRIP BLANK	Water	06/15/16 00:00	06/16/16 16:20
2038404003	MW-DP1	Water	06/15/16 13:54	06/16/16 16:20
2038404004	MW-MP2	Water	06/15/16 15:24	06/16/16 16:20
2038404005	EB-061616	Water	06/16/16 07:30	06/16/16 16:20
2038404006	FB-061516	Water	06/15/16 15:35	06/16/16 16:20
2038404007	MW-MP8	Water	06/16/16 09:45	06/16/16 16:20
2038404008	MW-MP9	Water	06/16/16 10:58	06/16/16 16:20
2038404009	MW-MP3	Water	06/16/16 13:30	06/16/16 16:20
2038404010	FB-061616	Water	06/16/16 15:15	06/16/16 16:20

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2038404001	EB-061516	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038404002	TRIP BLANK	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038404003	MW-DP1	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038404004	MW-MP2	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038404005	EB-061616	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038404006	FB-061516	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038404007	MW-MP8	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038404008	MW-MP9	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2038404009	MW-MP3	EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
		EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
2038404010	FB-061616	EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

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**Method:** EPA 8015B Modified

**Description:** 8015M DRO/ORO Organics

**Client:** BBL Caribe / Arcadis PR

**Date:** June 30, 2016

**General Information:**

7 samples were analyzed for EPA 8015B Modified. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3535 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: OEXT/9310

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

---

**Method:** EPA 8015/8021

**Description:** 8021 GCV BTEX, MTBE, GRO

**Client:** BBL Caribe / Arcadis PR

**Date:** June 30, 2016

**General Information:**

10 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

---

**Method:** EPA 6020

**Description:** 6020 MET ICPMS

**Client:** BBL Caribe / Arcadis PR

**Date:** June 30, 2016

**General Information:**

7 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

---

**Method:** EPA 7470

**Description:** 7470 Mercury

**Client:** BBL Caribe / Arcadis PR

**Date:** June 30, 2016

**General Information:**

7 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

---

**Method:** EPA 8270 by SIM

**Description:** 8270 MSSV PAH by SIM SEP

**Client:** BBL Caribe / Arcadis PR

**Date:** June 30, 2016

### General Information:

7 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: OEXT/9309

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: OEXT/9316

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

### Additional Comments:

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

---

**Method:** EPA 5030B/8260

**Description:** 8260 MSV Low Level

**Client:** BBL Caribe / Arcadis PR

**Date:** June 30, 2016

**General Information:**

10 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

Sample: EB-061516	Lab ID: 2038404001	Collected: 06/15/16 12:00	Received: 06/16/16 16:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/21/16 12:09	06/23/16 13:07		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/21/16 12:09	06/23/16 13:07		
<b>Surrogates</b>								
n-Pentacosane (S)	57	%	16-137	1	06/21/16 12:09	06/23/16 13:07	629-99-2	
o-Terphenyl (S)	65	%	10-121	1	06/21/16 12:09	06/23/16 13:07	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/21/16 16:52		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	92	%	44-148	1		06/21/16 16:52	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:23	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:23	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:23	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/23/16 08:18	06/24/16 11:23	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/23/16 08:20	06/23/16 13:18	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:09	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:09	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:09	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:09	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:09	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:09	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:09	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:09	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:09	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:09	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:09	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:09	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:09	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	68	%	25-150	1	06/21/16 11:34	06/22/16 13:09	321-60-8	
Terphenyl-d14 (S)	82	%	25-150	1	06/21/16 11:34	06/22/16 13:09	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	31.7	ug/L	4.0	1		06/21/16 17:13	67-64-1	
Benzene	ND	ug/L	0.50	1		06/21/16 17:13	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/21/16 17:13	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/21/16 17:13	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/21/16 17:13	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/21/16 17:13	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/21/16 17:13	75-65-0	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

Sample: EB-061516	Lab ID: 2038404001	Collected: 06/15/16 12:00	Received: 06/16/16 16:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/21/16 17:13	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/21/16 17:13	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/21/16 17:13	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/21/16 17:13	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/21/16 17:13	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/21/16 17:13	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/21/16 17:13	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/21/16 17:13	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/21/16 17:13	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/21/16 17:13	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/21/16 17:13	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/21/16 17:13	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/21/16 17:13	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/21/16 17:13	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/21/16 17:13	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/21/16 17:13	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/21/16 17:13	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/21/16 17:13	10061-02-6	
Ethanol	ND	ug/L	500	1		06/21/16 17:13	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/21/16 17:13	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/21/16 17:13	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/21/16 17:13	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/21/16 17:13	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/21/16 17:13	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/21/16 17:13	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/21/16 17:13	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/21/16 17:13	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/21/16 17:13	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/21/16 17:13	127-18-4	
Toluene	1.1	ug/L	0.50	1		06/21/16 17:13	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/21/16 17:13	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/21/16 17:13	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/21/16 17:13	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/21/16 17:13	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/21/16 17:13	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/21/16 17:13	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/21/16 17:13	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	99	%	72-126	1		06/21/16 17:13	1868-53-7	
4-Bromofluorobenzene (S)	97	%	68-124	1		06/21/16 17:13	460-00-4	
Toluene-d8 (S)	107	%	79-119	1		06/21/16 17:13	2037-26-5	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

Sample: TRIP BLANK	Lab ID: 2038404002	Collected: 06/15/16 00:00	Received: 06/16/16 16:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/21/16 17:20		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	92	%	44-148	1		06/21/16 17:20	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	39.6	ug/L	4.0	1		06/21/16 17:31	67-64-1	
Benzene	ND	ug/L	0.50	1		06/21/16 17:31	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/21/16 17:31	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/21/16 17:31	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/21/16 17:31	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/21/16 17:31	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/21/16 17:31	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/21/16 17:31	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/21/16 17:31	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/21/16 17:31	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/21/16 17:31	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/21/16 17:31	67-66-3	
Chloromethane	0.62	ug/L	0.50	1		06/21/16 17:31	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/21/16 17:31	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/21/16 17:31	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/21/16 17:31	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/21/16 17:31	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/21/16 17:31	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/21/16 17:31	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/21/16 17:31	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/21/16 17:31	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/21/16 17:31	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/21/16 17:31	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/21/16 17:31	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/21/16 17:31	10061-02-6	
Ethanol	ND	ug/L	500	1		06/21/16 17:31	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/21/16 17:31	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/21/16 17:31	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/21/16 17:31	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/21/16 17:31	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/21/16 17:31	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/21/16 17:31	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/21/16 17:31	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/21/16 17:31	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/21/16 17:31	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/21/16 17:31	127-18-4	
Toluene	ND	ug/L	0.50	1		06/21/16 17:31	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/21/16 17:31	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/21/16 17:31	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/21/16 17:31	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/21/16 17:31	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/21/16 17:31	75-01-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Sample Project No.: 2038404

Sample: TRIP BLANK	Lab ID: 2038404002	Collected: 06/15/16 00:00	Received: 06/16/16 16:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
m&p-Xylene	ND	ug/L	2.0	1		06/21/16 17:31	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/21/16 17:31	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	97	%.	72-126	1		06/21/16 17:31	1868-53-7	
4-Bromofluorobenzene (S)	96	%.	68-124	1		06/21/16 17:31	460-00-4	
Toluene-d8 (S)	106	%.	79-119	1		06/21/16 17:31	2037-26-5	
<b>Sample: MW-DP1</b>		Lab ID: 2038404003		Collected: 06/15/16 13:54	Received: 06/16/16 16:20	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535						
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/21/16 12:09	06/23/16 13:36		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/21/16 12:09	06/23/16 13:36		
<b>Surrogates</b>								
n-Pentacosane (S)	22	%.	16-137	1	06/21/16 12:09	06/23/16 13:36	629-99-2	
o-Terphenyl (S)	55	%.	10-121	1	06/21/16 12:09	06/23/16 13:36	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/21/16 17:48		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	91	%.	44-148	1		06/21/16 17:48	460-00-4	
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010						
Vanadium	<b>0.016</b>	mg/L	0.0050	1	06/23/16 08:18	06/24/16 11:08	7440-62-2	
Chromium	<b>0.0032</b>	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:08	7440-47-3	
Arsenic	<b>0.0013</b>	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:08	7440-38-2	
Lead	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:08	7439-92-1	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470						
Mercury	ND	ug/L	0.20	1	06/23/16 08:20	06/23/16 13:28	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Naphthalene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:31	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:31	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:31	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:31	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:31	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:31	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:31	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:31	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:31	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:31	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:31	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:31	50-32-8	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

Sample: MW-DP1	Lab ID: 2038404003	Collected: 06/15/16 13:54	Received: 06/16/16 16:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:31	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	69	%	25-150	1	06/21/16 11:34	06/22/16 13:31	321-60-8	
Terphenyl-d14 (S)	80	%	25-150	1	06/21/16 11:34	06/22/16 13:31	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	21.5	ug/L	4.0	1		06/21/16 16:55	67-64-1	
Benzene	ND	ug/L	0.50	1		06/21/16 16:55	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/21/16 16:55	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/21/16 16:55	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/21/16 16:55	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/21/16 16:55	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/21/16 16:55	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/21/16 16:55	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/21/16 16:55	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/21/16 16:55	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/21/16 16:55	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/21/16 16:55	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/21/16 16:55	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/21/16 16:55	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/21/16 16:55	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/21/16 16:55	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/21/16 16:55	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/21/16 16:55	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/21/16 16:55	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/21/16 16:55	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/21/16 16:55	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/21/16 16:55	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/21/16 16:55	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/21/16 16:55	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/21/16 16:55	10061-02-6	
Ethanol	ND	ug/L	500	1		06/21/16 16:55	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/21/16 16:55	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/21/16 16:55	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/21/16 16:55	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/21/16 16:55	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/21/16 16:55	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/21/16 16:55	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/21/16 16:55	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/21/16 16:55	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/21/16 16:55	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/21/16 16:55	127-18-4	
Toluene	ND	ug/L	0.50	1		06/21/16 16:55	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/21/16 16:55	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/21/16 16:55	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/21/16 16:55	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/21/16 16:55	75-69-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Sample Project No.: 2038404

Sample: MW-DP1		Lab ID: 2038404003		Collected: 06/15/16 13:54		Received: 06/16/16 16:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Vinyl chloride	ND	ug/L	0.50	1		06/21/16 16:55	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		06/21/16 16:55	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		06/21/16 16:55	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	98	%.	72-126	1		06/21/16 16:55	1868-53-7		
4-Bromofluorobenzene (S)	97	%.	68-124	1		06/21/16 16:55	460-00-4		
Toluene-d8 (S)	107	%.	79-119	1		06/21/16 16:55	2037-26-5		
<b>Sample: MW-MP2</b>		Lab ID: 2038404004		Collected: 06/15/16 15:24		Received: 06/16/16 16:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535							
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/21/16 12:09	06/23/16 14:04			
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/21/16 12:09	06/23/16 14:04			
<b>Surrogates</b>									
n-Pentacosane (S)	57	%.	16-137	1	06/21/16 12:09	06/23/16 14:04	629-99-2		
o-Terphenyl (S)	60	%.	10-121	1	06/21/16 12:09	06/23/16 14:04	84-15-1		
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		06/21/16 18:16			
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	91	%.	44-148	1		06/21/16 18:16	460-00-4		
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Arsenic	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:27	7440-38-2		
Chromium	<b>0.0056</b>	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:27	7440-47-3		
Lead	<b>0.0014</b>	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:27	7439-92-1		
Vanadium	<b>0.024</b>	mg/L	0.0050	1	06/23/16 08:18	06/24/16 11:27	7440-62-2		
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	ND	ug/L	0.20	1	06/23/16 08:20	06/23/16 13:30	7439-97-6		
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510							
Naphthalene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:52	91-20-3		
Acenaphthene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:52	83-32-9		
Fluorene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:52	86-73-7		
Phenanthrene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:52	85-01-8		
Anthracene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:52	120-12-7		
Fluoranthene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:52	206-44-0		
Pyrene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:52	129-00-0		
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:52	56-55-3		
Chrysene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:52	218-01-9		
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:52	205-99-2		
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:52	207-08-9		

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

Sample: MW-MP2	Lab ID: 2038404004	Collected: 06/15/16 15:24	Received: 06/16/16 16:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:52	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/21/16 11:34	06/22/16 13:52	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	65	%	25-150	1	06/21/16 11:34	06/22/16 13:52	321-60-8	
Terphenyl-d14 (S)	78	%	25-150	1	06/21/16 11:34	06/22/16 13:52	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	22.1	ug/L	4.0	1		06/21/16 17:48	67-64-1	
Benzene	ND	ug/L	0.50	1		06/21/16 17:48	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/21/16 17:48	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/21/16 17:48	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/21/16 17:48	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/21/16 17:48	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/21/16 17:48	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/21/16 17:48	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/21/16 17:48	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/21/16 17:48	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/21/16 17:48	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/21/16 17:48	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/21/16 17:48	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/21/16 17:48	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/21/16 17:48	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/21/16 17:48	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/21/16 17:48	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/21/16 17:48	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/21/16 17:48	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/21/16 17:48	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/21/16 17:48	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/21/16 17:48	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/21/16 17:48	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/21/16 17:48	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/21/16 17:48	10061-02-6	
Ethanol	ND	ug/L	500	1		06/21/16 17:48	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/21/16 17:48	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/21/16 17:48	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/21/16 17:48	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/21/16 17:48	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/21/16 17:48	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/21/16 17:48	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/21/16 17:48	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/21/16 17:48	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/21/16 17:48	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/21/16 17:48	127-18-4	
Toluene	ND	ug/L	0.50	1		06/21/16 17:48	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/21/16 17:48	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/21/16 17:48	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/21/16 17:48	79-01-6	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING  
 Pace Project No.: 2038404

Sample: MW-MP2		Lab ID: 2038404004		Collected: 06/15/16 15:24		Received: 06/16/16 16:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Trichlorofluoromethane	ND	ug/L	0.50	1		06/21/16 17:48	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/21/16 17:48	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		06/21/16 17:48	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		06/21/16 17:48	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	97	%.	72-126	1		06/21/16 17:48	1868-53-7		
4-Bromofluorobenzene (S)	97	%.	68-124	1		06/21/16 17:48	460-00-4		
Toluene-d8 (S)	106	%.	79-119	1		06/21/16 17:48	2037-26-5		

Sample: EB-061616		Lab ID: 2038404005		Collected: 06/16/16 07:30		Received: 06/16/16 16:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535							
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/21/16 12:09	06/23/16 14:32			
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/21/16 12:09	06/23/16 14:32			
<b>Surrogates</b>									
n-Pentacosane (S)	48	%.	16-137	1	06/21/16 12:09	06/23/16 14:32	629-99-2		
o-Terphenyl (S)	53	%.	10-121	1	06/21/16 12:09	06/23/16 14:32	84-15-1		

<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
Gasoline Range Organics	ND	ug/L	50.0	1		06/21/16 19:40			
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	91	%.	44-148	1		06/21/16 19:40	460-00-4		

<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
Arsenic	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:38	7440-38-2		
Chromium	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:38	7440-47-3		
Lead	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:38	7439-92-1		
Vanadium	ND	mg/L	0.0050	1	06/23/16 08:18	06/24/16 11:38	7440-62-2		

<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
Mercury	ND	ug/L	0.20	1	06/23/16 08:20	06/23/16 13:32	7439-97-6		

<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
Naphthalene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:02	91-20-3		
Acenaphthene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:02	83-32-9		
Fluorene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:02	86-73-7		
Phenanthrene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:02	85-01-8		
Anthracene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:02	120-12-7		
Fluoranthene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:02	206-44-0		
Pyrene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:02	129-00-0		
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:02	56-55-3		
Chrysene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:02	218-01-9		
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:02	205-99-2		

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

Sample: EB-061616	Lab ID: 2038404005	Collected: 06/16/16 07:30	Received: 06/16/16 16:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:02	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:02	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:02	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	76	%.	25-150	1	06/22/16 10:14	06/28/16 16:02	321-60-8	
Terphenyl-d14 (S)	99	%.	25-150	1	06/22/16 10:14	06/28/16 16:02	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	<b>32.8</b>	ug/L	4.0	1		06/21/16 18:06	67-64-1	
Benzene	ND	ug/L	0.50	1		06/21/16 18:06	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/21/16 18:06	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/21/16 18:06	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/21/16 18:06	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/21/16 18:06	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/21/16 18:06	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/21/16 18:06	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/21/16 18:06	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/21/16 18:06	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/21/16 18:06	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/21/16 18:06	67-66-3	
Chloromethane	<b>0.80</b>	ug/L	0.50	1		06/21/16 18:06	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/21/16 18:06	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/21/16 18:06	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/21/16 18:06	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/21/16 18:06	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/21/16 18:06	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/21/16 18:06	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/21/16 18:06	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/21/16 18:06	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/21/16 18:06	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/21/16 18:06	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/21/16 18:06	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/21/16 18:06	10061-02-6	
Ethanol	ND	ug/L	500	1		06/21/16 18:06	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/21/16 18:06	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/21/16 18:06	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/21/16 18:06	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/21/16 18:06	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/21/16 18:06	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/21/16 18:06	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/21/16 18:06	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/21/16 18:06	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/21/16 18:06	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/21/16 18:06	127-18-4	
Toluene	<b>1.1</b>	ug/L	0.50	1		06/21/16 18:06	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/21/16 18:06	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/21/16 18:06	79-00-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

Sample: EB-061616		Lab ID: 2038404005		Collected: 06/16/16 07:30		Received: 06/16/16 16:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Trichloroethene	ND	ug/L	0.50	1		06/21/16 18:06	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/21/16 18:06	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/21/16 18:06	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		06/21/16 18:06	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		06/21/16 18:06	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	97	%.	72-126	1		06/21/16 18:06	1868-53-7		
4-Bromofluorobenzene (S)	97	%.	68-124	1		06/21/16 18:06	460-00-4		
Toluene-d8 (S)	107	%.	79-119	1		06/21/16 18:06	2037-26-5		

Sample: FB-061516		Lab ID: 2038404006		Collected: 06/15/16 15:35		Received: 06/16/16 16:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		06/21/16 20:08			
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	92	%.	44-148	1		06/21/16 20:08	460-00-4		
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Acetone	<b>29.9</b>	ug/L	4.0	1		06/21/16 18:24	67-64-1		
Benzene	ND	ug/L	0.50	1		06/21/16 18:24	71-43-2		
Bromodichloromethane	ND	ug/L	0.50	1		06/21/16 18:24	75-27-4		
Bromoform	ND	ug/L	0.50	1		06/21/16 18:24	75-25-2		
Bromomethane	ND	ug/L	0.50	1		06/21/16 18:24	74-83-9		
2-Butanone (MEK)	ND	ug/L	2.0	1		06/21/16 18:24	78-93-3		
tert-Butyl Alcohol	ND	ug/L	200	1		06/21/16 18:24	75-65-0		
Carbon disulfide	ND	ug/L	1.0	1		06/21/16 18:24	75-15-0		
Carbon tetrachloride	ND	ug/L	0.50	1		06/21/16 18:24	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		06/21/16 18:24	108-90-7		
Chloroethane	ND	ug/L	0.50	1		06/21/16 18:24	75-00-3		
Chloroform	ND	ug/L	0.50	1		06/21/16 18:24	67-66-3		
Chloromethane	<b>0.52</b>	ug/L	0.50	1		06/21/16 18:24	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/21/16 18:24	96-12-8		
Dibromochloromethane	ND	ug/L	0.50	1		06/21/16 18:24	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/21/16 18:24	106-93-4		
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/21/16 18:24	75-71-8		
1,1-Dichloroethane	ND	ug/L	0.50	1		06/21/16 18:24	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		06/21/16 18:24	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		06/21/16 18:24	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/21/16 18:24	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/21/16 18:24	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		06/21/16 18:24	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/21/16 18:24	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/21/16 18:24	10061-02-6		
Ethanol	ND	ug/L	500	1		06/21/16 18:24	64-17-5		

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING  
Pace Project No.: 2038404

Sample: <b>FB-061516</b>		Lab ID: <b>2038404006</b>		Collected: 06/15/16 15:35		Received: 06/16/16 16:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Ethylbenzene	ND	ug/L	0.50	1		06/21/16 18:24	100-41-4		
2-Hexanone	ND	ug/L	1.0	1		06/21/16 18:24	591-78-6		
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/21/16 18:24	98-82-8		
Methyl acetate	ND	ug/L	2.0	1		06/21/16 18:24	79-20-9		
Methylene Chloride	ND	ug/L	0.50	1		06/21/16 18:24	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/21/16 18:24	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/21/16 18:24	1634-04-4		
Styrene	ND	ug/L	1.0	1		06/21/16 18:24	100-42-5		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/21/16 18:24	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		06/21/16 18:24	127-18-4		
Toluene	<b>1.2</b>	ug/L	0.50	1		06/21/16 18:24	108-88-3		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/21/16 18:24	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/21/16 18:24	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		06/21/16 18:24	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/21/16 18:24	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/21/16 18:24	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		06/21/16 18:24	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		06/21/16 18:24	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	97	%.	72-126	1		06/21/16 18:24	1868-53-7		
4-Bromofluorobenzene (S)	95	%.	68-124	1		06/21/16 18:24	460-00-4		
Toluene-d8 (S)	106	%.	79-119	1		06/21/16 18:24	2037-26-5		

Sample: <b>MW-MP8</b>		Lab ID: <b>2038404007</b>		Collected: 06/16/16 09:45		Received: 06/16/16 16:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535							
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/21/16 12:09	06/23/16 15:00			
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/21/16 12:09	06/23/16 15:00			
<b>Surrogates</b>									
n-Pentacosane (S)	54	%.	16-137	1	06/21/16 12:09	06/23/16 15:00	629-99-2		
o-Terphenyl (S)	63	%.	10-121	1	06/21/16 12:09	06/23/16 15:00	84-15-1		
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		06/21/16 20:35			
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	92	%.	44-148	1		06/21/16 20:35	460-00-4		
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Arsenic	<b>0.0032</b>	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:42	7440-38-2		
Chromium	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:42	7440-47-3		
Lead	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:42	7439-92-1		
Vanadium	ND	mg/L	0.0050	1	06/23/16 08:18	06/24/16 11:42	7440-62-2		

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

Sample: MW-MP8	Lab ID: 2038404007	Collected: 06/16/16 09:45	Received: 06/16/16 16:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/23/16 08:20	06/23/16 13:34	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:24	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:24	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:24	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:24	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:24	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:24	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:24	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:24	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:24	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:24	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:24	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:24	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:24	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	77	%	25-150	1	06/22/16 10:14	06/28/16 16:24	321-60-8	
Terphenyl-d14 (S)	106	%	25-150	1	06/22/16 10:14	06/28/16 16:24	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	17.2	ug/L	4.0	1		06/21/16 18:42	67-64-1	
Benzene	ND	ug/L	0.50	1		06/21/16 18:42	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/21/16 18:42	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/21/16 18:42	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/21/16 18:42	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/21/16 18:42	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/21/16 18:42	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/21/16 18:42	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/21/16 18:42	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/21/16 18:42	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/21/16 18:42	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/21/16 18:42	67-66-3	
Chloromethane	0.85	ug/L	0.50	1		06/21/16 18:42	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/21/16 18:42	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/21/16 18:42	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/21/16 18:42	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/21/16 18:42	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/21/16 18:42	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/21/16 18:42	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/21/16 18:42	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/21/16 18:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/21/16 18:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/21/16 18:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/21/16 18:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/21/16 18:42	10061-02-6	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

Sample: MW-MP8		Lab ID: 2038404007		Collected: 06/16/16 09:45		Received: 06/16/16 16:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Ethanol	ND	ug/L	500	1		06/21/16 18:42	64-17-5		
Ethylbenzene	ND	ug/L	0.50	1		06/21/16 18:42	100-41-4		
2-Hexanone	ND	ug/L	1.0	1		06/21/16 18:42	591-78-6		
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/21/16 18:42	98-82-8		
Methyl acetate	ND	ug/L	2.0	1		06/21/16 18:42	79-20-9		
Methylene Chloride	ND	ug/L	0.50	1		06/21/16 18:42	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/21/16 18:42	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/21/16 18:42	1634-04-4		
Styrene	ND	ug/L	1.0	1		06/21/16 18:42	100-42-5		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/21/16 18:42	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		06/21/16 18:42	127-18-4		
Toluene	ND	ug/L	0.50	1		06/21/16 18:42	108-88-3		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/21/16 18:42	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/21/16 18:42	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		06/21/16 18:42	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/21/16 18:42	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/21/16 18:42	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		06/21/16 18:42	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		06/21/16 18:42	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	98	%.	72-126	1		06/21/16 18:42	1868-53-7		
4-Bromofluorobenzene (S)	97	%.	68-124	1		06/21/16 18:42	460-00-4		
Toluene-d8 (S)	107	%.	79-119	1		06/21/16 18:42	2037-26-5		

Sample: MW-MP9		Lab ID: 2038404008		Collected: 06/16/16 10:58		Received: 06/16/16 16:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535							
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/21/16 12:09	06/23/16 15:29			
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/21/16 12:09	06/23/16 15:29			
<b>Surrogates</b>									
n-Pentacosane (S)	58	%.	16-137	1	06/21/16 12:09	06/23/16 15:29	629-99-2		
o-Terphenyl (S)	69	%.	10-121	1	06/21/16 12:09	06/23/16 15:29	84-15-1		
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		06/21/16 21:03			
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	92	%.	44-148	1		06/21/16 21:03	460-00-4		
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Arsenic	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:46	7440-38-2		
Chromium	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:46	7440-47-3		
Lead	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:46	7439-92-1		
Vanadium	ND	mg/L	0.0050	1	06/23/16 08:18	06/24/16 11:46	7440-62-2		

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

Sample: MW-MP9	Lab ID: 2038404008	Collected: 06/16/16 10:58	Received: 06/16/16 16:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/23/16 08:20	06/23/16 13:36	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:45	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:45	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:45	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:45	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:45	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:45	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:45	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:45	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:45	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:45	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:45	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:45	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 16:45	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	93	%	25-150	1	06/22/16 10:14	06/28/16 16:45	321-60-8	
Terphenyl-d14 (S)	105	%	25-150	1	06/22/16 10:14	06/28/16 16:45	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	27.1	ug/L	4.0	1		06/21/16 19:00	67-64-1	
Benzene	ND	ug/L	0.50	1		06/21/16 19:00	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/21/16 19:00	75-27-4	
Bromoform	1.6	ug/L	0.50	1		06/21/16 19:00	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/21/16 19:00	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/21/16 19:00	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/21/16 19:00	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/21/16 19:00	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/21/16 19:00	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/21/16 19:00	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/21/16 19:00	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/21/16 19:00	67-66-3	
Chloromethane	0.96	ug/L	0.50	1		06/21/16 19:00	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/21/16 19:00	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/21/16 19:00	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/21/16 19:00	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/21/16 19:00	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/21/16 19:00	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/21/16 19:00	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/21/16 19:00	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/21/16 19:00	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/21/16 19:00	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/21/16 19:00	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/21/16 19:00	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/21/16 19:00	10061-02-6	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING  
Pace Project No.: 2038404

Sample: MW-MP9		Lab ID: 2038404008		Collected: 06/16/16 10:58		Received: 06/16/16 16:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Ethanol	ND	ug/L	500	1		06/21/16 19:00	64-17-5		
Ethylbenzene	ND	ug/L	0.50	1		06/21/16 19:00	100-41-4		
2-Hexanone	ND	ug/L	1.0	1		06/21/16 19:00	591-78-6		
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/21/16 19:00	98-82-8		
Methyl acetate	ND	ug/L	2.0	1		06/21/16 19:00	79-20-9		
Methylene Chloride	ND	ug/L	0.50	1		06/21/16 19:00	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/21/16 19:00	108-10-1		
Methyl-tert-butyl ether	1.9	ug/L	0.50	1		06/21/16 19:00	1634-04-4		
Styrene	ND	ug/L	1.0	1		06/21/16 19:00	100-42-5		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/21/16 19:00	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		06/21/16 19:00	127-18-4		
Toluene	ND	ug/L	0.50	1		06/21/16 19:00	108-88-3		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/21/16 19:00	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/21/16 19:00	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		06/21/16 19:00	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/21/16 19:00	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/21/16 19:00	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		06/21/16 19:00	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		06/21/16 19:00	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	98	%	72-126	1		06/21/16 19:00	1868-53-7		
4-Bromofluorobenzene (S)	96	%	68-124	1		06/21/16 19:00	460-00-4		
Toluene-d8 (S)	107	%	79-119	1		06/21/16 19:00	2037-26-5		

Sample: MW-MP3		Lab ID: 2038404009		Collected: 06/16/16 13:30		Received: 06/16/16 16:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535							
Diesel Range Organic (C10-C28)	0.62	mg/L	0.50	1	06/21/16 12:09	06/23/16 15:57			
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/21/16 12:09	06/23/16 15:57			
<b>Surrogates</b>									
n-Pentacosane (S)	44	%	16-137	1	06/21/16 12:09	06/23/16 15:57	629-99-2		
o-Terphenyl (S)	75	%	10-121	1	06/21/16 12:09	06/23/16 15:57	84-15-1		
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		06/21/16 21:31			
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	92	%	44-148	1		06/21/16 21:31	460-00-4		
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Arsenic	0.0084	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:50	7440-38-2		
Chromium	0.0038	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:50	7440-47-3		
Lead	0.028	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:50	7439-92-1		
Vanadium	0.018	mg/L	0.0050	1	06/23/16 08:18	06/24/16 11:50	7440-62-2		

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

Sample: MW-MP3	Lab ID: 2038404009	Collected: 06/16/16 13:30	Received: 06/16/16 16:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/23/16 08:20	06/23/16 13:39	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 17:07	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 17:07	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 17:07	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 17:07	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 17:07	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 17:07	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 17:07	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 17:07	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 17:07	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 17:07	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 17:07	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 17:07	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/22/16 10:14	06/28/16 17:07	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	83	%	25-150	1	06/22/16 10:14	06/28/16 17:07	321-60-8	
Terphenyl-d14 (S)	89	%	25-150	1	06/22/16 10:14	06/28/16 17:07	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	29.7	ug/L	4.0	1		06/21/16 19:18	67-64-1	
Benzene	ND	ug/L	0.50	1		06/21/16 19:18	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/21/16 19:18	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/21/16 19:18	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/21/16 19:18	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/21/16 19:18	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/21/16 19:18	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/21/16 19:18	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/21/16 19:18	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/21/16 19:18	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/21/16 19:18	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/21/16 19:18	67-66-3	
Chloromethane	0.67	ug/L	0.50	1		06/21/16 19:18	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/21/16 19:18	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/21/16 19:18	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/21/16 19:18	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/21/16 19:18	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/21/16 19:18	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/21/16 19:18	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/21/16 19:18	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/21/16 19:18	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/21/16 19:18	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/21/16 19:18	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/21/16 19:18	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/21/16 19:18	10061-02-6	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

Sample: MW-MP3		Lab ID: 2038404009		Collected: 06/16/16 13:30		Received: 06/16/16 16:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Ethanol	ND	ug/L	500	1		06/21/16 19:18	64-17-5		
Ethylbenzene	ND	ug/L	0.50	1		06/21/16 19:18	100-41-4		
2-Hexanone	ND	ug/L	1.0	1		06/21/16 19:18	591-78-6		
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/21/16 19:18	98-82-8		
Methyl acetate	ND	ug/L	2.0	1		06/21/16 19:18	79-20-9		
Methylene Chloride	ND	ug/L	0.50	1		06/21/16 19:18	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/21/16 19:18	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/21/16 19:18	1634-04-4		
Styrene	ND	ug/L	1.0	1		06/21/16 19:18	100-42-5		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/21/16 19:18	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		06/21/16 19:18	127-18-4		
Toluene	ND	ug/L	0.50	1		06/21/16 19:18	108-88-3		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/21/16 19:18	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/21/16 19:18	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		06/21/16 19:18	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/21/16 19:18	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/21/16 19:18	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		06/21/16 19:18	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		06/21/16 19:18	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	98	%	72-126	1		06/21/16 19:18	1868-53-7		
4-Bromofluorobenzene (S)	95	%	68-124	1		06/21/16 19:18	460-00-4		
Toluene-d8 (S)	107	%	79-119	1		06/21/16 19:18	2037-26-5		

Sample: FB-061616		Lab ID: 2038404010		Collected: 06/16/16 15:15		Received: 06/16/16 16:20		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		06/21/16 21:59			
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	91	%	44-148	1		06/21/16 21:59	460-00-4		
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Acetone	14.9	ug/L	4.0	1		06/21/16 19:36	67-64-1		
Benzene	ND	ug/L	0.50	1		06/21/16 19:36	71-43-2		
Bromodichloromethane	ND	ug/L	0.50	1		06/21/16 19:36	75-27-4		
Bromoform	ND	ug/L	0.50	1		06/21/16 19:36	75-25-2		
Bromomethane	ND	ug/L	0.50	1		06/21/16 19:36	74-83-9		
2-Butanone (MEK)	ND	ug/L	2.0	1		06/21/16 19:36	78-93-3		
tert-Butyl Alcohol	ND	ug/L	200	1		06/21/16 19:36	75-65-0		
Carbon disulfide	ND	ug/L	1.0	1		06/21/16 19:36	75-15-0		
Carbon tetrachloride	ND	ug/L	0.50	1		06/21/16 19:36	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		06/21/16 19:36	108-90-7		
Chloroethane	ND	ug/L	0.50	1		06/21/16 19:36	75-00-3		
Chloroform	ND	ug/L	0.50	1		06/21/16 19:36	67-66-3		

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

Sample: FB-061616	Lab ID: 2038404010	Collected: 06/16/16 15:15	Received: 06/16/16 16:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Chloromethane	ND	ug/L	0.50	1		06/21/16 19:36	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/21/16 19:36	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/21/16 19:36	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/21/16 19:36	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/21/16 19:36	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/21/16 19:36	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/21/16 19:36	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/21/16 19:36	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/21/16 19:36	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/21/16 19:36	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/21/16 19:36	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/21/16 19:36	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/21/16 19:36	10061-02-6	
Ethanol	ND	ug/L	500	1		06/21/16 19:36	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/21/16 19:36	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/21/16 19:36	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/21/16 19:36	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/21/16 19:36	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/21/16 19:36	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/21/16 19:36	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/21/16 19:36	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/21/16 19:36	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/21/16 19:36	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/21/16 19:36	127-18-4	
Toluene	ND	ug/L	0.50	1		06/21/16 19:36	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/21/16 19:36	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/21/16 19:36	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/21/16 19:36	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/21/16 19:36	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/21/16 19:36	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/21/16 19:36	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/21/16 19:36	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	99	%	72-126	1		06/21/16 19:36	1868-53-7	
4-Bromofluorobenzene (S)	97	%	68-124	1		06/21/16 19:36	460-00-4	
Toluene-d8 (S)	106	%	79-119	1		06/21/16 19:36	2037-26-5	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL WELL SAMPLING  
Pace Project No.: 2038404

QC Batch: GCV/2876 Analysis Method: EPA 8015/8021  
QC Batch Method: EPA 8015/8021 Analysis Description: 8021 W GCV BTEX, MTBE, GRO  
Associated Lab Samples: 2038404001, 2038404002, 2038404003, 2038404004, 2038404005, 2038404006, 2038404007, 2038404008, 2038404009, 2038404010

METHOD BLANK: 236219 Matrix: Water  
Associated Lab Samples: 2038404001, 2038404002, 2038404003, 2038404004, 2038404005, 2038404006, 2038404007, 2038404008, 2038404009, 2038404010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	06/21/16 15:28	
4-Bromofluorobenzene (S)	%.	91	44-148	06/21/16 15:28	

LABORATORY CONTROL SAMPLE: 236220

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	422	84	61-136	
4-Bromofluorobenzene (S)	%.			92	44-148	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 236303 236304

Parameter	Units	2038404004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Gasoline Range Organics	ug/L	ND	500	500	456	413	87	79	15-147	10	20	
4-Bromofluorobenzene (S)	%.						96	95	44-148			

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL WELL SAMPLING  
Pace Project No.: 2038404

QC Batch: MERP/2787 Analysis Method: EPA 7470  
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
Associated Lab Samples: 2038404001, 2038404003, 2038404004, 2038404005, 2038404007, 2038404008, 2038404009

METHOD BLANK: 236861 Matrix: Water  
Associated Lab Samples: 2038404001, 2038404003, 2038404004, 2038404005, 2038404007, 2038404008, 2038404009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	06/23/16 13:13	

LABORATORY CONTROL SAMPLE: 236862

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	1.1	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 236863 236864

Parameter	Units	2038404001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	1	1	1.1	1.0	106	105	75-125	1	20	

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL WELL SAMPLING  
Pace Project No.: 2038404

QC Batch: MPRP/4421 Analysis Method: EPA 6020  
QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
Associated Lab Samples: 2038404001, 2038404003, 2038404004, 2038404005, 2038404007, 2038404008, 2038404009

METHOD BLANK: 236849 Matrix: Water  
Associated Lab Samples: 2038404001, 2038404003, 2038404004, 2038404005, 2038404007, 2038404008, 2038404009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	06/24/16 11:00	
Chromium	mg/L	ND	0.0010	06/24/16 11:00	
Lead	mg/L	ND	0.0010	06/24/16 11:00	
Vanadium	mg/L	ND	0.0050	06/24/16 11:00	

LABORATORY CONTROL SAMPLE: 236850

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.02	0.020	100	83-115	
Chromium	mg/L	.02	0.020	100	85-115	
Lead	mg/L	.02	0.020	98	84-115	
Vanadium	mg/L	.02	0.020	100	81-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 236851 236852

Parameter	Units	2038404003 Result	MS Spike Conc.	MSD Spike Conc.	236851		236852		% Rec Limits	Max RPD	Qual
					MS Result	MSD Result	MS % Rec	MSD % Rec			
Arsenic	mg/L	0.0013	.02	.02	0.021	0.021	98	97	80-120	2	20
Chromium	mg/L	0.0032	.02	.02	0.024	0.024	105	102	80-120	2	20
Lead	mg/L	ND	.02	.02	0.021	0.021	103	101	80-120	2	20
Vanadium	mg/L	0.016	.02	.02	0.037	0.037	107	104	80-120	2	20

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

QC Batch: MSV/5098 Analysis Method: EPA 5030B/8260  
 QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Low Level  
 Associated Lab Samples: 2038404001, 2038404002, 2038404003, 2038404004, 2038404005, 2038404006, 2038404007, 2038404008, 2038404009, 2038404010

METHOD BLANK: 236213 Matrix: Water  
 Associated Lab Samples: 2038404001, 2038404002, 2038404003, 2038404004, 2038404005, 2038404006, 2038404007, 2038404008, 2038404009, 2038404010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	06/21/16 15:26	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	06/21/16 15:26	
1,1,2-Trichloroethane	ug/L	ND	0.50	06/21/16 15:26	
1,1-Dichloroethane	ug/L	ND	0.50	06/21/16 15:26	
1,1-Dichloroethene	ug/L	ND	0.50	06/21/16 15:26	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	06/21/16 15:26	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	06/21/16 15:26	
1,2-Dichloroethane	ug/L	ND	0.50	06/21/16 15:26	
1,2-Dichloropropane	ug/L	ND	0.50	06/21/16 15:26	
2-Butanone (MEK)	ug/L	ND	2.0	06/21/16 15:26	
2-Hexanone	ug/L	ND	1.0	06/21/16 15:26	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	06/21/16 15:26	
Acetone	ug/L	ND	4.0	06/21/16 15:26	
Benzene	ug/L	ND	0.50	06/21/16 15:26	
Bromodichloromethane	ug/L	ND	0.50	06/21/16 15:26	
Bromoform	ug/L	ND	0.50	06/21/16 15:26	
Bromomethane	ug/L	ND	0.50	06/21/16 15:26	
Carbon disulfide	ug/L	ND	1.0	06/21/16 15:26	
Carbon tetrachloride	ug/L	ND	0.50	06/21/16 15:26	
Chlorobenzene	ug/L	ND	0.50	06/21/16 15:26	
Chloroethane	ug/L	ND	0.50	06/21/16 15:26	
Chloroform	ug/L	ND	0.50	06/21/16 15:26	
Chloromethane	ug/L	ND	0.50	06/21/16 15:26	
cis-1,2-Dichloroethene	ug/L	ND	1.0	06/21/16 15:26	
cis-1,3-Dichloropropene	ug/L	ND	0.50	06/21/16 15:26	
Dibromochloromethane	ug/L	ND	0.50	06/21/16 15:26	
Dichlorodifluoromethane	ug/L	ND	1.0	06/21/16 15:26	
Ethanol	ug/L	ND	500	06/21/16 15:26	
Ethylbenzene	ug/L	ND	0.50	06/21/16 15:26	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	06/21/16 15:26	
m&p-Xylene	ug/L	ND	2.0	06/21/16 15:26	
Methyl acetate	ug/L	ND	2.0	06/21/16 15:26	
Methyl-tert-butyl ether	ug/L	ND	0.50	06/21/16 15:26	
Methylene Chloride	ug/L	ND	0.50	06/21/16 15:26	
o-Xylene	ug/L	ND	1.0	06/21/16 15:26	
Styrene	ug/L	ND	1.0	06/21/16 15:26	
tert-Butyl Alcohol	ug/L	ND	200	06/21/16 15:26	
Tetrachloroethene	ug/L	ND	0.50	06/21/16 15:26	
Toluene	ug/L	ND	0.50	06/21/16 15:26	
trans-1,2-Dichloroethene	ug/L	ND	0.50	06/21/16 15:26	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

METHOD BLANK: 236213

Matrix: Water

Associated Lab Samples: 2038404001, 2038404002, 2038404003, 2038404004, 2038404005, 2038404006, 2038404007, 2038404008, 2038404009, 2038404010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
trans-1,3-Dichloropropene	ug/L	ND	0.50	06/21/16 15:26	
Trichloroethene	ug/L	ND	0.50	06/21/16 15:26	
Trichlorofluoromethane	ug/L	ND	0.50	06/21/16 15:26	
Vinyl chloride	ug/L	ND	0.50	06/21/16 15:26	
4-Bromofluorobenzene (S)	%	98	68-124	06/21/16 15:26	
Dibromofluoromethane (S)	%	100	72-126	06/21/16 15:26	
Toluene-d8 (S)	%	107	79-119	06/21/16 15:26	

LABORATORY CONTROL SAMPLE: 236214

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	50.9	102	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	52.9	106	15-179	
1,1,2-Trichloroethane	ug/L	50	48.7	97	58-144	
1,1-Dichloroethane	ug/L	50	49.8	100	63-129	
1,1-Dichloroethene	ug/L	50	42.0	84	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	53.3	107	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	50.8	102	52-161	
1,2-Dichloroethane	ug/L	50	51.5	103	57-148	
1,2-Dichloropropane	ug/L	50	54.3	109	66-128	
2-Butanone (MEK)	ug/L	50	54.1	108	32-183	
2-Hexanone	ug/L	50	56.7	113	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	56.1	112	26-171	
Acetone	ug/L	50	50.7	101	22-165	
Benzene	ug/L	50	50.6	101	62-131	
Bromodichloromethane	ug/L	50	50.6	101	69-132	
Bromoform	ug/L	50	39.9	80	35-166	
Bromomethane	ug/L	50	54.0	108	34-158	
Carbon disulfide	ug/L	50	44.2	88	31-128	
Carbon tetrachloride	ug/L	50	44.7	89	54-144	
Chlorobenzene	ug/L	50	49.4	99	70-127	
Chloroethane	ug/L	50	50.1	100	17-195	
Chloroform	ug/L	50	46.2	92	73-134	
Chloromethane	ug/L	50	56.9	114	17-153	
cis-1,2-Dichloroethene	ug/L	50	49.7	99	68-129	
cis-1,3-Dichloropropene	ug/L	50	47.6	95	72-138	
Dibromochloromethane	ug/L	50	45.3	91	49-146	
Dichlorodifluoromethane	ug/L	50	36.5	73	10-179	
Ethylbenzene	ug/L	50	52.7	105	66-126	
Isopropylbenzene (Cumene)	ug/L	50	56.5	113	51-138	
m&p-Xylene	ug/L	100	101	101	65-129	
Methyl acetate	ug/L	50	44.5	89	20-142	
Methyl-tert-butyl ether	ug/L	50	44.2	88	37-166	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

LABORATORY CONTROL SAMPLE: 236214

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Methylene Chloride	ug/L	50	45.6	91	46-168	
o-Xylene	ug/L	50	50.9	102	65-124	
Styrene	ug/L	50	53.2	106	72-133	
Tetrachloroethene	ug/L	50	47.1	94	46-157	
Toluene	ug/L	50	54.8	110	69-126	
trans-1,2-Dichloroethene	ug/L	50	47.5	95	60-129	
trans-1,3-Dichloropropene	ug/L	50	50.0	100	59-149	
Trichloroethene	ug/L	50	47.6	95	67-132	
Trichlorofluoromethane	ug/L	50	58.8	118	39-171	
Vinyl chloride	ug/L	50	47.5	95	27-149	
4-Bromofluorobenzene (S)	%			94	68-124	
Dibromofluoromethane (S)	%			99	72-126	
Toluene-d8 (S)	%			104	79-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 236215 236216

Parameter	Units	2038404003		MSD		MSD		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	MSD Result	MSD % Rec	MSD % Rec					
1,1,1-Trichloroethane	ug/L	ND	50	50	57.0	54.4	114	109	54-137	5	20		
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	57.5	56.1	115	112	15-187	2	20		
1,1,2-Trichloroethane	ug/L	ND	50	50	53.2	51.2	106	102	59-148	4	20		
1,1-Dichloroethane	ug/L	ND	50	50	55.1	52.6	110	105	59-133	5	20		
1,1-Dichloroethene	ug/L	ND	50	50	48.2	46.6	96	93	44-146	3	20		
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	56.7	55.4	113	111	23-166	2	20		
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	55.6	54.0	111	108	55-166	3	20		
1,2-Dichloroethane	ug/L	ND	50	50	57.6	55.0	115	110	56-154	5	20		
1,2-Dichloropropane	ug/L	ND	50	50	58.9	57.1	118	114	62-135	3	20		
2-Butanone (MEK)	ug/L	ND	50	50	58.3	58.0	115	114	20-205	1	20		
2-Hexanone	ug/L	ND	50	50	60.4	58.1	121	116	25-189	4	20		
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	50	58.6	57.1	117	114	23-184	3	20		
Acetone	ug/L	21.5	50	50	89.7	90.4	137	138	11-217	1	20		
Benzene	ug/L	ND	50	50	55.7	53.6	111	107	52-141	4	20		
Bromodichloromethane	ug/L	ND	50	50	55.5	53.8	111	108	70-134	3	20		
Bromoform	ug/L	ND	50	50	42.2	41.7	84	83	37-171	1	20		
Bromomethane	ug/L	ND	50	50	58.4	56.0	117	112	34-155	4	20		
Carbon disulfide	ug/L	ND	50	50	53.0	48.4	106	97	28-130	9	20		
Carbon tetrachloride	ug/L	ND	50	50	48.9	46.7	98	93	48-146	5	20		
Chlorobenzene	ug/L	ND	50	50	53.9	52.1	108	104	67-129	3	20		
Chloroethane	ug/L	ND	50	50	55.0	53.4	110	107	12-192	3	20		
Chloroform	ug/L	ND	50	50	50.9	49.0	102	98	66-143	4	20		
Chloromethane	ug/L	ND	50	50	58.1	55.4	116	110	14-155	5	20		
cis-1,2-Dichloroethene	ug/L	ND	50	50	55.7	53.0	111	106	56-141	5	20		
cis-1,3-Dichloropropene	ug/L	ND	50	50	51.7	49.4	103	99	70-139	5	20		
Dibromochloromethane	ug/L	ND	50	50	49.7	48.6	99	97	50-150	2	20		

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL WELL SAMPLING  
Pace Project No.: 2038404

Parameter	Units	2038404003		236215		236216		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec						
Dichlorodifluoromethane	ug/L	ND	50	50	38.3	37.1	77	74	10-173	3	20		
Ethylbenzene	ug/L	ND	50	50	57.8	55.8	116	112	57-135	4	20		
Isopropylbenzene (Cumene)	ug/L	ND	50	50	65.0	62.7	130	125	40-146	4	20		
m&p-Xylene	ug/L	ND	100	100	110	107	110	107	56-136	3	20		
Methyl acetate	ug/L	ND	50	50	44.2	43.5	88	87	10-142	2	20		
Methyl-tert-butyl ether	ug/L	ND	50	50	48.0	46.7	96	93	35-176	3	20		
Methylene Chloride	ug/L	ND	50	50	49.3	47.1	99	94	45-166	5	20		
o-Xylene	ug/L	ND	50	50	54.5	53.3	109	107	57-133	2	20		
Styrene	ug/L	ND	50	50	57.0	55.3	114	111	58-144	3	20		
Tetrachloroethene	ug/L	ND	50	50	52.5	50.0	105	100	48-143	5	20		
Toluene	ug/L	ND	50	50	59.8	57.8	120	116	59-136	3	20		
trans-1,2-Dichloroethene	ug/L	ND	50	50	53.5	50.4	107	101	57-132	6	20		
trans-1,3-Dichloropropene	ug/L	ND	50	50	55.1	52.8	110	106	59-154	4	20		
Trichloroethene	ug/L	ND	50	50	52.3	50.1	105	100	58-140	4	20		
Trichlorofluoromethane	ug/L	ND	50	50	62.4	60.9	125	122	24-175	2	20		
Vinyl chloride	ug/L	ND	50	50	54.1	51.3	108	103	21-150	5	20		
4-Bromofluorobenzene (S)	%.						97	98	68-124				
Dibromofluoromethane (S)	%.						100	100	72-126				
Toluene-d8 (S)	%.						104	103	79-119				

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

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QC Batch: OEXT/9310 Analysis Method: EPA 8015B Modified  
 QC Batch Method: EPA 3535 Analysis Description: EPA 8015 ORO  
 Associated Lab Samples: 2038404001, 2038404003, 2038404004, 2038404005, 2038404007, 2038404008, 2038404009

---

METHOD BLANK: 236237 Matrix: Water  
 Associated Lab Samples: 2038404001, 2038404003, 2038404004, 2038404005, 2038404007, 2038404008, 2038404009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	ND	0.25	06/23/16 12:11	
Oil Range Organics (>C28-C40)	mg/L	ND	0.50	06/23/16 12:11	
n-Pentacosane (S)	%	44	16-137	06/23/16 12:11	
o-Terphenyl (S)	%	53	10-121	06/23/16 12:11	

LABORATORY CONTROL SAMPLE: 236238

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	.4	ND	45	10-115	
n-Pentacosane (S)	%			63	16-137	
o-Terphenyl (S)	%			80	10-121	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

QC Batch: OEXT/9309 Analysis Method: EPA 8270 by SIM  
 QC Batch Method: EPA 3510 Analysis Description: 8270 Water by SIM MSSV  
 Associated Lab Samples: 2038404001, 2038404003, 2038404004

METHOD BLANK: 236229 Matrix: Water

Associated Lab Samples: 2038404001, 2038404003, 2038404004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	06/22/16 11:01	
Anthracene	mg/L	ND	0.00010	06/22/16 11:01	
Benzo(a)anthracene	mg/L	ND	0.00010	06/22/16 11:01	
Benzo(a)pyrene	mg/L	ND	0.00010	06/22/16 11:01	
Benzo(b)fluoranthene	mg/L	ND	0.00010	06/22/16 11:01	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	06/22/16 11:01	
Benzo(k)fluoranthene	mg/L	ND	0.00010	06/22/16 11:01	
Chrysene	mg/L	ND	0.00010	06/22/16 11:01	
Fluoranthene	mg/L	ND	0.00010	06/22/16 11:01	
Fluorene	mg/L	ND	0.00010	06/22/16 11:01	
Naphthalene	mg/L	ND	0.00010	06/22/16 11:01	
Phenanthrene	mg/L	ND	0.00010	06/22/16 11:01	
Pyrene	mg/L	ND	0.00010	06/22/16 11:01	
2-Fluorobiphenyl (S)	%	83	25-150	06/22/16 11:01	
Terphenyl-d14 (S)	%	101	25-150	06/22/16 11:01	

LABORATORY CONTROL SAMPLE: 236230

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0023	56	35-150	
Anthracene	mg/L	.004	0.0026	65	35-150	
Benzo(a)anthracene	mg/L	.004	0.0025	62	35-150	
Benzo(a)pyrene	mg/L	.004	0.0026	65	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0028	69	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0027	68	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0026	66	35-150	
Chrysene	mg/L	.004	0.0027	67	35-150	
Fluoranthene	mg/L	.004	0.0027	68	35-150	
Fluorene	mg/L	.004	0.0024	59	35-150	
Naphthalene	mg/L	.004	0.0025	63	35-150	
Phenanthrene	mg/L	.004	0.0025	64	35-150	
Pyrene	mg/L	.004	0.0024	61	35-150	
2-Fluorobiphenyl (S)	%			79	25-150	
Terphenyl-d14 (S)	%			93	25-150	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

QC Batch: OEXT/9316 Analysis Method: EPA 8270 by SIM  
 QC Batch Method: EPA 3510 Analysis Description: 8270 Water by SIM MSSV  
 Associated Lab Samples: 2038404005, 2038404007, 2038404008, 2038404009

METHOD BLANK: 236465 Matrix: Water  
 Associated Lab Samples: 2038404005, 2038404007, 2038404008, 2038404009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	06/28/16 15:19	
Anthracene	mg/L	ND	0.00010	06/28/16 15:19	
Benzo(a)anthracene	mg/L	ND	0.00010	06/28/16 15:19	
Benzo(a)pyrene	mg/L	ND	0.00010	06/28/16 15:19	
Benzo(b)fluoranthene	mg/L	ND	0.00010	06/28/16 15:19	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	06/28/16 15:19	
Benzo(k)fluoranthene	mg/L	ND	0.00010	06/28/16 15:19	
Chrysene	mg/L	ND	0.00010	06/28/16 15:19	
Fluoranthene	mg/L	ND	0.00010	06/28/16 15:19	
Fluorene	mg/L	ND	0.00010	06/28/16 15:19	
Naphthalene	mg/L	ND	0.00010	06/28/16 15:19	
Phenanthrene	mg/L	ND	0.00010	06/28/16 15:19	
Pyrene	mg/L	ND	0.00010	06/28/16 15:19	
2-Fluorobiphenyl (S)	%	83	25-150	06/28/16 15:19	
Terphenyl-d14 (S)	%	101	25-150	06/28/16 15:19	

LABORATORY CONTROL SAMPLE: 236466

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0033	83	35-150	
Anthracene	mg/L	.004	0.0041	102	35-150	
Benzo(a)anthracene	mg/L	.004	0.0037	92	35-150	
Benzo(a)pyrene	mg/L	.004	0.0039	97	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0042	104	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0041	102	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0041	103	35-150	
Chrysene	mg/L	.004	0.0041	103	35-150	
Fluoranthene	mg/L	.004	0.0041	103	35-150	
Fluorene	mg/L	.004	0.0035	87	35-150	
Naphthalene	mg/L	.004	0.0036	91	35-150	
Phenanthrene	mg/L	.004	0.0039	98	35-150	
Pyrene	mg/L	.004	0.0036	90	35-150	
2-Fluorobiphenyl (S)	%			99	25-150	
Terphenyl-d14 (S)	%			116	25-150	

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## QUALIFIERS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The Nelac Institute

### LABORATORIES

PASI-N Pace Analytical Services - New Orleans

### BATCH QUALIFIERS

Batch: MSSV/4113

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: GCSV/6719

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSSV/4133

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038404

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2038404001	EB-061516	EPA 3535	OEXT/9310	EPA 8015B Modified	GCSV/6719
2038404003	MW-DP1	EPA 3535	OEXT/9310	EPA 8015B Modified	GCSV/6719
2038404004	MW-MP2	EPA 3535	OEXT/9310	EPA 8015B Modified	GCSV/6719
2038404005	EB-061616	EPA 3535	OEXT/9310	EPA 8015B Modified	GCSV/6719
2038404007	MW-MP8	EPA 3535	OEXT/9310	EPA 8015B Modified	GCSV/6719
2038404008	MW-MP9	EPA 3535	OEXT/9310	EPA 8015B Modified	GCSV/6719
2038404009	MW-MP3	EPA 3535	OEXT/9310	EPA 8015B Modified	GCSV/6719
2038404001	EB-061516	EPA 8015/8021	GCV/2876		
2038404002	TRIP BLANK	EPA 8015/8021	GCV/2876		
2038404003	MW-DP1	EPA 8015/8021	GCV/2876		
2038404004	MW-MP2	EPA 8015/8021	GCV/2876		
2038404005	EB-061616	EPA 8015/8021	GCV/2876		
2038404006	FB-061516	EPA 8015/8021	GCV/2876		
2038404007	MW-MP8	EPA 8015/8021	GCV/2876		
2038404008	MW-MP9	EPA 8015/8021	GCV/2876		
2038404009	MW-MP3	EPA 8015/8021	GCV/2876		
2038404010	FB-061616	EPA 8015/8021	GCV/2876		
2038404001	EB-061516	EPA 3010	MPRP/4421	EPA 6020	ICPM/1940
2038404003	MW-DP1	EPA 3010	MPRP/4421	EPA 6020	ICPM/1940
2038404004	MW-MP2	EPA 3010	MPRP/4421	EPA 6020	ICPM/1940
2038404005	EB-061616	EPA 3010	MPRP/4421	EPA 6020	ICPM/1940
2038404007	MW-MP8	EPA 3010	MPRP/4421	EPA 6020	ICPM/1940
2038404008	MW-MP9	EPA 3010	MPRP/4421	EPA 6020	ICPM/1940
2038404009	MW-MP3	EPA 3010	MPRP/4421	EPA 6020	ICPM/1940
2038404001	EB-061516	EPA 7470	MERP/2787	EPA 7470	MERC/3422
2038404003	MW-DP1	EPA 7470	MERP/2787	EPA 7470	MERC/3422
2038404004	MW-MP2	EPA 7470	MERP/2787	EPA 7470	MERC/3422
2038404005	EB-061616	EPA 7470	MERP/2787	EPA 7470	MERC/3422
2038404007	MW-MP8	EPA 7470	MERP/2787	EPA 7470	MERC/3422
2038404008	MW-MP9	EPA 7470	MERP/2787	EPA 7470	MERC/3422
2038404009	MW-MP3	EPA 7470	MERP/2787	EPA 7470	MERC/3422
2038404001	EB-061516	EPA 3510	OEXT/9309	EPA 8270 by SIM	MSSV/4113
2038404003	MW-DP1	EPA 3510	OEXT/9309	EPA 8270 by SIM	MSSV/4113
2038404004	MW-MP2	EPA 3510	OEXT/9309	EPA 8270 by SIM	MSSV/4113
2038404005	EB-061616	EPA 3510	OEXT/9316	EPA 8270 by SIM	MSSV/4133
2038404007	MW-MP8	EPA 3510	OEXT/9316	EPA 8270 by SIM	MSSV/4133
2038404008	MW-MP9	EPA 3510	OEXT/9316	EPA 8270 by SIM	MSSV/4133
2038404009	MW-MP3	EPA 3510	OEXT/9316	EPA 8270 by SIM	MSSV/4133
2038404001	EB-061516	EPA 5030B/8260	MSV/5098		
2038404002	TRIP BLANK	EPA 5030B/8260	MSV/5098		
2038404003	MW-DP1	EPA 5030B/8260	MSV/5098		
2038404004	MW-MP2	EPA 5030B/8260	MSV/5098		
2038404005	EB-061616	EPA 5030B/8260	MSV/5098		
2038404006	FB-061516	EPA 5030B/8260	MSV/5098		
2038404007	MW-MP8	EPA 5030B/8260	MSV/5098		
2038404008	MW-MP9	EPA 5030B/8260	MSV/5098		

### REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: PUMA TERMINAL WELL SAMPLING  
Pace Project No.: 2038404

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2038404009	MW-MP3	EPA 5030B/8260	MSV/5098		
2038404010	FB-061616	EPA 5030B/8260	MSV/5098		

**REPORT OF LABORATORY ANALYSIS**

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# WO#: 2038404

## CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



2038404

### Section A Required Client Information

Company: **BBL CARIBE**  
 Address: **CITYVIEW PLAZA I STR 401**  
**GUAYAMA PR 00968**  
 Email To: **F. Calderon @ Arcadis.com**  
 Phone: **787-777-4000** Fax: **787-777-9086**  
 Requested Due Date/TAT: **ST**

### Section C Invoice Information:

Report To: **FERRAN CALDERON**  
 Copy To:  
 Attention:  
 Company Name:  
 Address:  
 Pace Quote Reference:  
 Pace Project Manager: **J. REDONDO**  
 Pace Profile #:

Page: **1** of **1**  
**2035862**

**REGULATORY AGENCY**

NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER

Site Location: **Bayamon**  
 STATE: **P.R.**

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)						
					COMPOSITE START	COMPOSITE END/GRAB	DATE	TIME			DATE	TIME	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>				Methanol	Other				
1	<b>SAMPLE ID</b> (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	WTG	G			6-15-16	1200	9	4	1	4											<b>2038404</b> Pace Project No./ Lab I.D.				
2					TRIP BLANK			6-15-16	LAB	4		4															
3					MW-DP1			6-15-16	1354	9	4	1	4														
4					MW-MP2			6-15-16	1524	9	4	1	4														
5					F.B-061516			6-15-16	1535	4		4															
6					EB-061616			6-16-16	0730	9	4	1	4														
7					MW-MP8			6-16-16	0945	9	4	1	4														
8					MW-MP9			6-16-16	1058	9	4	1	4														
9					MW-MP3			6-16-16	1330	9	4	1	4														
10					FB-061616			6-16-16	1515	4		4															
11																											
12																											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<i>[Signature]</i>	6-16-16	1620	FedeEx	6/16/16	1620	4.0 Y N Y
	<i>[Signature]</i>	6/24/16	840	J-Z/PACE	6/21/16	810	4.1 Y Y Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: **FERNANDO COLON**

SIGNATURE of SAMPLER: *[Signature]*

DATE Signed (MM/DD/YY): **06-16-16**

Temp in °C

Received on Ice (Y/N)

Custody Sealed Coolant (Y/N)

Samples Intact (Y/N)

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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Sample Condition Upon Receipt

Urb. Jardines de Guaynabo
Calle Marginal Bldg A-10
Guaynabo, PR 00969

WO#: 2038404

PM: JAR1 Due Date: 06/30/16
CLIENT: 98-ARCADISPR

Project #:

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 4 Therm Fisher IR 6 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: [Signature]

Temp must be measured from Temperature blank when present

Comments:

Table with 15 rows of inspection criteria and checkboxes. Includes items like 'Temperature Blank Present?', 'Chain of Custody Present', 'Samples Arrived within Hold Time', etc.

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_



1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

### Sample Condition Upon Receipt

Project #: **20**

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals Intact:  Yes  No

Thermometer Used:  Therm Fisher IR 5  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 6-21-16 JMB

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	1	
Chain of Custody Present: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5	
Samples Arrived within Hold Time: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9	
Sample Labels match COC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G). <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14	
Trip Blank Present: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15	

#### Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

June 30, 2016

Efrain Calderon  
BBL Caribe Engineering P.S.C.  
48 City View Plaza1, Suite 401  
Road 16, Km. 1.2  
Guaynabo, PR 00968

RE: Project: PUMA TERMINAL WELL SAMPLING  
Pace Project No.: 2038491

Dear Efrain Calderon:

Enclosed are the analytical results for sample(s) received by the laboratory on June 21, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Juan Redondo  
juan.redondo@pacelabs.com  
Project Manager

Enclosures

cc: Sharon Colon  
Abner Hernandez  
Marianela Mercado-Burgos



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## CERTIFICATIONS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

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### New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:  
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):  
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):  
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):  
T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-  
00119

Commonwealth of Virginia (TNI): 480246

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2038491001	EB-062116	Water	06/21/16 07:42	06/21/16 15:20
2038491002	MW-MP4	Water	06/21/16 07:54	06/21/16 15:20
2038491003	MW-EB107	Water	06/21/16 09:39	06/21/16 15:20
2038491004	MW-EB108	Water	06/21/16 10:56	06/21/16 15:20
2038491005	MW-76B2	Water	06/21/16 12:15	06/21/16 15:20
2038491006	MW-76A	Water	06/21/16 13:03	06/21/16 15:20
2038491007	FB062116	Water	06/21/16 13:15	06/21/16 15:20
2038491008	TB	Water	06/21/16 00:00	06/21/16 15:20

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL WELL SAMPLING  
Pace Project No.: 2038491

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2038491001	EB-062116	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038491002	MW-MP4	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038491003	MW-EB107	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038491004	MW-EB108	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038491005	MW-76B2	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038491006	MW-76A	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038491007	FB062116	EPA 8015/8021	MHM	2	PASI-N

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2038491008	TB	EPA 5030B/8260	RMP	47	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

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**Method:** EPA 8015B Modified

**Description:** 8015M DRO/ORO Organics

**Client:** BBL Caribe / Arcadis PR

**Date:** June 30, 2016

**General Information:**

6 samples were analyzed for EPA 8015B Modified. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3535 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL WELL SAMPLING  
Pace Project No.: 2038491

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**Method:** EPA 8015/8021  
**Description:** 8021 GCV BTEX, MTBE, GRO  
**Client:** BBL Caribe / Arcadis PR  
**Date:** June 30, 2016

### General Information:

8 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

### Additional Comments:

Analyte Comments:

QC Batch: GCV/2880

1b: Sample 2038491002 was analyzed with a closing CCV that was low, however no more sample available to re-analyze. Data was sent

- MW-MP4 (Lab ID: 2038491002)
- 4-Bromofluorobenzene (S)

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL WELL SAMPLING  
Pace Project No.: 2038491

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**Method:** EPA 6020  
**Description:** 6020 MET ICPMS  
**Client:** BBL Caribe / Arcadis PR  
**Date:** June 30, 2016

**General Information:**

6 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

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**Method:** EPA 7470

**Description:** 7470 Mercury

**Client:** BBL Caribe / Arcadis PR

**Date:** June 30, 2016

**General Information:**

6 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

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**Method:** EPA 8270 by SIM

**Description:** 8270 MSSV PAH by SIM SEP

**Client:** BBL Caribe / Arcadis PR

**Date:** June 30, 2016

**General Information:**

6 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: OEXT/9349

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

---

**Method:** EPA 5030B/8260

**Description:** 8260 MSV Low Level

**Client:** BBL Caribe / Arcadis PR

**Date:** June 30, 2016

**General Information:**

8 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

Sample: EB-062116	Lab ID: 2038491001	Collected: 06/21/16 07:42	Received: 06/21/16 15:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/28/16 10:14	06/29/16 14:45		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/28/16 10:14	06/29/16 14:45		
<b>Surrogates</b>								
n-Pentacosane (S)	59	%	16-137	1	06/28/16 10:14	06/29/16 14:45	629-99-2	
o-Terphenyl (S)	70	%	10-121	1	06/28/16 10:14	06/29/16 14:45	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/28/16 13:36		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	85	%	44-148	1		06/28/16 13:36	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:53	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:53	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:53	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/23/16 08:18	06/24/16 11:53	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/23/16 08:20	06/23/16 13:41	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 16:56	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 16:56	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 16:56	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 16:56	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 16:56	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 16:56	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 16:56	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 16:56	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 16:56	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 16:56	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 16:56	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 16:56	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 16:56	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	77	%	25-150	1	06/25/16 11:35	06/27/16 16:56	321-60-8	
Terphenyl-d14 (S)	102	%	25-150	1	06/25/16 11:35	06/27/16 16:56	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	23.0	ug/L	4.0	1		06/23/16 12:30	67-64-1	
Benzene	ND	ug/L	0.50	1		06/23/16 12:30	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/23/16 12:30	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 12:30	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/23/16 12:30	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/23/16 12:30	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/23/16 12:30	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING  
Pace Project No.: 2038491

Sample: EB-062116	Lab ID: 2038491001	Collected: 06/21/16 07:42	Received: 06/21/16 15:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/23/16 12:30	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 12:30	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 12:30	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/23/16 12:30	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 12:30	67-66-3	
Chloromethane	<b>0.53</b>	ug/L	0.50	1		06/23/16 12:30	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/23/16 12:30	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 12:30	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/23/16 12:30	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/23/16 12:30	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 12:30	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 12:30	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 12:30	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/23/16 12:30	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 12:30	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 12:30	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 12:30	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 12:30	10061-02-6	
Ethanol	ND	ug/L	500	1		06/23/16 12:30	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/23/16 12:30	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/23/16 12:30	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/23/16 12:30	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/23/16 12:30	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/23/16 12:30	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/23/16 12:30	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/23/16 12:30	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/23/16 12:30	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 12:30	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 12:30	127-18-4	
Toluene	ND	ug/L	0.50	1		06/23/16 12:30	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 12:30	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 12:30	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/23/16 12:30	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 12:30	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 12:30	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/23/16 12:30	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/23/16 12:30	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	99	%	72-126	1		06/23/16 12:30	1868-53-7	
4-Bromofluorobenzene (S)	95	%	68-124	1		06/23/16 12:30	460-00-4	
Toluene-d8 (S)	106	%	79-119	1		06/23/16 12:30	2037-26-5	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

Sample: MW-MP4	Lab ID: 2038491002	Collected: 06/21/16 07:54	Received: 06/21/16 15:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/28/16 10:14	06/29/16 15:13		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/28/16 10:14	06/29/16 15:13		
<b>Surrogates</b>								
n-Pentacosane (S)	57	%	16-137	1	06/28/16 10:14	06/29/16 15:13	629-99-2	
o-Terphenyl (S)	73	%	10-121	1	06/28/16 10:14	06/29/16 15:13	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/24/16 11:27		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	93	%	44-148	1		06/24/16 11:27	460-00-4	1b
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	0.0019	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:57	7440-38-2	
Chromium	0.0040	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:57	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 11:57	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/23/16 08:18	06/24/16 11:57	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/23/16 08:20	06/23/16 13:43	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:17	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:17	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:17	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:17	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:17	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:17	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:17	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:17	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:17	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:17	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:17	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:17	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:17	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	70	%	25-150	1	06/25/16 11:35	06/27/16 17:17	321-60-8	
Terphenyl-d14 (S)	95	%	25-150	1	06/25/16 11:35	06/27/16 17:17	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	25.8	ug/L	4.0	1		06/23/16 12:12	67-64-1	
Benzene	ND	ug/L	0.50	1		06/23/16 12:12	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/23/16 12:12	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 12:12	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/23/16 12:12	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/23/16 12:12	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/23/16 12:12	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

Sample: MW-MP4	Lab ID: 2038491002	Collected: 06/21/16 07:54	Received: 06/21/16 15:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/23/16 12:12	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 12:12	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 12:12	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/23/16 12:12	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 12:12	67-66-3	
Chloromethane	1.5	ug/L	0.50	1		06/23/16 12:12	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/23/16 12:12	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 12:12	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/23/16 12:12	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/23/16 12:12	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 12:12	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 12:12	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 12:12	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/23/16 12:12	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 12:12	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 12:12	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 12:12	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 12:12	10061-02-6	
Ethanol	ND	ug/L	500	1		06/23/16 12:12	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/23/16 12:12	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/23/16 12:12	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/23/16 12:12	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/23/16 12:12	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/23/16 12:12	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/23/16 12:12	108-10-1	
Methyl-tert-butyl ether	1.3	ug/L	0.50	1		06/23/16 12:12	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/23/16 12:12	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 12:12	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 12:12	127-18-4	
Toluene	ND	ug/L	0.50	1		06/23/16 12:12	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 12:12	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 12:12	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/23/16 12:12	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 12:12	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 12:12	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/23/16 12:12	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/23/16 12:12	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	98	%	72-126	1		06/23/16 12:12	1868-53-7	
4-Bromofluorobenzene (S)	96	%	68-124	1		06/23/16 12:12	460-00-4	
Toluene-d8 (S)	106	%	79-119	1		06/23/16 12:12	2037-26-5	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

Sample: MW-EB107	Lab ID: 2038491003	Collected: 06/21/16 09:39	Received: 06/21/16 15:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	0.77	mg/L	0.50	1	06/28/16 10:14	06/29/16 15:42		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/28/16 10:14	06/29/16 15:42		
<b>Surrogates</b>								
n-Pentacosane (S)	74	%	16-137	1	06/28/16 10:14	06/29/16 15:42	629-99-2	
o-Terphenyl (S)	89	%	10-121	1	06/28/16 10:14	06/29/16 15:42	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/23/16 23:08		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	90	%	44-148	1		06/23/16 23:08	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 12:01	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 12:01	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 12:01	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/23/16 08:18	06/24/16 12:01	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/23/16 08:20	06/23/16 13:49	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:39	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:39	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:39	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:39	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:39	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:39	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:39	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:39	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:39	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:39	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:39	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:39	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 17:39	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	69	%	25-150	1	06/25/16 11:35	06/27/16 17:39	321-60-8	
Terphenyl-d14 (S)	87	%	25-150	1	06/25/16 11:35	06/27/16 17:39	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	23.1	ug/L	4.0	1		06/23/16 12:48	67-64-1	
Benzene	ND	ug/L	0.50	1		06/23/16 12:48	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/23/16 12:48	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 12:48	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/23/16 12:48	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/23/16 12:48	78-93-3	
tert-Butyl Alcohol	367	ug/L	200	1		06/23/16 12:48	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

Sample: MW-EB107	Lab ID: 2038491003	Collected: 06/21/16 09:39	Received: 06/21/16 15:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/23/16 12:48	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 12:48	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 12:48	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/23/16 12:48	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 12:48	67-66-3	
Chloromethane	<b>0.67</b>	ug/L	0.50	1		06/23/16 12:48	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/23/16 12:48	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 12:48	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/23/16 12:48	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/23/16 12:48	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 12:48	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 12:48	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 12:48	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/23/16 12:48	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 12:48	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 12:48	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 12:48	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 12:48	10061-02-6	
Ethanol	ND	ug/L	500	1		06/23/16 12:48	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/23/16 12:48	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/23/16 12:48	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/23/16 12:48	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/23/16 12:48	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/23/16 12:48	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/23/16 12:48	108-10-1	
Methyl-tert-butyl ether	<b>2.1</b>	ug/L	0.50	1		06/23/16 12:48	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/23/16 12:48	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 12:48	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 12:48	127-18-4	
Toluene	ND	ug/L	0.50	1		06/23/16 12:48	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 12:48	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 12:48	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/23/16 12:48	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 12:48	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 12:48	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/23/16 12:48	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/23/16 12:48	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	99	%	72-126	1		06/23/16 12:48	1868-53-7	
4-Bromofluorobenzene (S)	97	%	68-124	1		06/23/16 12:48	460-00-4	
Toluene-d8 (S)	106	%	79-119	1		06/23/16 12:48	2037-26-5	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

Sample: MW-EB108	Lab ID: 2038491004	Collected: 06/21/16 10:56	Received: 06/21/16 15:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/28/16 10:14	06/29/16 16:10		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/28/16 10:14	06/29/16 16:10		
<b>Surrogates</b>								
n-Pentacosane (S)	69	%	16-137	1	06/28/16 10:14	06/29/16 16:10	629-99-2	
o-Terphenyl (S)	76	%	10-121	1	06/28/16 10:14	06/29/16 16:10	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/23/16 23:34		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	89	%	44-148	1		06/23/16 23:34	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 12:05	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 12:05	7440-47-3	
Lead	<b>0.0014</b>	mg/L	0.0010	1	06/23/16 08:18	06/24/16 12:05	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/23/16 08:18	06/24/16 12:05	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/23/16 08:20	06/23/16 13:51	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:00	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:00	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:00	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:00	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:00	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:00	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:00	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:00	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:00	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:00	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:00	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:00	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:00	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	82	%	25-150	1	06/25/16 11:35	06/27/16 18:00	321-60-8	
Terphenyl-d14 (S)	99	%	25-150	1	06/25/16 11:35	06/27/16 18:00	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	<b>23.2</b>	ug/L	4.0	1		06/23/16 13:06	67-64-1	
Benzene	ND	ug/L	0.50	1		06/23/16 13:06	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/23/16 13:06	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 13:06	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/23/16 13:06	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/23/16 13:06	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/23/16 13:06	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

Sample: MW-EB108	Lab ID: 2038491004	Collected: 06/21/16 10:56	Received: 06/21/16 15:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/23/16 13:06	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 13:06	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 13:06	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/23/16 13:06	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 13:06	67-66-3	
Chloromethane	<b>0.60</b>	ug/L	0.50	1		06/23/16 13:06	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/23/16 13:06	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 13:06	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/23/16 13:06	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/23/16 13:06	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 13:06	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 13:06	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 13:06	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/23/16 13:06	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 13:06	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 13:06	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 13:06	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 13:06	10061-02-6	
Ethanol	ND	ug/L	500	1		06/23/16 13:06	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/23/16 13:06	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/23/16 13:06	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/23/16 13:06	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/23/16 13:06	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/23/16 13:06	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/23/16 13:06	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/23/16 13:06	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/23/16 13:06	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 13:06	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 13:06	127-18-4	
Toluene	ND	ug/L	0.50	1		06/23/16 13:06	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 13:06	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 13:06	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/23/16 13:06	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 13:06	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 13:06	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/23/16 13:06	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/23/16 13:06	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	99	%	72-126	1		06/23/16 13:06	1868-53-7	
4-Bromofluorobenzene (S)	97	%	68-124	1		06/23/16 13:06	460-00-4	
Toluene-d8 (S)	107	%	79-119	1		06/23/16 13:06	2037-26-5	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

Sample: MW-76B2	Lab ID: 2038491005	Collected: 06/21/16 12:15	Received: 06/21/16 15:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/28/16 10:14	06/29/16 16:38		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/28/16 10:14	06/29/16 16:38		
<b>Surrogates</b>								
n-Pentacosane (S)	59	%	16-137	1	06/28/16 10:14	06/29/16 16:38	629-99-2	
o-Terphenyl (S)	65	%	10-121	1	06/28/16 10:14	06/29/16 16:38	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/24/16 00:00		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	88	%	44-148	1		06/24/16 00:00	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 12:09	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 12:09	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 12:09	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/23/16 08:18	06/24/16 12:09	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/23/16 08:20	06/23/16 13:53	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:22	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:22	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:22	86-73-7	
Phenanthrene	<b>0.00012</b>	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:22	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:22	120-12-7	
Fluoranthene	<b>0.00029</b>	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:22	206-44-0	
Pyrene	<b>0.00025</b>	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:22	129-00-0	
Benzo(a)anthracene	<b>0.00018</b>	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:22	56-55-3	
Chrysene	<b>0.00015</b>	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:22	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:22	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:22	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:22	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:22	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	76	%	25-150	1	06/25/16 11:35	06/27/16 18:22	321-60-8	
Terphenyl-d14 (S)	98	%	25-150	1	06/25/16 11:35	06/27/16 18:22	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	<b>10.1</b>	ug/L	4.0	1		06/23/16 13:24	67-64-1	
Benzene	ND	ug/L	0.50	1		06/23/16 13:24	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/23/16 13:24	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 13:24	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/23/16 13:24	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/23/16 13:24	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/23/16 13:24	75-65-0	

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

Sample: MW-76B2	Lab ID: 2038491005	Collected: 06/21/16 12:15	Received: 06/21/16 15:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/23/16 13:24	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 13:24	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 13:24	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/23/16 13:24	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 13:24	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/23/16 13:24	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/23/16 13:24	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 13:24	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/23/16 13:24	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/23/16 13:24	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 13:24	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 13:24	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 13:24	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/23/16 13:24	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 13:24	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 13:24	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 13:24	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 13:24	10061-02-6	
Ethanol	ND	ug/L	500	1		06/23/16 13:24	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/23/16 13:24	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/23/16 13:24	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/23/16 13:24	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/23/16 13:24	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/23/16 13:24	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/23/16 13:24	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/23/16 13:24	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/23/16 13:24	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 13:24	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 13:24	127-18-4	
Toluene	ND	ug/L	0.50	1		06/23/16 13:24	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 13:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 13:24	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/23/16 13:24	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 13:24	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 13:24	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/23/16 13:24	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/23/16 13:24	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	99	%	72-126	1		06/23/16 13:24	1868-53-7	
4-Bromofluorobenzene (S)	97	%	68-124	1		06/23/16 13:24	460-00-4	
Toluene-d8 (S)	106	%	79-119	1		06/23/16 13:24	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

Sample: MW-76A	Lab ID: 2038491006	Collected: 06/21/16 13:03	Received: 06/21/16 15:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/28/16 10:14	06/29/16 17:07		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/28/16 10:14	06/29/16 17:07		
<b>Surrogates</b>								
n-Pentacosane (S)	52	%	16-137	1	06/28/16 10:14	06/29/16 17:07	629-99-2	
o-Terphenyl (S)	63	%	10-121	1	06/28/16 10:14	06/29/16 17:07	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/24/16 00:26		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	89	%	44-148	1		06/24/16 00:26	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 12:12	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 12:12	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/23/16 08:18	06/24/16 12:12	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/23/16 08:18	06/24/16 12:12	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/23/16 08:20	06/23/16 13:55	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:43	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:43	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:43	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:43	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:43	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:43	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:43	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:43	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:43	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:43	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:43	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:43	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/25/16 11:35	06/27/16 18:43	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	78	%	25-150	1	06/25/16 11:35	06/27/16 18:43	321-60-8	
Terphenyl-d14 (S)	98	%	25-150	1	06/25/16 11:35	06/27/16 18:43	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	15.7	ug/L	4.0	1		06/23/16 13:42	67-64-1	
Benzene	ND	ug/L	0.50	1		06/23/16 13:42	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/23/16 13:42	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 13:42	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/23/16 13:42	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/23/16 13:42	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/23/16 13:42	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

Sample: MW-76A	Lab ID: 2038491006	Collected: 06/21/16 13:03	Received: 06/21/16 15:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/23/16 13:42	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 13:42	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 13:42	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/23/16 13:42	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 13:42	67-66-3	
Chloromethane	<b>0.87</b>	ug/L	0.50	1		06/23/16 13:42	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/23/16 13:42	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 13:42	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/23/16 13:42	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/23/16 13:42	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 13:42	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 13:42	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 13:42	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/23/16 13:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 13:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 13:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 13:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 13:42	10061-02-6	
Ethanol	ND	ug/L	500	1		06/23/16 13:42	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/23/16 13:42	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/23/16 13:42	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/23/16 13:42	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/23/16 13:42	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/23/16 13:42	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/23/16 13:42	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/23/16 13:42	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/23/16 13:42	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 13:42	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 13:42	127-18-4	
Toluene	ND	ug/L	0.50	1		06/23/16 13:42	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 13:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 13:42	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/23/16 13:42	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 13:42	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 13:42	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/23/16 13:42	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/23/16 13:42	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	99	%	72-126	1		06/23/16 13:42	1868-53-7	
4-Bromofluorobenzene (S)	97	%	68-124	1		06/23/16 13:42	460-00-4	
Toluene-d8 (S)	105	%	79-119	1		06/23/16 13:42	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

Sample: <b>FB062116</b>	Lab ID: <b>2038491007</b>	Collected: 06/21/16 13:15	Received: 06/21/16 15:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/23/16 20:06		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	88	%.	44-148	1		06/23/16 20:06	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	<b>17.2</b>	ug/L	4.0	1		06/23/16 14:00	67-64-1	
Benzene	ND	ug/L	0.50	1		06/23/16 14:00	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/23/16 14:00	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 14:00	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/23/16 14:00	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/23/16 14:00	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/23/16 14:00	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/23/16 14:00	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 14:00	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 14:00	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/23/16 14:00	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 14:00	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/23/16 14:00	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/23/16 14:00	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 14:00	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/23/16 14:00	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/23/16 14:00	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 14:00	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 14:00	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 14:00	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/23/16 14:00	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 14:00	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 14:00	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 14:00	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 14:00	10061-02-6	
Ethanol	ND	ug/L	500	1		06/23/16 14:00	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/23/16 14:00	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/23/16 14:00	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/23/16 14:00	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/23/16 14:00	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/23/16 14:00	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/23/16 14:00	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/23/16 14:00	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/23/16 14:00	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 14:00	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 14:00	127-18-4	
Toluene	ND	ug/L	0.50	1		06/23/16 14:00	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 14:00	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 14:00	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/23/16 14:00	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 14:00	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 14:00	75-01-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

Sample: <b>FB062116</b>		Lab ID: <b>2038491007</b>		Collected: 06/21/16 13:15	Received: 06/21/16 15:20	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
m&p-Xylene	ND	ug/L	2.0	1		06/23/16 14:00	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/23/16 14:00	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	98	%	72-126	1		06/23/16 14:00	1868-53-7	
4-Bromofluorobenzene (S)	97	%	68-124	1		06/23/16 14:00	460-00-4	
Toluene-d8 (S)	106	%	79-119	1		06/23/16 14:00	2037-26-5	

Sample: <b>TB</b>		Lab ID: <b>2038491008</b>		Collected: 06/21/16 00:00	Received: 06/21/16 15:20	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/23/16 20:32		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	90	%	44-148	1		06/23/16 20:32	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	<b>46.4</b>	ug/L	4.0	1		06/23/16 14:18	67-64-1	
Benzene	ND	ug/L	0.50	1		06/23/16 14:18	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/23/16 14:18	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 14:18	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/23/16 14:18	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/23/16 14:18	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/23/16 14:18	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/23/16 14:18	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 14:18	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 14:18	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/23/16 14:18	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 14:18	67-66-3	
Chloromethane	<b>0.76</b>	ug/L	0.50	1		06/23/16 14:18	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/23/16 14:18	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 14:18	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/23/16 14:18	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/23/16 14:18	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 14:18	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 14:18	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 14:18	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/23/16 14:18	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 14:18	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 14:18	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 14:18	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 14:18	10061-02-6	
Ethanol	ND	ug/L	500	1		06/23/16 14:18	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/23/16 14:18	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/23/16 14:18	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/23/16 14:18	98-82-8	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

Sample: TB	Lab ID: 2038491008	Collected: 06/21/16 00:00	Received: 06/21/16 15:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>	Analytical Method: EPA 5030B/8260							
Methyl acetate	ND	ug/L	2.0	1		06/23/16 14:18	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/23/16 14:18	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/23/16 14:18	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/23/16 14:18	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/23/16 14:18	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 14:18	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 14:18	127-18-4	
Toluene	ND	ug/L	0.50	1		06/23/16 14:18	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 14:18	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 14:18	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/23/16 14:18	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 14:18	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 14:18	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/23/16 14:18	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/23/16 14:18	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	99	%.	72-126	1		06/23/16 14:18	1868-53-7	
4-Bromofluorobenzene (S)	95	%.	68-124	1		06/23/16 14:18	460-00-4	
Toluene-d8 (S)	106	%.	79-119	1		06/23/16 14:18	2037-26-5	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL WELL SAMPLING  
Pace Project No.: 2038491

QC Batch: GCV/2880 Analysis Method: EPA 8015/8021  
QC Batch Method: EPA 8015/8021 Analysis Description: 8021 W GCV BTEX, MTBE, GRO  
Associated Lab Samples: 2038491001, 2038491002, 2038491003, 2038491004, 2038491005, 2038491006, 2038491007, 2038491008

METHOD BLANK: 236797 Matrix: Water  
Associated Lab Samples: 2038491001, 2038491002, 2038491003, 2038491004, 2038491005, 2038491006, 2038491007, 2038491008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	06/23/16 15:47	
4-Bromofluorobenzene (S)	%.	88	44-148	06/23/16 15:47	

METHOD BLANK: 237469 Matrix: Water  
Associated Lab Samples: 2038491001, 2038491002, 2038491003, 2038491004, 2038491005, 2038491006, 2038491007, 2038491008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	06/24/16 09:41	
4-Bromofluorobenzene (S)	%.	96	44-148	06/24/16 09:41	

METHOD BLANK: 238444 Matrix: Water  
Associated Lab Samples: 2038491001, 2038491002, 2038491003, 2038491004, 2038491005, 2038491006, 2038491007, 2038491008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	06/28/16 12:18	
4-Bromofluorobenzene (S)	%.	91	44-148	06/28/16 12:18	

LABORATORY CONTROL SAMPLE: 236798

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	416	83	61-136	
4-Bromofluorobenzene (S)	%.			92	44-148	
4-Bromofluorobenzene (S)	%.			89	44-148	

LABORATORY CONTROL SAMPLE: 237470

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	419	84	61-136	
4-Bromofluorobenzene (S)	%.			94	44-148	
4-Bromofluorobenzene (S)	%.			92	44-148	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL WELL SAMPLING  
Pace Project No.: 2038491

LABORATORY CONTROL SAMPLE: 238445

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	422	84	61-136	
4-Bromofluorobenzene (S)	%.			90	44-148	
4-Bromofluorobenzene (S)	%.			90	44-148	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

QC Batch: MERP/2787 Analysis Method: EPA 7470  
 QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
 Associated Lab Samples: 2038491001, 2038491002, 2038491003, 2038491004, 2038491005, 2038491006

METHOD BLANK: 236861 Matrix: Water  
 Associated Lab Samples: 2038491001, 2038491002, 2038491003, 2038491004, 2038491005, 2038491006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	06/23/16 13:13	

LABORATORY CONTROL SAMPLE: 236862

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	1.1	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 236863 236864

Parameter	Units	2038404001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	1	1	1.1	1.0	106	105	75-125	1	20	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL WELL SAMPLING

Project No.: 2038491

QC Batch: MPRP/4421 Analysis Method: EPA 6020  
 QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
 Associated Lab Samples: 2038491001, 2038491002, 2038491003, 2038491004, 2038491005, 2038491006

METHOD BLANK: 236849 Matrix: Water  
 Associated Lab Samples: 2038491001, 2038491002, 2038491003, 2038491004, 2038491005, 2038491006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	06/24/16 11:00	
Chromium	mg/L	ND	0.0010	06/24/16 11:00	
Lead	mg/L	ND	0.0010	06/24/16 11:00	
Vanadium	mg/L	ND	0.0050	06/24/16 11:00	

LABORATORY CONTROL SAMPLE: 236850

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.02	0.020	100	83-115	
Chromium	mg/L	.02	0.020	100	85-115	
Lead	mg/L	.02	0.020	98	84-115	
Vanadium	mg/L	.02	0.020	100	81-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 236851 236852

Parameter	Units	2038404003 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
			Spike Conc.	MS Spike Conc.	MSD Spike Conc.	MS Result					
Arsenic	mg/L	0.0013	.02	.02	0.021	0.021	98	97	80-120	2	20
Chromium	mg/L	0.0032	.02	.02	0.024	0.024	105	102	80-120	2	20
Lead	mg/L	ND	.02	.02	0.021	0.021	103	101	80-120	2	20
Vanadium	mg/L	0.016	.02	.02	0.037	0.037	107	104	80-120	2	20

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

QC Batch: MSV/5113 Analysis Method: EPA 5030B/8260  
 QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Low Level  
 Associated Lab Samples: 2038491001, 2038491002, 2038491003, 2038491004, 2038491005, 2038491006, 2038491007, 2038491008

METHOD BLANK: 236890 Matrix: Water  
 Associated Lab Samples: 2038491001, 2038491002, 2038491003, 2038491004, 2038491005, 2038491006, 2038491007, 2038491008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	06/23/16 10:43	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	06/23/16 10:43	
1,1,2-Trichloroethane	ug/L	ND	0.50	06/23/16 10:43	
1,1-Dichloroethane	ug/L	ND	0.50	06/23/16 10:43	
1,1-Dichloroethene	ug/L	ND	0.50	06/23/16 10:43	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	06/23/16 10:43	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	06/23/16 10:43	
1,2-Dichloroethane	ug/L	ND	0.50	06/23/16 10:43	
1,2-Dichloropropane	ug/L	ND	0.50	06/23/16 10:43	
2-Butanone (MEK)	ug/L	ND	2.0	06/23/16 10:43	
2-Hexanone	ug/L	ND	1.0	06/23/16 10:43	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	06/23/16 10:43	
Acetone	ug/L	ND	4.0	06/23/16 10:43	
Benzene	ug/L	ND	0.50	06/23/16 10:43	
Bromodichloromethane	ug/L	ND	0.50	06/23/16 10:43	
Bromoform	ug/L	ND	0.50	06/23/16 10:43	
Bromomethane	ug/L	ND	0.50	06/23/16 10:43	
Carbon disulfide	ug/L	ND	1.0	06/23/16 10:43	
Carbon tetrachloride	ug/L	ND	0.50	06/23/16 10:43	
Chlorobenzene	ug/L	ND	0.50	06/23/16 10:43	
Chloroethane	ug/L	ND	0.50	06/23/16 10:43	
Chloroform	ug/L	ND	0.50	06/23/16 10:43	
Chloromethane	ug/L	ND	0.50	06/23/16 10:43	
cis-1,2-Dichloroethene	ug/L	ND	1.0	06/23/16 10:43	
cis-1,3-Dichloropropene	ug/L	ND	0.50	06/23/16 10:43	
Dibromochloromethane	ug/L	ND	0.50	06/23/16 10:43	
Dichlorodifluoromethane	ug/L	ND	1.0	06/23/16 10:43	
Ethanol	ug/L	ND	500	06/23/16 10:43	
Ethylbenzene	ug/L	ND	0.50	06/23/16 10:43	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	06/23/16 10:43	
m&p-Xylene	ug/L	ND	2.0	06/23/16 10:43	
Methyl acetate	ug/L	ND	2.0	06/23/16 10:43	
Methyl-tert-butyl ether	ug/L	ND	0.50	06/23/16 10:43	
Methylene Chloride	ug/L	ND	0.50	06/23/16 10:43	
o-Xylene	ug/L	ND	1.0	06/23/16 10:43	
Styrene	ug/L	ND	1.0	06/23/16 10:43	
tert-Butyl Alcohol	ug/L	ND	200	06/23/16 10:43	
Tetrachloroethene	ug/L	ND	0.50	06/23/16 10:43	
Toluene	ug/L	ND	0.50	06/23/16 10:43	
trans-1,2-Dichloroethene	ug/L	ND	0.50	06/23/16 10:43	
trans-1,3-Dichloropropene	ug/L	ND	0.50	06/23/16 10:43	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

METHOD BLANK: 236890

Matrix: Water

Associated Lab Samples: 2038491001, 2038491002, 2038491003, 2038491004, 2038491005, 2038491006, 2038491007, 2038491008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	0.50	06/23/16 10:43	
Trichlorofluoromethane	ug/L	ND	0.50	06/23/16 10:43	
Vinyl chloride	ug/L	ND	0.50	06/23/16 10:43	
4-Bromofluorobenzene (S)	%	97	68-124	06/23/16 10:43	
Dibromofluoromethane (S)	%	99	72-126	06/23/16 10:43	
Toluene-d8 (S)	%	107	79-119	06/23/16 10:43	

LABORATORY CONTROL SAMPLE: 236891

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	52.3	105	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	53.3	107	15-179	
1,1,2-Trichloroethane	ug/L	50	48.7	97	58-144	
1,1-Dichloroethane	ug/L	50	49.2	98	63-129	
1,1-Dichloroethene	ug/L	50	42.8	86	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	54.9	110	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	52.2	104	52-161	
1,2-Dichloroethane	ug/L	50	51.8	104	57-148	
1,2-Dichloropropane	ug/L	50	52.4	105	66-128	
2-Butanone (MEK)	ug/L	50	57.4	115	32-183	
2-Hexanone	ug/L	50	58.3	117	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	56.5	113	26-171	
Acetone	ug/L	50	52.5	105	22-165	
Benzene	ug/L	50	50.1	100	62-131	
Bromodichloromethane	ug/L	50	49.9	100	69-132	
Bromoform	ug/L	50	41.0	82	35-166	
Bromomethane	ug/L	50	57.1	114	34-158	
Carbon disulfide	ug/L	50	44.6	89	31-128	
Carbon tetrachloride	ug/L	50	46.3	93	54-144	
Chlorobenzene	ug/L	50	49.7	99	70-127	
Chloroethane	ug/L	50	51.0	102	17-195	
Chloroform	ug/L	50	46.3	93	73-134	
Chloromethane	ug/L	50	61.0	122	17-153	
cis-1,2-Dichloroethene	ug/L	50	50.2	100	68-129	
cis-1,3-Dichloropropene	ug/L	50	47.3	95	72-138	
Dibromochloromethane	ug/L	50	45.9	92	49-146	
Dichlorodifluoromethane	ug/L	50	46.1	92	10-179	
Ethylbenzene	ug/L	50	52.3	105	66-126	
Isopropylbenzene (Cumene)	ug/L	50	57.0	114	51-138	
m&p-Xylene	ug/L	100	101	101	65-129	
Methyl acetate	ug/L	50	45.3	91	20-142	
Methyl-tert-butyl ether	ug/L	50	45.2	90	37-166	
Methylene Chloride	ug/L	50	45.4	91	46-168	
o-Xylene	ug/L	50	50.7	101	65-124	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

LABORATORY CONTROL SAMPLE: 236891

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Styrene	ug/L	50	53.6	107	72-133	
Tetrachloroethene	ug/L	50	48.4	97	46-157	
Toluene	ug/L	50	53.8	108	69-126	
trans-1,2-Dichloroethene	ug/L	50	47.5	95	60-129	
trans-1,3-Dichloropropene	ug/L	50	50.3	101	59-149	
Trichloroethene	ug/L	50	48.1	96	67-132	
Trichlorofluoromethane	ug/L	50	62.7	125	39-171	
Vinyl chloride	ug/L	50	52.3	105	27-149	
4-Bromofluorobenzene (S)	%			96	68-124	
Dibromofluoromethane (S)	%			101	72-126	
Toluene-d8 (S)	%			103	79-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 236892 236893

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2038491002 Result	Spike Conc.	Spike Conc.	MS Result						
1,1,1-Trichloroethane	ug/L	ND	50	50	58.2	57.6	116	115	54-137	1	20
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	57.0	56.0	114	112	15-187	2	20
1,1,2-Trichloroethane	ug/L	ND	50	50	54.0	51.9	108	104	59-148	4	20
1,1-Dichloroethane	ug/L	ND	50	50	56.8	55.1	114	110	59-133	3	20
1,1-Dichloroethene	ug/L	ND	50	50	56.1	53.8	112	108	44-146	4	20
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	58.2	57.1	116	114	23-166	2	20
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	56.3	54.2	113	108	55-166	4	20
1,2-Dichloroethane	ug/L	ND	50	50	57.3	56.5	115	113	56-154	1	20
1,2-Dichloropropane	ug/L	ND	50	50	57.6	56.1	115	112	62-135	3	20
2-Butanone (MEK)	ug/L	ND	50	50	58.6	56.7	117	113	20-205	3	20
2-Hexanone	ug/L	ND	50	50	63.0	59.2	126	118	25-189	6	20
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	50	60.1	57.5	120	115	23-184	5	20
Acetone	ug/L	25.8	50	50	77.0	77.1	103	103	11-217	0	20
Benzene	ug/L	ND	50	50	54.8	53.0	110	106	52-141	3	20
Bromodichloromethane	ug/L	ND	50	50	58.5	56.0	117	112	70-134	4	20
Bromoform	ug/L	ND	50	50	46.0	44.0	92	88	37-171	4	20
Bromomethane	ug/L	ND	50	50	59.0	58.0	118	116	34-155	2	20
Carbon disulfide	ug/L	ND	50	50	61.4	57.4	122	114	28-130	7	20
Carbon tetrachloride	ug/L	ND	50	50	52.7	52.3	105	105	48-146	1	20
Chlorobenzene	ug/L	ND	50	50	54.3	51.7	109	103	67-129	5	20
Chloroethane	ug/L	ND	50	50	58.8	57.6	118	115	12-192	2	20
Chloroform	ug/L	ND	50	50	54.1	53.0	108	106	66-143	2	20
Chloromethane	ug/L	1.5	50	50	64.8	63.2	126	123	14-155	2	20
cis-1,2-Dichloroethene	ug/L	ND	50	50	56.3	55.5	113	111	56-141	2	20
cis-1,3-Dichloropropene	ug/L	ND	50	50	50.2	48.9	100	98	70-139	3	20
Dibromochloromethane	ug/L	ND	50	50	54.3	51.8	109	104	50-150	5	20
Dichlorodifluoromethane	ug/L	ND	50	50	55.3	53.8	111	108	10-173	3	20
Ethylbenzene	ug/L	ND	50	50	58.0	55.8	116	112	57-135	4	20

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

Parameter	Units	2038491002		236892		236893		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Isopropylbenzene (Cumene)	ug/L	ND	50	50	63.9	61.9	128	124	40-146	3	20		
m&p-Xylene	ug/L	ND	100	100	112	107	112	107	56-136	5	20		
Methyl acetate	ug/L	ND	50	50	46.2	43.6	92	87	10-142	6	20		
Methyl-tert-butyl ether	ug/L	1.3	50	50	52.9	51.9	103	101	35-176	2	20		
Methylene Chloride	ug/L	ND	50	50	51.3	50.2	103	100	45-166	2	20		
o-Xylene	ug/L	ND	50	50	55.4	53.7	111	107	57-133	3	20		
Styrene	ug/L	ND	50	50	56.9	54.6	114	109	58-144	4	20		
Tetrachloroethene	ug/L	ND	50	50	54.1	52.6	108	105	48-143	3	20		
Toluene	ug/L	ND	50	50	58.3	56.6	117	113	59-136	3	20		
trans-1,2-Dichloroethene	ug/L	ND	50	50	57.2	55.2	114	110	57-132	4	20		
trans-1,3-Dichloropropene	ug/L	ND	50	50	54.1	51.8	108	104	59-154	4	20		
Trichloroethene	ug/L	ND	50	50	54.7	52.1	109	104	58-140	5	20		
Trichlorofluoromethane	ug/L	ND	50	50	58.4	58.9	117	118	24-175	1	20		
Vinyl chloride	ug/L	ND	50	50	62.4	60.7	125	121	21-150	3	20		
4-Bromofluorobenzene (S)	%.						97	98	68-124				
Dibromofluoromethane (S)	%.						100	101	72-126				
Toluene-d8 (S)	%.						103	103	79-119				

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

QC Batch: OEXT/9365 Analysis Method: EPA 8015B Modified  
 QC Batch Method: EPA 3535 Analysis Description: EPA 8015 ORO  
 Associated Lab Samples: 2038491001, 2038491002, 2038491003, 2038491004, 2038491005, 2038491006

METHOD BLANK: 238259 Matrix: Water  
 Associated Lab Samples: 2038491001, 2038491002, 2038491003, 2038491004, 2038491005, 2038491006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	ND	0.25	06/29/16 13:48	
Oil Range Organics (>C28-C40)	mg/L	ND	0.50	06/29/16 13:48	
n-Pentacosane (S)	%	63	16-137	06/29/16 13:48	
o-Terphenyl (S)	%	75	10-121	06/29/16 13:48	

LABORATORY CONTROL SAMPLE: 238260

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	.4	ND	61	10-115	
n-Pentacosane (S)	%			64	16-137	
o-Terphenyl (S)	%			78	10-121	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 238261 238262

Parameter	Units	2038562005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
Diesel Range Organic (C10-C28)	mg/L	ND	.8	.8	ND	ND	35	36	10-122	20	
n-Pentacosane (S)	%						44	49	16-137		
o-Terphenyl (S)	%						76	76	10-121		

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL WELL SAMPLING

Project No.: 2038491

QC Batch: OEXT/9349 Analysis Method: EPA 8270 by SIM  
 QC Batch Method: EPA 3510 Analysis Description: 8270 Water by SIM MSSV  
 Associated Lab Samples: 2038491001, 2038491002, 2038491003, 2038491004, 2038491005, 2038491006

METHOD BLANK: 237942 Matrix: Water  
 Associated Lab Samples: 2038491001, 2038491002, 2038491003, 2038491004, 2038491005, 2038491006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	06/27/16 14:25	
Anthracene	mg/L	ND	0.00010	06/27/16 14:25	
Benzo(a)anthracene	mg/L	ND	0.00010	06/27/16 14:25	
Benzo(a)pyrene	mg/L	ND	0.00010	06/27/16 14:25	
Benzo(b)fluoranthene	mg/L	ND	0.00010	06/27/16 14:25	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	06/27/16 14:25	
Benzo(k)fluoranthene	mg/L	ND	0.00010	06/27/16 14:25	
Chrysene	mg/L	ND	0.00010	06/27/16 14:25	
Fluoranthene	mg/L	ND	0.00010	06/27/16 14:25	
Fluorene	mg/L	ND	0.00010	06/27/16 14:25	
Naphthalene	mg/L	ND	0.00010	06/27/16 14:25	
Phenanthrene	mg/L	ND	0.00010	06/27/16 14:25	
Pyrene	mg/L	ND	0.00010	06/27/16 14:25	
2-Fluorobiphenyl (S)	%	82	25-150	06/27/16 14:25	
Terphenyl-d14 (S)	%	98	25-150	06/27/16 14:25	

LABORATORY CONTROL SAMPLE: 237943

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0030	75	35-150	
Anthracene	mg/L	.004	0.0034	86	35-150	
Benzo(a)anthracene	mg/L	.004	0.0033	81	35-150	
Benzo(a)pyrene	mg/L	.004	0.0034	84	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0035	87	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0035	88	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0036	91	35-150	
Chrysene	mg/L	.004	0.0034	84	35-150	
Fluoranthene	mg/L	.004	0.0035	87	35-150	
Fluorene	mg/L	.004	0.0030	76	35-150	
Naphthalene	mg/L	.004	0.0032	79	35-150	
Phenanthrene	mg/L	.004	0.0033	82	35-150	
Pyrene	mg/L	.004	0.0032	80	35-150	
2-Fluorobiphenyl (S)	%			89	25-150	
Terphenyl-d14 (S)	%			103	25-150	

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## QUALIFIERS

Project: PUMA TERMINAL WELL SAMPLING  
Pace Project No.: 2038491

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.  
ND - Not Detected at or above adjusted reporting limit.  
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.  
MDL - Adjusted Method Detection Limit.  
PQL - Practical Quantitation Limit.  
RL - Reporting Limit.  
S - Surrogate  
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.  
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.  
LCS(D) - Laboratory Control Sample (Duplicate)  
MS(D) - Matrix Spike (Duplicate)  
DUP - Sample Duplicate  
RPD - Relative Percent Difference  
NC - Not Calculable.  
SG - Silica Gel - Clean-Up  
U - Indicates the compound was analyzed for, but not detected.  
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.  
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.  
TNI - The Nelac Institute

### LABORATORIES

PASI-N Pace Analytical Services - New Orleans

### BATCH QUALIFIERS

Batch: MSSV/4126

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### ANALYTE QUALIFIERS

1b Sample 2038491002 was analyzed with a closing CCV that was low, however no more sample available to re-analyze.  
Data was sent

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PUMA TERMINAL WELL SAMPLING

Pace Project No.: 2038491

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2038491001	EB-062116	EPA 3535	OEXT/9365	EPA 8015B Modified	GCSV/6764
2038491002	MW-MP4	EPA 3535	OEXT/9365	EPA 8015B Modified	GCSV/6764
2038491003	MW-EB107	EPA 3535	OEXT/9365	EPA 8015B Modified	GCSV/6764
2038491004	MW-EB108	EPA 3535	OEXT/9365	EPA 8015B Modified	GCSV/6764
2038491005	MW-76B2	EPA 3535	OEXT/9365	EPA 8015B Modified	GCSV/6764
2038491006	MW-76A	EPA 3535	OEXT/9365	EPA 8015B Modified	GCSV/6764
2038491001	EB-062116	EPA 8015/8021	GCV/2880		
2038491002	MW-MP4	EPA 8015/8021	GCV/2880		
2038491003	MW-EB107	EPA 8015/8021	GCV/2880		
2038491004	MW-EB108	EPA 8015/8021	GCV/2880		
2038491005	MW-76B2	EPA 8015/8021	GCV/2880		
2038491006	MW-76A	EPA 8015/8021	GCV/2880		
2038491007	FB062116	EPA 8015/8021	GCV/2880		
2038491008	TB	EPA 8015/8021	GCV/2880		
2038491001	EB-062116	EPA 3010	MPRP/4421	EPA 6020	ICPM/1940
2038491002	MW-MP4	EPA 3010	MPRP/4421	EPA 6020	ICPM/1940
2038491003	MW-EB107	EPA 3010	MPRP/4421	EPA 6020	ICPM/1940
2038491004	MW-EB108	EPA 3010	MPRP/4421	EPA 6020	ICPM/1940
2038491005	MW-76B2	EPA 3010	MPRP/4421	EPA 6020	ICPM/1940
2038491006	MW-76A	EPA 3010	MPRP/4421	EPA 6020	ICPM/1940
2038491001	EB-062116	EPA 7470	MERP/2787	EPA 7470	MERC/3422
2038491002	MW-MP4	EPA 7470	MERP/2787	EPA 7470	MERC/3422
2038491003	MW-EB107	EPA 7470	MERP/2787	EPA 7470	MERC/3422
2038491004	MW-EB108	EPA 7470	MERP/2787	EPA 7470	MERC/3422
2038491005	MW-76B2	EPA 7470	MERP/2787	EPA 7470	MERC/3422
2038491006	MW-76A	EPA 7470	MERP/2787	EPA 7470	MERC/3422
2038491001	EB-062116	EPA 3510	OEXT/9349	EPA 8270 by SIM	MSSV/4126
2038491002	MW-MP4	EPA 3510	OEXT/9349	EPA 8270 by SIM	MSSV/4126
2038491003	MW-EB107	EPA 3510	OEXT/9349	EPA 8270 by SIM	MSSV/4126
2038491004	MW-EB108	EPA 3510	OEXT/9349	EPA 8270 by SIM	MSSV/4126
2038491005	MW-76B2	EPA 3510	OEXT/9349	EPA 8270 by SIM	MSSV/4126
2038491006	MW-76A	EPA 3510	OEXT/9349	EPA 8270 by SIM	MSSV/4126
2038491001	EB-062116	EPA 5030B/8260	MSV/5113		
2038491002	MW-MP4	EPA 5030B/8260	MSV/5113		
2038491003	MW-EB107	EPA 5030B/8260	MSV/5113		
2038491004	MW-EB108	EPA 5030B/8260	MSV/5113		
2038491005	MW-76B2	EPA 5030B/8260	MSV/5113		
2038491006	MW-76A	EPA 5030B/8260	MSV/5113		
2038491007	FB062116	EPA 5030B/8260	MSV/5113		
2038491008	TB	EPA 5030B/8260	MSV/5113		

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WO#: 2038491

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A  
Required Client



2038491

Section C

Invoice Information:

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2035877

Company: <b>BCL CARIBE</b>	Report To: <b>EFRAIN CALDERON</b>	Attention:
Address: <b>CITY VIEW PLAZA I STE 401</b>	Copy To:	Company Name:
<b>GUAYNABO P.R. 00968</b>		Address:
Email To: <b>efrain.calderon@arcadis.com</b>	Purchase Order No.:	Pace Quote Reference:
Phone: <b>787-777-4000</b> Fax: <b>787-777-8085</b>	Project Name: <b>PIHA TERMINAL WELL SAMPLING</b>	Pace Project Manager: <b>J. REDONIDO</b>
Requested Due Date/TAT: <b>ST</b>	Project Number: <b>B0063767</b>	Pace Profile #:
REGULATORY AGENCY		
<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER		
Site Location: <b>BAYAMON</b>		STATE: <b>P.R.</b>

# ITEM	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.					
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other									
					DATE	TIME	DATE	TIME																			
1	EB-062116		WT G	G			06-21-16	0742	9	4	1	4								X	X	X	X	X			
2	MW-MP4		WT G	G			06-21-16	0754	9	4	1	4								X	X	X	X	X			
3	MW-EB107		WT G	G			06-21-16	0939	9	4	1	4								X	X	X	X	X			
4	MW-EB108		WT G	G			06-21-16	1056	9	4	1	4								X	X	X	X	X			
5	MW-76B2		WT G	G			06-21-16	1215	9	4	1	4								X	X	X	X	X			
6	MW-76A		WT G	G			06-21-16	1303	9	4	1	4								X	X	X	X	X			
7	FB-062116		WT G	G			06-21-16	1315	4			4								X	X						
8	TB		WT G	G			06-21-16	LAB	4			4								X	X						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<i>[Signature]</i> ARCADIS	06-21-16	1520	<i>[Signature]</i> Pace	06-21-16	15:20	
	<i>[Signature]</i> Pace	6/21/16	17:00	FedEx			
	FedEx	6/22/16	900	<i>[Signature]</i> Pace	6/22/16	900	1.9 2.1

ORIGINAL	SAMPLER NAME AND SIGNATURE	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	PRINT Name of SAMPLER: <b>FERNANDO COLON</b>				
	SIGNATURE OF SAMPLER: <i>[Signature]</i> DATE Signed (MM/DD/YY): <b>06-21-16</b>				

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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Sample Condition Upon Receipt

WO#: 2038491

Urb. Jardines de Guaynabo
Calle Mrginal Blq A-10
Guaynabo, PR 00969

PM: JAR1

Due Date: 07/06/16

Project #:

CLIENT: 98-ARCADISPR

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 4 Therm Fisher IR 6 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 6-21-16 JAR

Temp must be measured from Temperature blank when present

Comments:

Table with 15 rows and 3 columns: Question, Yes/No/N/A checkboxes, and Number/Comments. Includes items like 'Temperature Blank Present?', 'Chain of Custody Present', etc.

Client Notification/ Resolution:

Person Contacted: Date/Time:

Comments/ Resolution:



1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

### Sample Condition Upon Receipt

Project #: **20 38491**

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 5  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 06-22-16 mb

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
		If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15

#### Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

July 05, 2016

Efrain Calderon  
BBL Caribe Engineering P.S.C.  
48 City View Plaza1, Suite 401  
Road 16, Km. 1.2  
Guaynabo, PR 00968

RE: Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038562

Dear Efrain Calderon:

Enclosed are the analytical results for sample(s) received by the laboratory on June 22, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Juan Redondo  
juan.redondo@pacelabs.com  
Project Manager

Enclosures

cc: Sharon Colon  
Abner Hernandez  
Marianela Mercado-Burgos



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

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### New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:  
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):  
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):  
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):  
T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-  
00119

Commonwealth of Virginia (TNI): 480246

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### SAMPLE SUMMARY

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2038562001	EB-062216	Water	06/22/16 07:55	06/22/16 13:30
2038562002	TRIP BLANK	Water	06/22/16 00:00	06/22/16 13:30
2038562003	86 A	Water	06/22/16 09:00	06/22/16 13:30
2038562004	DUP 3	Water	06/22/16 00:00	06/22/16 13:30
2038562005	65 A	Water	06/22/16 10:15	06/22/16 13:30
2038562006	87 A	Water	06/22/16 11:58	06/22/16 13:30
2038562007	FB-062216	Water	06/22/16 12:05	06/22/16 13:30

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2038562001	EB-062216	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038562002	TRIP BLANK	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038562003	86 A	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038562004	DUP 3	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038562005	65 A	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038562006	87 A	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038562007	FB-062216	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

---

**Method:** EPA 8015B Modified

**Description:** 8015M DRO/ORO Organics

**Client:** BBL Caribe / Arcadis PR

**Date:** July 05, 2016

**General Information:**

5 samples were analyzed for EPA 8015B Modified. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3535 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

---

**Method:** EPA 8015/8021

**Description:** 8021 GCV BTEX, MTBE, GRO

**Client:** BBL Caribe / Arcadis PR

**Date:** July 05, 2016

**General Information:**

7 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

---

**Method:** EPA 6020

**Description:** 6020 MET ICPMS

**Client:** BBL Caribe / Arcadis PR

**Date:** July 05, 2016

**General Information:**

5 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/4434

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2038562005,2038642002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 238076)
  - Arsenic
  - Chromium
  - Vanadium
- MSD (Lab ID: 238077)
  - Arsenic
  - Chromium
  - Vanadium

**Additional Comments:**

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038562

---

**Method:** EPA 7470  
**Description:** 7470 Mercury  
**Client:** BBL Caribe / Arcadis PR  
**Date:** July 05, 2016

**General Information:**

5 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

---

**Method:** EPA 8270 by SIM

**Description:** 8270 MSSV PAH by SIM SEP

**Client:** BBL Caribe / Arcadis PR

**Date:** July 05, 2016

### General Information:

5 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: OEXT/9370

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2038562005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 238287)
  - Anthracene
  - Benzo(a)pyrene
  - Pyrene

R1: RPD value was outside control limits.

- MSD (Lab ID: 238287)
  - Acenaphthene
  - Anthracene
  - Benzo(a)anthracene

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

---

**Method:** EPA 8270 by SIM

**Description:** 8270 MSSV PAH by SIM SEP

**Client:** BBL Caribe / Arcadis PR

**Date:** July 05, 2016

QC Batch: OEXT/9370

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2038562005

R1: RPD value was outside control limits.

- Benzo(a)pyrene
- Pyrene

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

---

**Method:** EPA 5030B/8260

**Description:** 8260 MSV Low Level

**Client:** BBL Caribe / Arcadis PR

**Date:** July 05, 2016

**General Information:**

7 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

Sample: EB-062216	Lab ID: 2038562001	Collected: 06/22/16 07:55	Received: 06/22/16 13:30	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/28/16 10:14	06/29/16 17:35		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/28/16 10:14	06/29/16 17:35		
<b>Surrogates</b>								
n-Pentacosane (S)	59	%	16-137	1	06/28/16 10:14	06/29/16 17:35	629-99-2	
o-Terphenyl (S)	69	%	10-121	1	06/28/16 10:14	06/29/16 17:35	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/24/16 21:35		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	96	%	44-148	1		06/24/16 21:35	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/27/16 08:54	06/28/16 15:52	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/27/16 08:54	06/28/16 15:52	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/27/16 08:54	06/28/16 15:52	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/27/16 08:54	06/28/16 15:52	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/27/16 07:56	06/27/16 12:48	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:36	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:36	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:36	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:36	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:36	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:36	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:36	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:36	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:36	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:36	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:36	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:36	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:36	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	74	%	25-150	1	06/28/16 09:11	06/30/16 15:36	321-60-8	
Terphenyl-d14 (S)	88	%	25-150	1	06/28/16 09:11	06/30/16 15:36	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	30.8	ug/L	4.0	1		06/23/16 17:34	67-64-1	
Benzene	ND	ug/L	0.50	1		06/23/16 17:34	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/23/16 17:34	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 17:34	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/23/16 17:34	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/23/16 17:34	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/23/16 17:34	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

Sample: EB-062216	Lab ID: 2038562001	Collected: 06/22/16 07:55	Received: 06/22/16 13:30	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/23/16 17:34	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 17:34	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 17:34	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/23/16 17:34	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 17:34	67-66-3	
Chloromethane	1.8	ug/L	0.50	1		06/23/16 17:34	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/23/16 17:34	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 17:34	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/23/16 17:34	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/23/16 17:34	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 17:34	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 17:34	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 17:34	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/23/16 17:34	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 17:34	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 17:34	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 17:34	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 17:34	10061-02-6	
Ethanol	ND	ug/L	500	1		06/23/16 17:34	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/23/16 17:34	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/23/16 17:34	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/23/16 17:34	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/23/16 17:34	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/23/16 17:34	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/23/16 17:34	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/23/16 17:34	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/23/16 17:34	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 17:34	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 17:34	127-18-4	
Toluene	ND	ug/L	0.50	1		06/23/16 17:34	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 17:34	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 17:34	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/23/16 17:34	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 17:34	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 17:34	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/23/16 17:34	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/23/16 17:34	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	98	%	72-126	1		06/23/16 17:34	1868-53-7	
4-Bromofluorobenzene (S)	97	%	68-124	1		06/23/16 17:34	460-00-4	
Toluene-d8 (S)	106	%	79-119	1		06/23/16 17:34	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

Sample: TRIP BLANK	Lab ID: 2038562002	Collected: 06/22/16 00:00	Received: 06/22/16 13:30	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/24/16 22:03		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	96	%	44-148	1		06/24/16 22:03	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	<b>37.0</b>	ug/L	4.0	1		06/23/16 17:52	67-64-1	
Benzene	ND	ug/L	0.50	1		06/23/16 17:52	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/23/16 17:52	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 17:52	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/23/16 17:52	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/23/16 17:52	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/23/16 17:52	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/23/16 17:52	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 17:52	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 17:52	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/23/16 17:52	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 17:52	67-66-3	
Chloromethane	<b>0.80</b>	ug/L	0.50	1		06/23/16 17:52	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/23/16 17:52	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 17:52	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/23/16 17:52	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/23/16 17:52	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 17:52	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 17:52	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 17:52	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/23/16 17:52	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 17:52	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 17:52	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 17:52	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 17:52	10061-02-6	
Ethanol	ND	ug/L	500	1		06/23/16 17:52	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/23/16 17:52	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/23/16 17:52	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/23/16 17:52	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/23/16 17:52	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/23/16 17:52	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/23/16 17:52	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/23/16 17:52	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/23/16 17:52	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 17:52	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 17:52	127-18-4	
Toluene	ND	ug/L	0.50	1		06/23/16 17:52	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 17:52	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 17:52	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/23/16 17:52	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 17:52	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 17:52	75-01-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
Lab Project No.: 2038562

Sample: TRIP BLANK		Lab ID: 2038562002	Collected: 06/22/16 00:00	Received: 06/22/16 13:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
m&p-Xylene	ND	ug/L	2.0	1		06/23/16 17:52	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/23/16 17:52	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	98	%	72-126	1		06/23/16 17:52	1868-53-7	
4-Bromofluorobenzene (S)	95	%	68-124	1		06/23/16 17:52	460-00-4	
Toluene-d8 (S)	106	%	79-119	1		06/23/16 17:52	2037-26-5	

Sample: 86 A		Lab ID: 2038562003	Collected: 06/22/16 09:00	Received: 06/22/16 13:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535						
Diesel Range Organic (C10-C28)	0.76	mg/L	0.50	1	06/28/16 10:14	06/29/16 18:03		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/28/16 10:14	06/29/16 18:03		
<b>Surrogates</b>								
n-Pentacosane (S)	72	%	16-137	1	06/28/16 10:14	06/29/16 18:03	629-99-2	
o-Terphenyl (S)	91	%	10-121	1	06/28/16 10:14	06/29/16 18:03	84-15-1	

Sample: 8021 GCV BTEX, MTBE, GRO		Lab ID: 2038562003	Collected: 06/22/16 09:00	Received: 06/22/16 13:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/28/16 16:21		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	90	%	44-148	1		06/28/16 16:21	460-00-4	

Sample: 6020 MET ICPMS		Lab ID: 2038562003	Collected: 06/22/16 09:00	Received: 06/22/16 13:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010						
Arsenic	0.0012	mg/L	0.0010	1	06/27/16 08:54	06/28/16 15:56	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/27/16 08:54	06/28/16 15:56	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/27/16 08:54	06/28/16 15:56	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/27/16 08:54	06/28/16 15:56	7440-62-2	

Sample: 7470 Mercury		Lab ID: 2038562003	Collected: 06/22/16 09:00	Received: 06/22/16 13:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470						
Mercury	ND	ug/L	0.20	1	06/27/16 07:56	06/27/16 12:50	7439-97-6	

Sample: 8270 MSSV PAH by SIM SEP		Lab ID: 2038562003	Collected: 06/22/16 09:00	Received: 06/22/16 13:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Naphthalene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:58	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:58	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:58	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:58	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:58	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:58	206-44-0	
Pyrene	0.00016	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:58	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:58	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:58	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:58	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:58	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:58	50-32-8	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

Sample: 86 A	Lab ID: 2038562003	Collected: 06/22/16 09:00	Received: 06/22/16 13:30	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 15:58	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	73	%	25-150	1	06/28/16 09:11	06/30/16 15:58	321-60-8	
Terphenyl-d14 (S)	91	%	25-150	1	06/28/16 09:11	06/30/16 15:58	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	<b>20.8</b>	ug/L	4.0	1		06/23/16 18:10	67-64-1	
Benzene	ND	ug/L	0.50	1		06/23/16 18:10	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/23/16 18:10	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 18:10	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/23/16 18:10	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/23/16 18:10	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/23/16 18:10	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/23/16 18:10	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 18:10	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 18:10	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/23/16 18:10	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 18:10	67-66-3	
Chloromethane	<b>0.61</b>	ug/L	0.50	1		06/23/16 18:10	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/23/16 18:10	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 18:10	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/23/16 18:10	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/23/16 18:10	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 18:10	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 18:10	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 18:10	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/23/16 18:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 18:10	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 18:10	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 18:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 18:10	10061-02-6	
Ethanol	ND	ug/L	500	1		06/23/16 18:10	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/23/16 18:10	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/23/16 18:10	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/23/16 18:10	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/23/16 18:10	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/23/16 18:10	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/23/16 18:10	108-10-1	
Methyl-tert-butyl ether	<b>0.82</b>	ug/L	0.50	1		06/23/16 18:10	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/23/16 18:10	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 18:10	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 18:10	127-18-4	
Toluene	ND	ug/L	0.50	1		06/23/16 18:10	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 18:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 18:10	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/23/16 18:10	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 18:10	75-69-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

Sample: 86 A		Lab ID: 2038562003		Collected: 06/22/16 09:00	Received: 06/22/16 13:30	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 18:10	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/23/16 18:10	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/23/16 18:10	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	97	%.	72-126	1		06/23/16 18:10	1868-53-7	
4-Bromofluorobenzene (S)	97	%.	68-124	1		06/23/16 18:10	460-00-4	
Toluene-d8 (S)	106	%.	79-119	1		06/23/16 18:10	2037-26-5	
<b>Sample: DUP 3</b>		Lab ID: 2038562004		Collected: 06/22/16 00:00	Received: 06/22/16 13:30	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535						
Diesel Range Organic (C10-C28)	<b>0.84</b>	mg/L	0.50	1	06/28/16 10:14	06/29/16 18:32		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/28/16 10:14	06/29/16 18:32		
<b>Surrogates</b>								
n-Pentacosane (S)	104	%.	16-137	1	06/28/16 10:14	06/29/16 18:32	629-99-2	
o-Terphenyl (S)	93	%.	10-121	1	06/28/16 10:14	06/29/16 18:32	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/28/16 16:49		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	93	%.	44-148	1		06/28/16 16:49	460-00-4	
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010						
Arsenic	<b>0.0013</b>	mg/L	0.0010	1	06/27/16 08:54	06/28/16 16:08	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/27/16 08:54	06/28/16 16:08	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/27/16 08:54	06/28/16 16:08	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/27/16 08:54	06/28/16 16:08	7440-62-2	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470						
Mercury	ND	ug/L	0.20	1	06/27/16 07:56	06/27/16 12:56	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Naphthalene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:20	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:20	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:20	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:20	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:20	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:20	206-44-0	
Pyrene	<b>0.00020</b>	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:20	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:20	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:20	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:20	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:20	207-08-9	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

Sample: DUP 3	Lab ID: 2038562004	Collected: 06/22/16 00:00	Received: 06/22/16 13:30	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:20	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:20	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	88	%	25-150	1	06/28/16 09:11	06/30/16 16:20	321-60-8	
Terphenyl-d14 (S)	98	%	25-150	1	06/28/16 09:11	06/30/16 16:20	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	22.6	ug/L	4.0	1		06/23/16 18:28	67-64-1	
Benzene	ND	ug/L	0.50	1		06/23/16 18:28	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/23/16 18:28	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 18:28	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/23/16 18:28	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/23/16 18:28	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/23/16 18:28	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/23/16 18:28	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 18:28	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 18:28	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/23/16 18:28	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 18:28	67-66-3	
Chloromethane	0.89	ug/L	0.50	1		06/23/16 18:28	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/23/16 18:28	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 18:28	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/23/16 18:28	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/23/16 18:28	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 18:28	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 18:28	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 18:28	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/23/16 18:28	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 18:28	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 18:28	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 18:28	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 18:28	10061-02-6	
Ethanol	ND	ug/L	500	1		06/23/16 18:28	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/23/16 18:28	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/23/16 18:28	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/23/16 18:28	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/23/16 18:28	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/23/16 18:28	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/23/16 18:28	108-10-1	
Methyl-tert-butyl ether	0.84	ug/L	0.50	1		06/23/16 18:28	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/23/16 18:28	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 18:28	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 18:28	127-18-4	
Toluene	ND	ug/L	0.50	1		06/23/16 18:28	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 18:28	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 18:28	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/23/16 18:28	79-01-6	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
 Project No.: 2038562

Sample: DUP 3		Lab ID: 2038562004		Collected: 06/22/16 00:00		Received: 06/22/16 13:30		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 18:28	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 18:28	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		06/23/16 18:28	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		06/23/16 18:28	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	98	%	72-126	1		06/23/16 18:28	1868-53-7		
4-Bromofluorobenzene (S)	96	%	68-124	1		06/23/16 18:28	460-00-4		
Toluene-d8 (S)	105	%	79-119	1		06/23/16 18:28	2037-26-5		

Sample: 65 A		Lab ID: 2038562005		Collected: 06/22/16 10:15		Received: 06/22/16 13:30		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535							
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/28/16 10:14	06/29/16 19:00			
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/28/16 10:14	06/29/16 19:00			
<b>Surrogates</b>									
n-Pentacosane (S)	32	%	16-137	1	06/28/16 10:14	06/29/16 19:00	629-99-2		
o-Terphenyl (S)	48	%	10-121	1	06/28/16 10:14	06/29/16 19:00	84-15-1		

<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
Gasoline Range Organics	ND	ug/L	50.0	1		06/25/16 00:23			
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	95	%	44-148	1		06/25/16 00:23	460-00-4		

<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
Arsenic	<b>0.0010</b>	mg/L	0.0010	1	06/27/16 08:54	06/28/16 15:37	7440-38-2		
Chromium	<b>0.0079</b>	mg/L	0.0010	1	06/27/16 08:54	06/28/16 15:37	7440-47-3		
Lead	ND	mg/L	0.0010	1	06/27/16 08:54	06/28/16 15:37	7439-92-1		
Vanadium	ND	mg/L	0.0050	1	06/27/16 08:54	06/28/16 15:37	7440-62-2		

<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
Mercury	ND	ug/L	0.20	1	06/27/16 07:56	06/27/16 12:40	7439-97-6		

<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
Naphthalene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:41	91-20-3		
Acenaphthene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:41	83-32-9	R1	
Fluorene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:41	86-73-7		
Phenanthrene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:41	85-01-8		
Anthracene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:41	120-12-7	M1,R1	
Fluoranthene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:41	206-44-0		
Pyrene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:41	129-00-0	M1,R1	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:41	56-55-3	R1	
Chrysene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:41	218-01-9		
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:41	205-99-2		

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

Sample: 65 A		Lab ID: 2038562005		Collected: 06/22/16 10:15		Received: 06/22/16 13:30		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510							
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:41	207-08-9		
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:41	50-32-8	M1,R1	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 16:41	191-24-2		
<b>Surrogates</b>									
2-Fluorobiphenyl (S)	81	%	25-150	1	06/28/16 09:11	06/30/16 16:41	321-60-8		
Terphenyl-d14 (S)	96	%	25-150	1	06/28/16 09:11	06/30/16 16:41	1718-51-0		
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Acetone	11.4	ug/L	4.0	1		06/23/16 17:16	67-64-1		
Benzene	ND	ug/L	0.50	1		06/23/16 17:16	71-43-2		
Bromodichloromethane	ND	ug/L	0.50	1		06/23/16 17:16	75-27-4		
Bromoform	ND	ug/L	0.50	1		06/23/16 17:16	75-25-2		
Bromomethane	ND	ug/L	0.50	1		06/23/16 17:16	74-83-9		
2-Butanone (MEK)	ND	ug/L	2.0	1		06/23/16 17:16	78-93-3		
tert-Butyl Alcohol	ND	ug/L	200	1		06/23/16 17:16	75-65-0		
Carbon disulfide	ND	ug/L	1.0	1		06/23/16 17:16	75-15-0		
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 17:16	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 17:16	108-90-7		
Chloroethane	ND	ug/L	0.50	1		06/23/16 17:16	75-00-3		
Chloroform	ND	ug/L	0.50	1		06/23/16 17:16	67-66-3		
Chloromethane	ND	ug/L	0.50	1		06/23/16 17:16	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/23/16 17:16	96-12-8		
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 17:16	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/23/16 17:16	106-93-4		
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/23/16 17:16	75-71-8		
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 17:16	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 17:16	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 17:16	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/23/16 17:16	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 17:16	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 17:16	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 17:16	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 17:16	10061-02-6		
Ethanol	ND	ug/L	500	1		06/23/16 17:16	64-17-5		
Ethylbenzene	ND	ug/L	0.50	1		06/23/16 17:16	100-41-4		
2-Hexanone	ND	ug/L	1.0	1		06/23/16 17:16	591-78-6		
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/23/16 17:16	98-82-8		
Methyl acetate	ND	ug/L	2.0	1		06/23/16 17:16	79-20-9		
Methylene Chloride	ND	ug/L	0.50	1		06/23/16 17:16	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/23/16 17:16	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/23/16 17:16	1634-04-4		
Styrene	ND	ug/L	1.0	1		06/23/16 17:16	100-42-5		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 17:16	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 17:16	127-18-4		
Toluene	ND	ug/L	0.50	1		06/23/16 17:16	108-88-3		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 17:16	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 17:16	79-00-5		

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Sample Project No.: 2038562

Sample: 65 A		Lab ID: 2038562005		Collected: 06/22/16 10:15		Received: 06/22/16 13:30		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Trichloroethene	ND	ug/L	0.50	1		06/23/16 17:16	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 17:16	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 17:16	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		06/23/16 17:16	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		06/23/16 17:16	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	97	%.	72-126	1		06/23/16 17:16	1868-53-7		
4-Bromofluorobenzene (S)	97	%.	68-124	1		06/23/16 17:16	460-00-4		
Toluene-d8 (S)	105	%.	79-119	1		06/23/16 17:16	2037-26-5		
<b>Sample: 87 A</b>		Lab ID: 2038562006		Collected: 06/22/16 11:58		Received: 06/22/16 13:30		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535							
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/28/16 10:14	06/29/16 21:21			
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/28/16 10:14	06/29/16 21:21			
<b>Surrogates</b>									
n-Pentacosane (S)	84	%.	16-137	1	06/28/16 10:14	06/29/16 21:21	629-99-2		
o-Terphenyl (S)	71	%.	10-121	1	06/28/16 10:14	06/29/16 21:21	84-15-1		
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		06/25/16 01:46			
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	94	%.	44-148	1		06/25/16 01:46	460-00-4		
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Arsenic	ND	mg/L	0.0010	1	06/27/16 08:54	06/28/16 16:12	7440-38-2		
Chromium	0.020	mg/L	0.0010	1	06/27/16 08:54	06/28/16 16:12	7440-47-3		
Lead	ND	mg/L	0.0010	1	06/27/16 08:54	06/28/16 16:12	7439-92-1		
Vanadium	ND	mg/L	0.0050	1	06/27/16 08:54	06/28/16 16:12	7440-62-2		
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	ND	ug/L	0.20	1	06/27/16 07:56	06/27/16 12:58	7439-97-6		
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510							
Naphthalene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 17:46	91-20-3		
Acenaphthene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 17:46	83-32-9		
Fluorene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 17:46	86-73-7		
Phenanthrene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 17:46	85-01-8		
Anthracene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 17:46	120-12-7		
Fluoranthene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 17:46	206-44-0		
Pyrene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 17:46	129-00-0		
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 17:46	56-55-3		
Chrysene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 17:46	218-01-9		

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

Sample: 87 A	Lab ID: 2038562006	Collected: 06/22/16 11:58	Received: 06/22/16 13:30	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 17:46	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 17:46	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 17:46	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/28/16 09:11	06/30/16 17:46	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	74	%	25-150	1	06/28/16 09:11	06/30/16 17:46	321-60-8	
Terphenyl-d14 (S)	93	%	25-150	1	06/28/16 09:11	06/30/16 17:46	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	12.2	ug/L	4.0	1		06/23/16 18:46	67-64-1	
Benzene	ND	ug/L	0.50	1		06/23/16 18:46	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/23/16 18:46	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 18:46	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/23/16 18:46	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/23/16 18:46	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/23/16 18:46	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/23/16 18:46	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 18:46	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 18:46	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/23/16 18:46	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 18:46	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/23/16 18:46	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/23/16 18:46	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 18:46	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/23/16 18:46	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/23/16 18:46	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 18:46	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 18:46	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 18:46	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/23/16 18:46	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 18:46	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 18:46	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 18:46	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 18:46	10061-02-6	
Ethanol	ND	ug/L	500	1		06/23/16 18:46	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/23/16 18:46	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/23/16 18:46	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/23/16 18:46	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/23/16 18:46	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/23/16 18:46	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/23/16 18:46	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/23/16 18:46	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/23/16 18:46	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 18:46	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 18:46	127-18-4	
Toluene	ND	ug/L	0.50	1		06/23/16 18:46	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 18:46	71-55-6	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

Sample: 87 A		Lab ID: 2038562006		Collected: 06/22/16 11:58	Received: 06/22/16 13:30	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 18:46	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/23/16 18:46	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 18:46	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 18:46	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/23/16 18:46	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/23/16 18:46	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	97	%.	72-126	1		06/23/16 18:46	1868-53-7	
4-Bromofluorobenzene (S)	96	%.	68-124	1		06/23/16 18:46	460-00-4	
Toluene-d8 (S)	105	%.	79-119	1		06/23/16 18:46	2037-26-5	

Sample: FB-062216		Lab ID: 2038562007		Collected: 06/22/16 12:05	Received: 06/22/16 13:30	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/25/16 02:14		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	94	%.	44-148	1		06/25/16 02:14	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	12.5	ug/L	4.0	1		06/23/16 19:04	67-64-1	
Benzene	ND	ug/L	0.50	1		06/23/16 19:04	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/23/16 19:04	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/23/16 19:04	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/23/16 19:04	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/23/16 19:04	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/23/16 19:04	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/23/16 19:04	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/23/16 19:04	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/23/16 19:04	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/23/16 19:04	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/23/16 19:04	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/23/16 19:04	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/23/16 19:04	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/23/16 19:04	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/23/16 19:04	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/23/16 19:04	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/23/16 19:04	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/23/16 19:04	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/23/16 19:04	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/23/16 19:04	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/23/16 19:04	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/23/16 19:04	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 19:04	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/23/16 19:04	10061-02-6	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

Sample: <b>FB-062216</b>	Lab ID: <b>2038562007</b>	Collected: 06/22/16 12:05	Received: 06/22/16 13:30	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Ethanol	ND	ug/L	500	1		06/23/16 19:04	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/23/16 19:04	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/23/16 19:04	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/23/16 19:04	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/23/16 19:04	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/23/16 19:04	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/23/16 19:04	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/23/16 19:04	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/23/16 19:04	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/23/16 19:04	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/23/16 19:04	127-18-4	
Toluene	ND	ug/L	0.50	1		06/23/16 19:04	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/23/16 19:04	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/23/16 19:04	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/23/16 19:04	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/23/16 19:04	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/23/16 19:04	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/23/16 19:04	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/23/16 19:04	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	99	%.	72-126	1		06/23/16 19:04	1868-53-7	
4-Bromofluorobenzene (S)	96	%.	68-124	1		06/23/16 19:04	460-00-4	
Toluene-d8 (S)	105	%.	79-119	1		06/23/16 19:04	2037-26-5	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038562

QC Batch: GCV/2889 Analysis Method: EPA 8015/8021  
QC Batch Method: EPA 8015/8021 Analysis Description: 8021 W GCV BTEX, MTBE, GRO  
Associated Lab Samples: 2038562001, 2038562002, 2038562003, 2038562004, 2038562005, 2038562006, 2038562007

METHOD BLANK: 237266 Matrix: Water  
Associated Lab Samples: 2038562001, 2038562002, 2038562003, 2038562004, 2038562005, 2038562006, 2038562007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	06/24/16 13:12	
4-Bromofluorobenzene (S)	%.	95	44-148	06/24/16 13:12	

METHOD BLANK: 238408 Matrix: Water  
Associated Lab Samples: 2038562001, 2038562002, 2038562003, 2038562004, 2038562005, 2038562006, 2038562007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	06/28/16 14:57	
4-Bromofluorobenzene (S)	%.	95	44-148	06/28/16 14:57	

LABORATORY CONTROL SAMPLE: 237267

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	428	86	61-136	
4-Bromofluorobenzene (S)	%.			95	44-148	

LABORATORY CONTROL SAMPLE: 238409

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	415	83	61-136	
4-Bromofluorobenzene (S)	%.			92	44-148	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 237268 237269

Parameter	Units	2038562005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
Gasoline Range Organics	ug/L	ND	500	500	439	405	84	77	15-147	8	20
4-Bromofluorobenzene (S)	%.						98	99	44-148		

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038562

QC Batch: MERP/2792 Analysis Method: EPA 7470  
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
Associated Lab Samples: 2038562001, 2038562003, 2038562004, 2038562005, 2038562006

METHOD BLANK: 237995 Matrix: Water  
Associated Lab Samples: 2038562001, 2038562003, 2038562004, 2038562005, 2038562006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	06/27/16 12:36	

LABORATORY CONTROL SAMPLE: 237996

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	1.0	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 237997 237998

Parameter	Units	2038562005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	1	1	0.96	0.98	96	98	75-125	2	20	

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038562

QC Batch: MPRP/4434 Analysis Method: EPA 6020  
QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
Associated Lab Samples: 2038562001, 2038562003, 2038562004, 2038562005, 2038562006

METHOD BLANK: 238015 Matrix: Water  
Associated Lab Samples: 2038562001, 2038562003, 2038562004, 2038562005, 2038562006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	06/28/16 15:29	
Chromium	mg/L	ND	0.0010	06/28/16 15:29	
Lead	mg/L	ND	0.0010	06/28/16 15:29	
Vanadium	mg/L	ND	0.0050	06/28/16 15:29	

LABORATORY CONTROL SAMPLE: 238016

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.02	0.021	104	83-115	
Chromium	mg/L	.02	0.021	104	85-115	
Lead	mg/L	.02	0.020	98	84-115	
Vanadium	mg/L	.02	0.020	102	81-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 238017 238018

Parameter	Units	2038562005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max		Qual
										RPD	RPD	
Arsenic	mg/L	0.0010	.02	.02	0.021	0.021	98	99	80-120	1	20	
Chromium	mg/L	0.0079	.02	.02	0.027	0.028	98	101	80-120	2	20	
Lead	mg/L	ND	.02	.02	0.020	0.020	97	99	80-120	2	20	
Vanadium	mg/L	ND	.02	.02	0.024	0.024	100	103	80-120	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 238076 238077

Parameter	Units	2038642002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max		Qual
										RPD	RPD	
Arsenic	mg/L	2.2 ug/L	.02	.02	0.0065	0.0066	22	22	80-120	2	20	M1
Chromium	mg/L	151 ug/L	.02	.02	0.16	0.15	20	8	80-120	2	20	M1
Lead	mg/L	0.019	.02	.02	0.039	0.039	99	99	80-120	0	20	
Vanadium	mg/L	409 ug/L	.02	.02	0.44	0.44	166	181	80-120	1	20	M1

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

QC Batch: MSV/5123 Analysis Method: EPA 5030B/8260  
 QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Low Level  
 Associated Lab Samples: 2038562001, 2038562002, 2038562003, 2038562004, 2038562005, 2038562006, 2038562007

METHOD BLANK: 237226 Matrix: Water  
 Associated Lab Samples: 2038562001, 2038562002, 2038562003, 2038562004, 2038562005, 2038562006, 2038562007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	06/23/16 15:48	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	06/23/16 15:48	
1,1,2-Trichloroethane	ug/L	ND	0.50	06/23/16 15:48	
1,1-Dichloroethane	ug/L	ND	0.50	06/23/16 15:48	
1,1-Dichloroethene	ug/L	ND	0.50	06/23/16 15:48	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	06/23/16 15:48	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	06/23/16 15:48	
1,2-Dichloroethane	ug/L	ND	0.50	06/23/16 15:48	
1,2-Dichloropropane	ug/L	ND	0.50	06/23/16 15:48	
2-Butanone (MEK)	ug/L	ND	2.0	06/23/16 15:48	
2-Hexanone	ug/L	ND	1.0	06/23/16 15:48	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	06/23/16 15:48	
Acetone	ug/L	ND	4.0	06/23/16 15:48	
Benzene	ug/L	ND	0.50	06/23/16 15:48	
Bromodichloromethane	ug/L	ND	0.50	06/23/16 15:48	
Bromoform	ug/L	ND	0.50	06/23/16 15:48	
Bromomethane	ug/L	ND	0.50	06/23/16 15:48	
Carbon disulfide	ug/L	ND	1.0	06/23/16 15:48	
Carbon tetrachloride	ug/L	ND	0.50	06/23/16 15:48	
Chlorobenzene	ug/L	ND	0.50	06/23/16 15:48	
Chloroethane	ug/L	ND	0.50	06/23/16 15:48	
Chloroform	ug/L	ND	0.50	06/23/16 15:48	
Chloromethane	ug/L	ND	0.50	06/23/16 15:48	
cis-1,2-Dichloroethene	ug/L	ND	1.0	06/23/16 15:48	
cis-1,3-Dichloropropene	ug/L	ND	0.50	06/23/16 15:48	
Dibromochloromethane	ug/L	ND	0.50	06/23/16 15:48	
Dichlorodifluoromethane	ug/L	ND	1.0	06/23/16 15:48	
Ethanol	ug/L	ND	500	06/23/16 15:48	
Ethylbenzene	ug/L	ND	0.50	06/23/16 15:48	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	06/23/16 15:48	
m&p-Xylene	ug/L	ND	2.0	06/23/16 15:48	
Methyl acetate	ug/L	ND	2.0	06/23/16 15:48	
Methyl-tert-butyl ether	ug/L	ND	0.50	06/23/16 15:48	
Methylene Chloride	ug/L	ND	0.50	06/23/16 15:48	
o-Xylene	ug/L	ND	1.0	06/23/16 15:48	
Styrene	ug/L	ND	1.0	06/23/16 15:48	
tert-Butyl Alcohol	ug/L	ND	200	06/23/16 15:48	
Tetrachloroethene	ug/L	ND	0.50	06/23/16 15:48	
Toluene	ug/L	ND	0.50	06/23/16 15:48	
trans-1,2-Dichloroethene	ug/L	ND	0.50	06/23/16 15:48	
trans-1,3-Dichloropropene	ug/L	ND	0.50	06/23/16 15:48	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

METHOD BLANK: 237226

Matrix: Water

Associated Lab Samples: 2038562001, 2038562002, 2038562003, 2038562004, 2038562005, 2038562006, 2038562007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	0.50	06/23/16 15:48	
Trichlorofluoromethane	ug/L	ND	0.50	06/23/16 15:48	
Vinyl chloride	ug/L	ND	0.50	06/23/16 15:48	
4-Bromofluorobenzene (S)	%	96	68-124	06/23/16 15:48	
Dibromofluoromethane (S)	%	99	72-126	06/23/16 15:48	
Toluene-d8 (S)	%	105	79-119	06/23/16 15:48	

LABORATORY CONTROL SAMPLE: 237227

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	50.0	100	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	52.7	105	15-179	
1,1,2-Trichloroethane	ug/L	50	49.8	100	58-144	
1,1-Dichloroethane	ug/L	50	48.0	96	63-129	
1,1-Dichloroethene	ug/L	50	40.9	82	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	54.4	109	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	53.4	107	52-161	
1,2-Dichloroethane	ug/L	50	52.5	105	57-148	
1,2-Dichloropropane	ug/L	50	51.4	103	66-128	
2-Butanone (MEK)	ug/L	50	55.6	111	32-183	
2-Hexanone	ug/L	50	59.6	119	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	58.8	118	26-171	
Acetone	ug/L	50	50.9	102	22-165	
Benzene	ug/L	50	48.3	97	62-131	
Bromodichloromethane	ug/L	50	50.2	100	69-132	
Bromoform	ug/L	50	44.4	89	35-166	
Bromomethane	ug/L	50	54.1	108	34-158	
Carbon disulfide	ug/L	50	42.7	85	31-128	
Carbon tetrachloride	ug/L	50	45.3	91	54-144	
Chlorobenzene	ug/L	50	50.6	101	70-127	
Chloroethane	ug/L	50	48.7	97	17-195	
Chloroform	ug/L	50	45.1	90	73-134	
Chloromethane	ug/L	50	58.9	118	17-153	
cis-1,2-Dichloroethene	ug/L	50	48.3	97	68-129	
cis-1,3-Dichloropropene	ug/L	50	47.2	94	72-138	
Dibromochloromethane	ug/L	50	49.3	99	49-146	
Dichlorodifluoromethane	ug/L	50	44.0	88	10-179	
Ethylbenzene	ug/L	50	53.1	106	66-126	
Isopropylbenzene (Cumene)	ug/L	50	55.4	111	51-138	
m&p-Xylene	ug/L	100	103	103	65-129	
Methyl acetate	ug/L	50	44.1	88	20-142	
Methyl-tert-butyl ether	ug/L	50	44.1	88	37-166	
Methylene Chloride	ug/L	50	44.1	88	46-168	
o-Xylene	ug/L	50	51.1	102	65-124	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

LABORATORY CONTROL SAMPLE: 237227

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Styrene	ug/L	50	54.8	110	72-133	
Tetrachloroethene	ug/L	50	48.4	97	46-157	
Toluene	ug/L	50	53.5	107	69-126	
trans-1,2-Dichloroethene	ug/L	50	45.1	90	60-129	
trans-1,3-Dichloropropene	ug/L	50	51.2	102	59-149	
Trichloroethene	ug/L	50	47.1	94	67-132	
Trichlorofluoromethane	ug/L	50	59.8	120	39-171	
Vinyl chloride	ug/L	50	48.1	96	27-149	
4-Bromofluorobenzene (S)	%			94	68-124	
Dibromofluoromethane (S)	%			99	72-126	
Toluene-d8 (S)	%			102	79-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 237228 237229

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2038562005 Result	Spike Conc.	Spike Conc.	MS Result						
1,1,1-Trichloroethane	ug/L	ND	50	50	54.6	53.7	109	107	54-137	2	20
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	54.1	53.9	108	108	15-187	0	20
1,1,2-Trichloroethane	ug/L	ND	50	50	51.4	50.8	103	102	59-148	1	20
1,1-Dichloroethane	ug/L	ND	50	50	52.0	51.0	104	102	59-133	2	20
1,1-Dichloroethene	ug/L	ND	50	50	46.0	44.3	92	89	44-146	4	20
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	55.1	55.0	110	110	23-166	0	20
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	55.0	54.3	110	109	55-166	1	20
1,2-Dichloroethane	ug/L	ND	50	50	54.4	53.9	109	108	56-154	1	20
1,2-Dichloropropane	ug/L	ND	50	50	54.7	54.9	109	110	62-135	0	20
2-Butanone (MEK)	ug/L	ND	50	50	55.7	55.9	110	110	20-205	0	20
2-Hexanone	ug/L	ND	50	50	59.4	59.6	119	119	25-189	0	20
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	50	58.2	57.8	116	116	23-184	1	20
Acetone	ug/L	11.4	50	50	71.4	74.1	120	125	11-217	4	20
Benzene	ug/L	ND	50	50	52.9	52.3	106	105	52-141	1	20
Bromodichloromethane	ug/L	ND	50	50	52.7	52.5	105	105	70-134	0	20
Bromoform	ug/L	ND	50	50	43.8	43.2	88	86	37-171	1	20
Bromomethane	ug/L	ND	50	50	58.2	55.5	116	111	34-155	5	20
Carbon disulfide	ug/L	ND	50	50	47.7	44.8	95	90	28-130	6	20
Carbon tetrachloride	ug/L	ND	50	50	49.8	49.7	100	99	48-146	0	20
Chlorobenzene	ug/L	ND	50	50	54.3	52.6	109	105	67-129	3	20
Chloroethane	ug/L	ND	50	50	52.6	51.4	105	103	12-192	2	20
Chloroform	ug/L	ND	50	50	48.4	47.9	97	96	66-143	1	20
Chloromethane	ug/L	ND	50	50	62.8	61.1	125	122	14-155	3	20
cis-1,2-Dichloroethene	ug/L	ND	50	50	52.4	51.7	105	103	56-141	1	20
cis-1,3-Dichloropropene	ug/L	ND	50	50	49.0	48.7	98	97	70-139	1	20
Dibromochloromethane	ug/L	ND	50	50	49.9	48.8	100	98	50-150	2	20
Dichlorodifluoromethane	ug/L	ND	50	50	47.3	46.2	95	92	10-173	2	20
Ethylbenzene	ug/L	ND	50	50	57.2	56.3	114	113	57-135	2	20

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

Parameter	Units	2038562005		237228		237229		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec						
Isopropylbenzene (Cumene)	ug/L	ND	50	50	62.8	61.4	126	123	40-146	2	20		
m&p-Xylene	ug/L	ND	100	100	111	108	111	108	56-136	3	20		
Methyl acetate	ug/L	ND	50	50	44.6	44.1	89	88	10-142	1	20		
Methyl-tert-butyl ether	ug/L	ND	50	50	45.2	45.2	90	90	35-176	0	20		
Methylene Chloride	ug/L	ND	50	50	46.0	45.6	92	91	45-166	1	20		
o-Xylene	ug/L	ND	50	50	55.0	53.5	110	107	57-133	3	20		
Styrene	ug/L	ND	50	50	53.2	50.2	106	100	58-144	6	20		
Tetrachloroethene	ug/L	ND	50	50	53.3	52.2	107	104	48-143	2	20		
Toluene	ug/L	ND	50	50	57.7	56.7	115	113	59-136	2	20		
trans-1,2-Dichloroethene	ug/L	ND	50	50	50.6	48.7	101	97	57-132	4	20		
trans-1,3-Dichloropropene	ug/L	ND	50	50	53.9	52.8	108	106	59-154	2	20		
Trichloroethene	ug/L	ND	50	50	52.4	50.8	105	102	58-140	3	20		
Trichlorofluoromethane	ug/L	ND	50	50	63.9	62.5	128	125	24-175	2	20		
Vinyl chloride	ug/L	ND	50	50	53.6	51.7	107	103	21-150	4	20		
4-Bromofluorobenzene (S)	%.						96	97	68-124				
Dibromofluoromethane (S)	%.						99	99	72-126				
Toluene-d8 (S)	%.						102	103	79-119				

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Project No.: 2038562

QC Batch: OEXT/9365 Analysis Method: EPA 8015B Modified  
 QC Batch Method: EPA 3535 Analysis Description: EPA 8015 ORO  
 Associated Lab Samples: 2038562001, 2038562003, 2038562004, 2038562005, 2038562006

METHOD BLANK: 238259 Matrix: Water  
 Associated Lab Samples: 2038562001, 2038562003, 2038562004, 2038562005, 2038562006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	ND	0.25	06/29/16 13:48	
Oil Range Organics (>C28-C40)	mg/L	ND	0.50	06/29/16 13:48	
n-Pentacosane (S)	%	63	16-137	06/29/16 13:48	
o-Terphenyl (S)	%	75	10-121	06/29/16 13:48	

LABORATORY CONTROL SAMPLE: 238260

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	.4	ND	61	10-115	
n-Pentacosane (S)	%			64	16-137	
o-Terphenyl (S)	%			78	10-121	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 238261 238262

Parameter	Units	2038562005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
Diesel Range Organic (C10-C28)	mg/L	ND	.8	.8	ND	ND	35	36	10-122	20	
n-Pentacosane (S)	%						44	49	16-137		
o-Terphenyl (S)	%						76	76	10-121		

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

QC Batch: OEXT/9370 Analysis Method: EPA 8270 by SIM  
 QC Batch Method: EPA 3510 Analysis Description: 8270 Water by SIM MSSV  
 Associated Lab Samples: 2038562001, 2038562003, 2038562004, 2038562005, 2038562006

METHOD BLANK: 238284 Matrix: Water  
 Associated Lab Samples: 2038562001, 2038562003, 2038562004, 2038562005, 2038562006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	06/30/16 14:54	
Anthracene	mg/L	ND	0.00010	06/30/16 14:54	
Benzo(a)anthracene	mg/L	ND	0.00010	06/30/16 14:54	
Benzo(a)pyrene	mg/L	ND	0.00010	06/30/16 14:54	
Benzo(b)fluoranthene	mg/L	ND	0.00010	06/30/16 14:54	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	06/30/16 14:54	
Benzo(k)fluoranthene	mg/L	ND	0.00010	06/30/16 14:54	
Chrysene	mg/L	ND	0.00010	06/30/16 14:54	
Fluoranthene	mg/L	ND	0.00010	06/30/16 14:54	
Fluorene	mg/L	ND	0.00010	06/30/16 14:54	
Naphthalene	mg/L	ND	0.00010	06/30/16 14:54	
Phenanthrene	mg/L	ND	0.00010	06/30/16 14:54	
Pyrene	mg/L	ND	0.00010	06/30/16 14:54	
2-Fluorobiphenyl (S)	%	80	25-150	06/30/16 14:54	
Terphenyl-d14 (S)	%	97	25-150	06/30/16 14:54	

LABORATORY CONTROL SAMPLE: 238285

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0024	59	35-150	
Anthracene	mg/L	.004	0.0025	61	35-150	
Benzo(a)anthracene	mg/L	.004	0.0027	68	35-150	
Benzo(a)pyrene	mg/L	.004	0.0027	68	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0028	71	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0027	68	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0030	76	35-150	
Chrysene	mg/L	.004	0.0030	74	35-150	
Fluoranthene	mg/L	.004	0.0030	74	35-150	
Fluorene	mg/L	.004	0.0024	60	35-150	
Naphthalene	mg/L	.004	0.0026	64	35-150	
Phenanthrene	mg/L	.004	0.0027	68	35-150	
Pyrene	mg/L	.004	0.0026	65	35-150	
2-Fluorobiphenyl (S)	%			69	25-150	
Terphenyl-d14 (S)	%			80	25-150	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

Parameter	Units	2038562005		238286		238287		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec						
Acenaphthene	mg/L	ND	.004	.004	0.0027	0.0015	68	38	35-150	55	20	R1	
Anthracene	mg/L	ND	.004	.004	0.0023	0.00070	57	18	35-150	106	20	M1,R1	
Benzo(a)anthracene	mg/L	ND	.004	.004	0.0033	0.0023	82	57	35-150	36	20	R1	
Benzo(a)pyrene	mg/L	ND	.004	.004	0.0031	0.0014	77	34	35-150	77	20	M1,R1	
Benzo(b)fluoranthene	mg/L	ND	.004	.004	0.0038	0.0035	94	88	35-150	7	20		
Benzo(g,h,i)perylene	mg/L	ND	.004	.004	0.0034	0.0029	86	73	35-150	16	20		
Benzo(k)fluoranthene	mg/L	ND	.004	.004	0.0039	0.0035	97	88	35-150	10	20		
Chrysene	mg/L	ND	.004	.004	0.0040	0.0037	99	93	35-150	7	20		
Fluoranthene	mg/L	ND	.004	.004	0.0042	0.0041	105	103	35-150	3	20		
Fluorene	mg/L	ND	.004	.004	0.0034	0.0033	85	82	35-150	3	20		
Naphthalene	mg/L	ND	.004	.004	0.0035	0.0031	88	78	35-150	12	20		
Phenanthrene	mg/L	ND	.004	.004	0.0039	0.0037	97	94	35-150	3	20		
Pyrene	mg/L	ND	.004	.004	0.0026	0.0012	66	31	35-150	73	20	M1,R1	
2-Fluorobiphenyl (S)	%.						85	80	25-150		20		
Terphenyl-d14 (S)	%.						104	96	25-150		20		

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## QUALIFIERS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The Nelac Institute

### LABORATORIES

PASI-N Pace Analytical Services - New Orleans

### ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

R1 RPD value was outside control limits.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038562

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2038562001	EB-062216	EPA 3535	OEXT/9365	EPA 8015B Modified	GCSV/6764
2038562003	86 A	EPA 3535	OEXT/9365	EPA 8015B Modified	GCSV/6764
2038562004	DUP 3	EPA 3535	OEXT/9365	EPA 8015B Modified	GCSV/6764
2038562005	65 A	EPA 3535	OEXT/9365	EPA 8015B Modified	GCSV/6764
2038562006	87 A	EPA 3535	OEXT/9365	EPA 8015B Modified	GCSV/6764
2038562001	EB-062216	EPA 8015/8021	GCV/2889		
2038562002	TRIP BLANK	EPA 8015/8021	GCV/2889		
2038562003	86 A	EPA 8015/8021	GCV/2889		
2038562004	DUP 3	EPA 8015/8021	GCV/2889		
2038562005	65 A	EPA 8015/8021	GCV/2889		
2038562006	87 A	EPA 8015/8021	GCV/2889		
2038562007	FB-062216	EPA 8015/8021	GCV/2889		
2038562001	EB-062216	EPA 3010	MPRP/4434	EPA 6020	ICPM/1944
2038562003	86 A	EPA 3010	MPRP/4434	EPA 6020	ICPM/1944
2038562004	DUP 3	EPA 3010	MPRP/4434	EPA 6020	ICPM/1944
2038562005	65 A	EPA 3010	MPRP/4434	EPA 6020	ICPM/1944
2038562006	87 A	EPA 3010	MPRP/4434	EPA 6020	ICPM/1944
2038562001	EB-062216	EPA 7470	MERP/2792	EPA 7470	MERC/3428
2038562003	86 A	EPA 7470	MERP/2792	EPA 7470	MERC/3428
2038562004	DUP 3	EPA 7470	MERP/2792	EPA 7470	MERC/3428
2038562005	65 A	EPA 7470	MERP/2792	EPA 7470	MERC/3428
2038562006	87 A	EPA 7470	MERP/2792	EPA 7470	MERC/3428
2038562001	EB-062216	EPA 3510	OEXT/9370	EPA 8270 by SIM	MSSV/4144
2038562003	86 A	EPA 3510	OEXT/9370	EPA 8270 by SIM	MSSV/4144
2038562004	DUP 3	EPA 3510	OEXT/9370	EPA 8270 by SIM	MSSV/4144
2038562005	65 A	EPA 3510	OEXT/9370	EPA 8270 by SIM	MSSV/4144
2038562006	87 A	EPA 3510	OEXT/9370	EPA 8270 by SIM	MSSV/4144
2038562001	EB-062216	EPA 5030B/8260	MSV/5123		
2038562002	TRIP BLANK	EPA 5030B/8260	MSV/5123		
2038562003	86 A	EPA 5030B/8260	MSV/5123		
2038562004	DUP 3	EPA 5030B/8260	MSV/5123		
2038562005	65 A	EPA 5030B/8260	MSV/5123		
2038562006	87 A	EPA 5030B/8260	MSV/5123		
2038562007	FB-062216	EPA 5030B/8260	MSV/5123		

### REPORT OF LABORATORY ANALYSIS

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WO#: 2038562

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A
Required Client Inform.



2038562

Section C
Invoice Information:

Page: 1 of 1
2035899

Company: Arcadis, Report To: Esteban Calderon, Attention: J. Redondo, Address: 401 Quynabo, PL, Bayamon, PR, Regulatory Agency: NPDES, Ground Water, Drinking Water, etc.

Main data table with columns: Section D Required Client Information, Matrix Codes, SAMPLE ID, Matrix Code, Sample Type, Collected (Date/Time), Sample Temp at Collection, # of Containers, Preservatives (H2SO4, HNO3, HCl, NaOH, etc.), Analysis Test (VDA, TPH, etc.), Residual Chlorine, Pace Project No./ Lab I.D.

Summary table with columns: ADDITIONAL COMMENTS, RELINQUISHED BY / AFFILIATION, DATE, TIME, ACCEPTED BY / AFFILIATION, DATE, TIME, SAMPLE CONDITIONS.

SAMPLER NAME AND SIGNATURE section with fields for PRINT Name of SAMPLER, SIGNATURE of SAMPLER, DATE Signed, and other verification checkboxes.

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Urb. Jardines de Guaynabo  
Calle Mrginal Blq A-10  
Guaynabo, PR 00869

**Sample Condition Upon Receipt**

**WO# : 2038562**

PM: JAR1 Due Date: 07/07/16  
CLIENT: 98-ARCADISPR

Project #:

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 4  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: [Signature]

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	1	
Chain of Custody Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14	
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15	

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_



1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

### Sample Condition Upon Receipt

Project #: **20**

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 5  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 6-23-16-imb

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	1	
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14	
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15	<u>4 vva vials &gt;6mm</u>

#### Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

July 13, 2016

Efrain Calderon  
BBL Caribe Engineering P.S.C.  
48 City View Plaza1, Suite 401  
Road 16, Km. 1.2  
Guaynabo, PR 00968

RE: Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038768

Dear Efrain Calderon:

Enclosed are the analytical results for sample(s) received by the laboratory on June 24, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Juan Redondo  
juan.redondo@pacelabs.com  
Project Manager

Enclosures

cc: Sharon Colon  
Abner Hernandez  
Marianela Mercado-Burgos



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

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### New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:  
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):  
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):  
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):  
T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-  
00119

Commonwealth of Virginia (TNI): 480246

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038768

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2038768001	EB-062416	Water	06/24/16 07:35	06/24/16 14:21
2038768002	88A	Water	06/24/16 09:00	06/24/16 14:21
2038768003	18D	Water	06/24/16 10:37	06/24/16 14:21
2038768004	P-120	Water	06/24/16 12:30	06/24/16 14:21
2038768005	FB-062416	Water	06/24/16 12:35	06/24/16 14:21
2038768006	EB-062316	Water	06/23/16 12:00	06/24/16 14:21
2038768007	98A	Water	06/23/16 13:10	06/24/16 14:21
2038768008	99A	Water	06/23/16 14:32	06/24/16 14:21
2038768009	FB-062316	Water	06/23/16 14:40	06/24/16 14:21
2038768010	TRIP BLANK -062316	Water	06/23/16 00:00	06/24/16 14:21
2038768011	TRIP BLANK -062416	Water	06/24/16 00:00	06/24/16 14:21

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2038768001	EB-062416	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	KJR	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038768002	88A	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	KJR	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038768003	18D	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	KJR	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038768004	P-120	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	KJR	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038768005	FB-062416	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038768006	EB-062316	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	KJR	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038768007	98A	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	KJR	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038768

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2038768008	99A	EPA 5030B/8260	RMP	47	PASI-N
		EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	KJR	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
2038768009	FB-062316	EPA 5030B/8260	RMP	47	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038768010	TRIP BLANK -062316	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038768011	TRIP BLANK -062416	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

---

**Method:** EPA 8015B Modified

**Description:** 8015M DRO/ORO Organics

**Client:** BBL Caribe / Arcadis PR

**Date:** July 13, 2016

**General Information:**

7 samples were analyzed for EPA 8015B Modified. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3535 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

---

**Method:** EPA 8015/8021

**Description:** 8021 GCV BTEX, MTBE, GRO

**Client:** BBL Caribe / Arcadis PR

**Date:** July 13, 2016

**General Information:**

11 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 57795

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 57810

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038768

---

**Method:** EPA 6020  
**Description:** 6020 MET ICPMS  
**Client:** BBL Caribe / Arcadis PR  
**Date:** July 13, 2016

**General Information:**

7 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

---

**Method:** EPA 7470

**Description:** 7470 Mercury

**Client:** BBL Caribe / Arcadis PR

**Date:** July 13, 2016

**General Information:**

7 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

---

**Method:** EPA 8270 by SIM

**Description:** 8270 MSSV PAH by SIM SEP

**Client:** BBL Caribe / Arcadis PR

**Date:** July 13, 2016

**General Information:**

7 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 57800

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

---

**Method:** EPA 5030B/8260

**Description:** 8260 MSV Low Level

**Client:** BBL Caribe / Arcadis PR

**Date:** July 13, 2016

**General Information:**

11 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

Sample: EB-062416	Lab ID: 2038768001	Collected: 06/24/16 07:35	Received: 06/24/16 14:21	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/30/16 08:50	07/02/16 00:04		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/30/16 08:50	07/02/16 00:04		
<b>Surrogates</b>								
n-Pentacosane (S)	43	%	16-137	1	06/30/16 08:50	07/02/16 00:04	629-99-2	
o-Terphenyl (S)	44	%	10-121	1	06/30/16 08:50	07/02/16 00:04	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/29/16 18:56		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	93	%	44-148	1		06/29/16 18:56	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:03	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:03	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:03	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/30/16 19:00	07/06/16 18:03	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/30/16 18:35	07/05/16 09:31	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:17	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:17	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:17	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:17	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:17	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:17	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:17	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:17	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:17	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:17	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:17	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:17	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:17	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	72	%	25-150	1	06/29/16 11:20	07/01/16 13:17	321-60-8	
Terphenyl-d14 (S)	96	%	25-150	1	06/29/16 11:20	07/01/16 13:17	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	11.9	ug/L	4.0	1		06/29/16 16:47	67-64-1	
Benzene	ND	ug/L	0.50	1		06/29/16 16:47	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/29/16 16:47	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/29/16 16:47	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/29/16 16:47	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/29/16 16:47	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/29/16 16:47	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

Sample: EB-062416	Lab ID: 2038768001	Collected: 06/24/16 07:35	Received: 06/24/16 14:21	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>	Analytical Method: EPA 5030B/8260							
Carbon disulfide	ND	ug/L	1.0	1		06/29/16 16:47	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/29/16 16:47	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/29/16 16:47	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/29/16 16:47	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/29/16 16:47	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/29/16 16:47	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/29/16 16:47	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/29/16 16:47	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/29/16 16:47	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/29/16 16:47	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/29/16 16:47	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/29/16 16:47	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/29/16 16:47	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/29/16 16:47	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/29/16 16:47	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/29/16 16:47	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 16:47	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 16:47	10061-02-6	
Ethanol	ND	ug/L	500	1		06/29/16 16:47	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/29/16 16:47	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/29/16 16:47	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/29/16 16:47	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/29/16 16:47	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/29/16 16:47	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/29/16 16:47	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/29/16 16:47	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/29/16 16:47	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/29/16 16:47	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/29/16 16:47	127-18-4	
Toluene	ND	ug/L	0.50	1		06/29/16 16:47	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/29/16 16:47	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/29/16 16:47	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/29/16 16:47	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/29/16 16:47	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/29/16 16:47	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/29/16 16:47	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/29/16 16:47	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	99	%	72-126	1		06/29/16 16:47	1868-53-7	
4-Bromofluorobenzene (S)	97	%	68-124	1		06/29/16 16:47	460-00-4	
Toluene-d8 (S)	104	%	79-119	1		06/29/16 16:47	2037-26-5	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Sample Project No.: 2038768

Sample: 88A	Lab ID: 2038768002	Collected: 06/24/16 09:00	Received: 06/24/16 14:21	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/30/16 08:50	07/02/16 00:33		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/30/16 08:50	07/02/16 00:33		
<b>Surrogates</b>								
n-Pentacosane (S)	48	%	16-137	1	06/30/16 08:50	07/02/16 00:33	629-99-2	
o-Terphenyl (S)	56	%	10-121	1	06/30/16 08:50	07/02/16 00:33	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	72.8	ug/L	50.0	1		06/29/16 19:24		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	96	%	44-148	1		06/29/16 19:24	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:38	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:38	7440-47-3	
Lead	0.0017	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:38	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/30/16 19:00	07/06/16 18:38	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/30/16 18:35	07/05/16 09:38	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	0.00026	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:38	91-20-3	
Acenaphthene	0.0012	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:38	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:38	86-73-7	
Phenanthrene	0.00011	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:38	85-01-8	
Anthracene	0.00011	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:38	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:38	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:38	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:38	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:38	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:38	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:38	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:38	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 13:38	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	68	%	25-150	1	06/29/16 11:20	07/01/16 13:38	321-60-8	
Terphenyl-d14 (S)	84	%	25-150	1	06/29/16 11:20	07/01/16 13:38	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	14.5	ug/L	4.0	1		06/29/16 16:30	67-64-1	
Benzene	ND	ug/L	0.50	1		06/29/16 16:30	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/29/16 16:30	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/29/16 16:30	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/29/16 16:30	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/29/16 16:30	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/29/16 16:30	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

Sample: 88A	Lab ID: 2038768002	Collected: 06/24/16 09:00	Received: 06/24/16 14:21	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/29/16 16:30	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/29/16 16:30	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/29/16 16:30	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/29/16 16:30	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/29/16 16:30	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/29/16 16:30	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/29/16 16:30	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/29/16 16:30	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/29/16 16:30	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/29/16 16:30	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/29/16 16:30	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/29/16 16:30	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/29/16 16:30	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/29/16 16:30	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/29/16 16:30	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/29/16 16:30	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 16:30	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 16:30	10061-02-6	
Ethanol	ND	ug/L	500	1		06/29/16 16:30	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/29/16 16:30	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/29/16 16:30	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/29/16 16:30	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/29/16 16:30	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/29/16 16:30	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/29/16 16:30	108-10-1	
Methyl-tert-butyl ether	2.3	ug/L	0.50	1		06/29/16 16:30	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/29/16 16:30	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/29/16 16:30	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/29/16 16:30	127-18-4	
Toluene	ND	ug/L	0.50	1		06/29/16 16:30	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/29/16 16:30	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/29/16 16:30	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/29/16 16:30	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/29/16 16:30	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/29/16 16:30	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/29/16 16:30	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/29/16 16:30	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	97	%	72-126	1		06/29/16 16:30	1868-53-7	
4-Bromofluorobenzene (S)	97	%	68-124	1		06/29/16 16:30	460-00-4	
Toluene-d8 (S)	105	%	79-119	1		06/29/16 16:30	2037-26-5	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Sample Project No.: 2038768

Sample: 18D	Lab ID: 2038768003	Collected: 06/24/16 10:37	Received: 06/24/16 14:21	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/30/16 08:50	07/02/16 01:01		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/30/16 08:50	07/02/16 01:01		
<b>Surrogates</b>								
n-Pentacosane (S)	56	%	16-137	1	06/30/16 08:50	07/02/16 01:01	629-99-2	
o-Terphenyl (S)	57	%	10-121	1	06/30/16 08:50	07/02/16 01:01	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/29/16 19:52		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	93	%	44-148	1		06/29/16 19:52	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:42	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:42	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:42	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/30/16 19:00	07/06/16 18:42	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/30/16 18:35	07/05/16 09:40	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:00	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:00	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:00	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:00	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:00	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:00	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:00	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:00	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:00	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:00	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:00	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:00	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:00	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	71	%	25-150	1	06/29/16 11:20	07/01/16 14:00	321-60-8	
Terphenyl-d14 (S)	89	%	25-150	1	06/29/16 11:20	07/01/16 14:00	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	13.3	ug/L	4.0	1		06/29/16 17:06	67-64-1	
Benzene	ND	ug/L	0.50	1		06/29/16 17:06	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/29/16 17:06	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/29/16 17:06	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/29/16 17:06	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/29/16 17:06	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/29/16 17:06	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

Sample: 18D	Lab ID: 2038768003	Collected: 06/24/16 10:37	Received: 06/24/16 14:21	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/29/16 17:06	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/29/16 17:06	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/29/16 17:06	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/29/16 17:06	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/29/16 17:06	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/29/16 17:06	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/29/16 17:06	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/29/16 17:06	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/29/16 17:06	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/29/16 17:06	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/29/16 17:06	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/29/16 17:06	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/29/16 17:06	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/29/16 17:06	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/29/16 17:06	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/29/16 17:06	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 17:06	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 17:06	10061-02-6	
Ethanol	ND	ug/L	500	1		06/29/16 17:06	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/29/16 17:06	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/29/16 17:06	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/29/16 17:06	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/29/16 17:06	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/29/16 17:06	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/29/16 17:06	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/29/16 17:06	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/29/16 17:06	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/29/16 17:06	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/29/16 17:06	127-18-4	
Toluene	ND	ug/L	0.50	1		06/29/16 17:06	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/29/16 17:06	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/29/16 17:06	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/29/16 17:06	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/29/16 17:06	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/29/16 17:06	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/29/16 17:06	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/29/16 17:06	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	96	%	72-126	1		06/29/16 17:06	1868-53-7	
4-Bromofluorobenzene (S)	97	%	68-124	1		06/29/16 17:06	460-00-4	
Toluene-d8 (S)	105	%	79-119	1		06/29/16 17:06	2037-26-5	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Sample Project No.: 2038768

Sample: P-120	Lab ID: 2038768004	Collected: 06/24/16 12:30	Received: 06/24/16 14:21	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/30/16 08:50	07/02/16 01:29		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/30/16 08:50	07/02/16 01:29		
<b>Surrogates</b>								
n-Pentacosane (S)	38	%	16-137	1	06/30/16 08:50	07/02/16 01:29	629-99-2	
o-Terphenyl (S)	42	%	10-121	1	06/30/16 08:50	07/02/16 01:29	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/29/16 23:35		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	94	%	44-148	1		06/29/16 23:35	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:46	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:46	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:46	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/30/16 19:00	07/06/16 18:46	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/30/16 18:35	07/05/16 09:42	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:22	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:22	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:22	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:22	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:22	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:22	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:22	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:22	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:22	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:22	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:22	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:22	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 14:22	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	74	%	25-150	1	06/29/16 11:20	07/01/16 14:22	321-60-8	
Terphenyl-d14 (S)	96	%	25-150	1	06/29/16 11:20	07/01/16 14:22	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	12.5	ug/L	4.0	1		06/29/16 17:24	67-64-1	
Benzene	ND	ug/L	0.50	1		06/29/16 17:24	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/29/16 17:24	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/29/16 17:24	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/29/16 17:24	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/29/16 17:24	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/29/16 17:24	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

Sample: P-120	Lab ID: 2038768004	Collected: 06/24/16 12:30	Received: 06/24/16 14:21	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/29/16 17:24	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/29/16 17:24	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/29/16 17:24	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/29/16 17:24	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/29/16 17:24	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/29/16 17:24	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/29/16 17:24	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/29/16 17:24	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/29/16 17:24	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/29/16 17:24	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/29/16 17:24	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/29/16 17:24	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/29/16 17:24	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/29/16 17:24	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/29/16 17:24	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/29/16 17:24	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 17:24	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 17:24	10061-02-6	
Ethanol	ND	ug/L	500	1		06/29/16 17:24	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/29/16 17:24	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/29/16 17:24	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/29/16 17:24	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/29/16 17:24	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/29/16 17:24	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/29/16 17:24	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/29/16 17:24	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/29/16 17:24	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/29/16 17:24	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/29/16 17:24	127-18-4	
Toluene	ND	ug/L	0.50	1		06/29/16 17:24	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/29/16 17:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/29/16 17:24	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/29/16 17:24	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/29/16 17:24	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/29/16 17:24	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/29/16 17:24	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/29/16 17:24	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	98	%	72-126	1		06/29/16 17:24	1868-53-7	
4-Bromofluorobenzene (S)	96	%	68-124	1		06/29/16 17:24	460-00-4	
Toluene-d8 (S)	105	%	79-119	1		06/29/16 17:24	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

Sample: <b>FB-062416</b>	Lab ID: <b>2038768005</b>	Collected: 06/24/16 12:35	Received: 06/24/16 14:21	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/29/16 20:20		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	94	%	44-148	1		06/29/16 20:20	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	<b>17.2</b>	ug/L	4.0	1		06/29/16 17:42	67-64-1	
Benzene	ND	ug/L	0.50	1		06/29/16 17:42	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/29/16 17:42	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/29/16 17:42	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/29/16 17:42	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/29/16 17:42	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/29/16 17:42	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/29/16 17:42	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/29/16 17:42	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/29/16 17:42	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/29/16 17:42	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/29/16 17:42	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/29/16 17:42	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/29/16 17:42	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/29/16 17:42	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/29/16 17:42	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/29/16 17:42	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/29/16 17:42	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/29/16 17:42	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/29/16 17:42	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/29/16 17:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/29/16 17:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/29/16 17:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 17:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 17:42	10061-02-6	
Ethanol	ND	ug/L	500	1		06/29/16 17:42	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/29/16 17:42	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/29/16 17:42	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/29/16 17:42	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/29/16 17:42	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/29/16 17:42	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/29/16 17:42	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/29/16 17:42	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/29/16 17:42	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/29/16 17:42	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/29/16 17:42	127-18-4	
Toluene	ND	ug/L	0.50	1		06/29/16 17:42	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/29/16 17:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/29/16 17:42	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/29/16 17:42	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/29/16 17:42	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/29/16 17:42	75-01-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

Sample: <b>FB-062416</b>	Lab ID: <b>2038768005</b>	Collected: 06/24/16 12:35	Received: 06/24/16 14:21	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
m&p-Xylene	ND	ug/L	2.0	1		06/29/16 17:42	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/29/16 17:42	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	98	%	72-126	1		06/29/16 17:42	1868-53-7	
4-Bromofluorobenzene (S)	97	%	68-124	1		06/29/16 17:42	460-00-4	
Toluene-d8 (S)	103	%	79-119	1		06/29/16 17:42	2037-26-5	
<b>Sample: EB-062316</b>		Lab ID: <b>2038768006</b> Collected: 06/23/16 12:00 Received: 06/24/16 14:21 Matrix: Water						
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535						
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/30/16 08:50	07/01/16 21:43		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/30/16 08:50	07/01/16 21:43		
<b>Surrogates</b>								
n-Pentacosane (S)	33	%	16-137	1	06/30/16 08:50	07/01/16 21:43	629-99-2	
o-Terphenyl (S)	40	%	10-121	1	06/30/16 08:50	07/01/16 21:43	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/29/16 16:36		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	94	%	44-148	1		06/29/16 16:36	460-00-4	
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010						
Arsenic	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:50	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:50	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:50	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/30/16 19:00	07/06/16 18:50	7440-62-2	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470						
Mercury	ND	ug/L	0.20	1	06/30/16 18:35	07/05/16 09:44	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Naphthalene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:12	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:12	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:12	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:12	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:12	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:12	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:12	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:12	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:12	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:12	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:12	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:12	50-32-8	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

Sample: EB-062316	Lab ID: 2038768006	Collected: 06/23/16 12:00	Received: 06/24/16 14:21	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:12	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	70	%	25-150	1	06/29/16 11:20	07/01/16 12:12	321-60-8	
Terphenyl-d14 (S)	83	%	25-150	1	06/29/16 11:20	07/01/16 12:12	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	14.2	ug/L	4.0	1		06/29/16 18:00	67-64-1	
Benzene	ND	ug/L	0.50	1		06/29/16 18:00	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/29/16 18:00	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/29/16 18:00	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/29/16 18:00	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/29/16 18:00	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/29/16 18:00	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/29/16 18:00	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/29/16 18:00	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/29/16 18:00	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/29/16 18:00	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/29/16 18:00	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/29/16 18:00	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/29/16 18:00	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/29/16 18:00	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/29/16 18:00	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/29/16 18:00	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/29/16 18:00	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/29/16 18:00	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/29/16 18:00	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/29/16 18:00	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/29/16 18:00	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/29/16 18:00	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 18:00	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 18:00	10061-02-6	
Ethanol	ND	ug/L	500	1		06/29/16 18:00	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/29/16 18:00	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/29/16 18:00	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/29/16 18:00	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/29/16 18:00	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/29/16 18:00	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/29/16 18:00	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/29/16 18:00	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/29/16 18:00	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/29/16 18:00	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/29/16 18:00	127-18-4	
Toluene	ND	ug/L	0.50	1		06/29/16 18:00	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/29/16 18:00	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/29/16 18:00	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/29/16 18:00	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/29/16 18:00	75-69-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

Sample: EB-062316		Lab ID: 2038768006		Collected: 06/23/16 12:00		Received: 06/24/16 14:21		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Vinyl chloride	ND	ug/L	0.50	1		06/29/16 18:00	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		06/29/16 18:00	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		06/29/16 18:00	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	97	%.	72-126	1		06/29/16 18:00	1868-53-7		
4-Bromofluorobenzene (S)	97	%.	68-124	1		06/29/16 18:00	460-00-4		
Toluene-d8 (S)	104	%.	79-119	1		06/29/16 18:00	2037-26-5		
<b>Sample: 98A</b>		Lab ID: 2038768007		Collected: 06/23/16 13:10		Received: 06/24/16 14:21		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535							
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/30/16 08:50	07/01/16 22:11			
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/30/16 08:50	07/01/16 22:11			
<b>Surrogates</b>									
n-Pentacosane (S)	49	%.	16-137	1	06/30/16 08:50	07/01/16 22:11	629-99-2		
o-Terphenyl (S)	48	%.	10-121	1	06/30/16 08:50	07/01/16 22:11	84-15-1		
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		06/29/16 17:04			
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	95	%.	44-148	1		06/29/16 17:04	460-00-4		
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Arsenic	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:54	7440-38-2		
Chromium	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:54	7440-47-3		
Lead	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:54	7439-92-1		
Vanadium	ND	mg/L	0.0050	1	06/30/16 19:00	07/06/16 18:54	7440-62-2		
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	ND	ug/L	0.20	1	06/30/16 18:35	07/05/16 09:46	7439-97-6		
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510							
Naphthalene	<b>0.00023</b>	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:34	91-20-3		
Acenaphthene	<b>0.0019</b>	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:34	83-32-9		
Fluorene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:34	86-73-7		
Phenanthrene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:34	85-01-8		
Anthracene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:34	120-12-7		
Fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:34	206-44-0		
Pyrene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:34	129-00-0		
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:34	56-55-3		
Chrysene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:34	218-01-9		
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:34	205-99-2		
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:34	207-08-9		

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Sample Project No.: 2038768

Sample: 98A	Lab ID: 2038768007	Collected: 06/23/16 13:10	Received: 06/24/16 14:21	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:34	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:34	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	76	%	25-150	1	06/29/16 11:20	07/01/16 12:34	321-60-8	
Terphenyl-d14 (S)	93	%	25-150	1	06/29/16 11:20	07/01/16 12:34	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	13.4	ug/L	4.0	1		06/29/16 18:18	67-64-1	
Benzene	ND	ug/L	0.50	1		06/29/16 18:18	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/29/16 18:18	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/29/16 18:18	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/29/16 18:18	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/29/16 18:18	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/29/16 18:18	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/29/16 18:18	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/29/16 18:18	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/29/16 18:18	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/29/16 18:18	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/29/16 18:18	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/29/16 18:18	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/29/16 18:18	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/29/16 18:18	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/29/16 18:18	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/29/16 18:18	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/29/16 18:18	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/29/16 18:18	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/29/16 18:18	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/29/16 18:18	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/29/16 18:18	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/29/16 18:18	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 18:18	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 18:18	10061-02-6	
Ethanol	ND	ug/L	500	1		06/29/16 18:18	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/29/16 18:18	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/29/16 18:18	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/29/16 18:18	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/29/16 18:18	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/29/16 18:18	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/29/16 18:18	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/29/16 18:18	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/29/16 18:18	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/29/16 18:18	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/29/16 18:18	127-18-4	
Toluene	ND	ug/L	0.50	1		06/29/16 18:18	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/29/16 18:18	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/29/16 18:18	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/29/16 18:18	79-01-6	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038768

Sample: 98A		Lab ID: 2038768007		Collected: 06/23/16 13:10		Received: 06/24/16 14:21		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Trichlorofluoromethane	ND	ug/L	0.50	1		06/29/16 18:18	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/29/16 18:18	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		06/29/16 18:18	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		06/29/16 18:18	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	98	%.	72-126	1		06/29/16 18:18	1868-53-7		
4-Bromofluorobenzene (S)	96	%.	68-124	1		06/29/16 18:18	460-00-4		
Toluene-d8 (S)	104	%.	79-119	1		06/29/16 18:18	2037-26-5		

Sample: 99A		Lab ID: 2038768008		Collected: 06/23/16 14:32		Received: 06/24/16 14:21		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535							
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/30/16 08:50	07/01/16 23:36			
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/30/16 08:50	07/01/16 23:36			
<b>Surrogates</b>									
n-Pentacosane (S)	47	%.	16-137	1	06/30/16 08:50	07/01/16 23:36	629-99-2		
o-Terphenyl (S)	56	%.	10-121	1	06/30/16 08:50	07/01/16 23:36	84-15-1		

<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
Gasoline Range Organics	ND	ug/L	50.0	1		06/29/16 17:32			
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	94	%.	44-148	1		06/29/16 17:32	460-00-4		

<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
Arsenic	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:57	7440-38-2		
Chromium	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:57	7440-47-3		
Lead	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 18:57	7439-92-1		
Vanadium	ND	mg/L	0.0050	1	06/30/16 19:00	07/06/16 18:57	7440-62-2		

<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
Mercury	<b>0.50</b>	ug/L	0.20	1	06/30/16 18:35	07/05/16 09:52	7439-97-6		

<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
Naphthalene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:55	91-20-3		
Acenaphthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:55	83-32-9		
Fluorene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:55	86-73-7		
Phenanthrene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:55	85-01-8		
Anthracene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:55	120-12-7		
Fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:55	206-44-0		
Pyrene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:55	129-00-0		
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:55	56-55-3		
Chrysene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:55	218-01-9		
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:55	205-99-2		

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

Sample: 99A	Lab ID: 2038768008	Collected: 06/23/16 14:32	Received: 06/24/16 14:21	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:55	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:55	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/29/16 11:20	07/01/16 12:55	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	68	%	25-150	1	06/29/16 11:20	07/01/16 12:55	321-60-8	
Terphenyl-d14 (S)	84	%	25-150	1	06/29/16 11:20	07/01/16 12:55	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	10.2	ug/L	4.0	1		06/29/16 18:36	67-64-1	
Benzene	ND	ug/L	0.50	1		06/29/16 18:36	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/29/16 18:36	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/29/16 18:36	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/29/16 18:36	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/29/16 18:36	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/29/16 18:36	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/29/16 18:36	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/29/16 18:36	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/29/16 18:36	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/29/16 18:36	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/29/16 18:36	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/29/16 18:36	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/29/16 18:36	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/29/16 18:36	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/29/16 18:36	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/29/16 18:36	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/29/16 18:36	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/29/16 18:36	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/29/16 18:36	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/29/16 18:36	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/29/16 18:36	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/29/16 18:36	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 18:36	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 18:36	10061-02-6	
Ethanol	ND	ug/L	500	1		06/29/16 18:36	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/29/16 18:36	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/29/16 18:36	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/29/16 18:36	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/29/16 18:36	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/29/16 18:36	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/29/16 18:36	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/29/16 18:36	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/29/16 18:36	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/29/16 18:36	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/29/16 18:36	127-18-4	
Toluene	ND	ug/L	0.50	1		06/29/16 18:36	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/29/16 18:36	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/29/16 18:36	79-00-5	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
Project No.: 2038768

Sample: 99A		Lab ID: 2038768008		Collected: 06/23/16 14:32	Received: 06/24/16 14:21	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Trichloroethene	ND	ug/L	0.50	1		06/29/16 18:36	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/29/16 18:36	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/29/16 18:36	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/29/16 18:36	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/29/16 18:36	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	99	%	72-126	1		06/29/16 18:36	1868-53-7	
4-Bromofluorobenzene (S)	97	%	68-124	1		06/29/16 18:36	460-00-4	
Toluene-d8 (S)	103	%	79-119	1		06/29/16 18:36	2037-26-5	

Sample: FB-062316		Lab ID: 2038768009		Collected: 06/23/16 14:40	Received: 06/24/16 14:21	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/29/16 18:00		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	94	%	44-148	1		06/29/16 18:00	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	12.5	ug/L	4.0	1		06/29/16 18:54	67-64-1	
Benzene	ND	ug/L	0.50	1		06/29/16 18:54	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/29/16 18:54	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/29/16 18:54	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/29/16 18:54	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/29/16 18:54	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/29/16 18:54	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/29/16 18:54	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/29/16 18:54	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/29/16 18:54	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/29/16 18:54	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/29/16 18:54	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/29/16 18:54	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/29/16 18:54	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/29/16 18:54	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/29/16 18:54	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/29/16 18:54	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/29/16 18:54	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/29/16 18:54	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/29/16 18:54	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/29/16 18:54	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/29/16 18:54	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/29/16 18:54	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 18:54	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 18:54	10061-02-6	
Ethanol	ND	ug/L	500	1		06/29/16 18:54	64-17-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

Sample: FB-062316		Lab ID: 2038768009		Collected: 06/23/16 14:40		Received: 06/24/16 14:21		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Ethylbenzene	ND	ug/L	0.50	1		06/29/16 18:54	100-41-4		
2-Hexanone	ND	ug/L	1.0	1		06/29/16 18:54	591-78-6		
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/29/16 18:54	98-82-8		
Methyl acetate	ND	ug/L	2.0	1		06/29/16 18:54	79-20-9		
Methylene Chloride	ND	ug/L	0.50	1		06/29/16 18:54	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/29/16 18:54	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/29/16 18:54	1634-04-4		
Styrene	ND	ug/L	1.0	1		06/29/16 18:54	100-42-5		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/29/16 18:54	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		06/29/16 18:54	127-18-4		
Toluene	ND	ug/L	0.50	1		06/29/16 18:54	108-88-3		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/29/16 18:54	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/29/16 18:54	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		06/29/16 18:54	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/29/16 18:54	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/29/16 18:54	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		06/29/16 18:54	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		06/29/16 18:54	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	98	%.	72-126	1		06/29/16 18:54	1868-53-7		
4-Bromofluorobenzene (S)	99	%.	68-124	1		06/29/16 18:54	460-00-4		
Toluene-d8 (S)	104	%.	79-119	1		06/29/16 18:54	2037-26-5		

Sample: TRIP BLANK -062316		Lab ID: 2038768010		Collected: 06/23/16 00:00		Received: 06/24/16 14:21		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		06/29/16 18:28			
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	93	%.	44-148	1		06/29/16 18:28	460-00-4		
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Acetone	19.1	ug/L	4.0	1		06/29/16 19:11	67-64-1		
Benzene	ND	ug/L	0.50	1		06/29/16 19:11	71-43-2		
Bromodichloromethane	ND	ug/L	0.50	1		06/29/16 19:11	75-27-4		
Bromoform	ND	ug/L	0.50	1		06/29/16 19:11	75-25-2		
Bromomethane	ND	ug/L	0.50	1		06/29/16 19:11	74-83-9		
2-Butanone (MEK)	ND	ug/L	2.0	1		06/29/16 19:11	78-93-3		
tert-Butyl Alcohol	ND	ug/L	200	1		06/29/16 19:11	75-65-0		
Carbon disulfide	ND	ug/L	1.0	1		06/29/16 19:11	75-15-0		
Carbon tetrachloride	ND	ug/L	0.50	1		06/29/16 19:11	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		06/29/16 19:11	108-90-7		
Chloroethane	ND	ug/L	0.50	1		06/29/16 19:11	75-00-3		
Chloroform	ND	ug/L	0.50	1		06/29/16 19:11	67-66-3		
Chloromethane	ND	ug/L	0.50	1		06/29/16 19:11	74-87-3		

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

Sample: TRIP BLANK -062316	Lab ID: 2038768010	Collected: 06/23/16 00:00	Received: 06/24/16 14:21	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/29/16 19:11	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/29/16 19:11	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/29/16 19:11	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/29/16 19:11	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/29/16 19:11	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/29/16 19:11	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/29/16 19:11	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/29/16 19:11	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/29/16 19:11	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/29/16 19:11	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 19:11	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 19:11	10061-02-6	
Ethanol	ND	ug/L	500	1		06/29/16 19:11	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/29/16 19:11	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/29/16 19:11	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/29/16 19:11	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/29/16 19:11	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/29/16 19:11	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/29/16 19:11	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/29/16 19:11	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/29/16 19:11	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/29/16 19:11	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/29/16 19:11	127-18-4	
Toluene	ND	ug/L	0.50	1		06/29/16 19:11	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/29/16 19:11	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/29/16 19:11	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/29/16 19:11	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/29/16 19:11	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/29/16 19:11	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/29/16 19:11	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/29/16 19:11	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	99	%.	72-126	1		06/29/16 19:11	1868-53-7	
4-Bromofluorobenzene (S)	97	%.	68-124	1		06/29/16 19:11	460-00-4	
Toluene-d8 (S)	104	%.	79-119	1		06/29/16 19:11	2037-26-5	

Sample: TRIP BLANK -062416	Lab ID: 2038768011	Collected: 06/24/16 00:00	Received: 06/24/16 14:21	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/30/16 13:23		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	97	%.	44-148	1		06/30/16 13:23	460-00-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

Sample: TRIP BLANK -062416	Lab ID: 2038768011	Collected: 06/24/16 00:00	Received: 06/24/16 14:21	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	66.5	ug/L	4.0	1		06/29/16 19:29	67-64-1	
Benzene	ND	ug/L	0.50	1		06/29/16 19:29	71-43-2	
Bromodichloromethane	0.65	ug/L	0.50	1		06/29/16 19:29	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/29/16 19:29	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/29/16 19:29	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/29/16 19:29	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/29/16 19:29	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/29/16 19:29	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/29/16 19:29	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/29/16 19:29	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/29/16 19:29	75-00-3	
Chloroform	2.1	ug/L	0.50	1		06/29/16 19:29	67-66-3	
Chloromethane	0.61	ug/L	0.50	1		06/29/16 19:29	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/29/16 19:29	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/29/16 19:29	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/29/16 19:29	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/29/16 19:29	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/29/16 19:29	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/29/16 19:29	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/29/16 19:29	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/29/16 19:29	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/29/16 19:29	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/29/16 19:29	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 19:29	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/29/16 19:29	10061-02-6	
Ethanol	ND	ug/L	500	1		06/29/16 19:29	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/29/16 19:29	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/29/16 19:29	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/29/16 19:29	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/29/16 19:29	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/29/16 19:29	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/29/16 19:29	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/29/16 19:29	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/29/16 19:29	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/29/16 19:29	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/29/16 19:29	127-18-4	
Toluene	ND	ug/L	0.50	1		06/29/16 19:29	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/29/16 19:29	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/29/16 19:29	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/29/16 19:29	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/29/16 19:29	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/29/16 19:29	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/29/16 19:29	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/29/16 19:29	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	98	%.	72-126	1		06/29/16 19:29	1868-53-7	
4-Bromofluorobenzene (S)	98	%.	68-124	1		06/29/16 19:29	460-00-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038768

Sample: TRIP BLANK -062416		Lab ID: 2038768011	Collected: 06/24/16 00:00	Received: 06/24/16 14:21	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
<b>Surrogates</b>								
Toluene-d8 (S)	104	%.	79-119	1		06/29/16 19:29	2037-26-5	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

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QC Batch: 57795 Analysis Method: EPA 8015/8021  
 QC Batch Method: EPA 8015/8021 Analysis Description: 8021 W GCV BTEX, MTBE, GRO  
 Associated Lab Samples: 2038768001, 2038768002, 2038768003, 2038768004, 2038768005, 2038768006, 2038768007, 2038768008,  
 2038768009, 2038768010

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METHOD BLANK: 238872 Matrix: Water  
 Associated Lab Samples: 2038768001, 2038768002, 2038768003, 2038768004, 2038768005, 2038768006, 2038768007, 2038768008,  
 2038768009, 2038768010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	06/29/16 11:28	
4-Bromofluorobenzene (S)	%.	95	44-148	06/29/16 11:28	

LABORATORY CONTROL SAMPLE: 238873

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	438	88	61-136	
4-Bromofluorobenzene (S)	%.			95	44-148	
4-Bromofluorobenzene (S)	%.			94	44-148	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

QC Batch: 57810	Analysis Method: EPA 8015/8021
QC Batch Method: EPA 8015/8021	Analysis Description: 8021 W GCV BTEX , MTBE, GRO
Associated Lab Samples: 2038768011	

METHOD BLANK: 238927 Matrix: Water

Associated Lab Samples: 2038768011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	06/29/16 22:11	
4-Bromofluorobenzene (S)	%.	93	44-148	06/29/16 22:11	

LABORATORY CONTROL SAMPLE: 238928

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	398	80	61-136	
4-Bromofluorobenzene (S)	%.			96	44-148	
4-Bromofluorobenzene (S)	%.			94	44-148	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038768

QC Batch: 57809 Analysis Method: EPA 7470  
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
Associated Lab Samples: 2038768001, 2038768002, 2038768003, 2038768004, 2038768006, 2038768007, 2038768008

METHOD BLANK: 238922 Matrix: Water  
Associated Lab Samples: 2038768001, 2038768002, 2038768003, 2038768004, 2038768006, 2038768007, 2038768008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	07/05/16 09:27	

LABORATORY CONTROL SAMPLE: 238923

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	1.1	114	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 238924 238925

Parameter	Units	2038768001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	1	1	1.1	1.1	109	110	75-125	1	20	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

QC Batch: 57818 Analysis Method: EPA 6020  
 QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
 Associated Lab Samples: 2038768001, 2038768002, 2038768003, 2038768004, 2038768006, 2038768007, 2038768008

METHOD BLANK: 238957 Matrix: Water  
 Associated Lab Samples: 2038768001, 2038768002, 2038768003, 2038768004, 2038768006, 2038768007, 2038768008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	07/06/16 17:40	
Chromium	mg/L	ND	0.0010	07/06/16 17:40	
Lead	mg/L	ND	0.0010	07/06/16 17:40	
Vanadium	mg/L	ND	0.0050	07/06/16 17:40	

LABORATORY CONTROL SAMPLE: 238958

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.02	0.019	97	83-115	
Chromium	mg/L	.02	0.019	96	85-115	
Lead	mg/L	.02	0.019	95	84-115	
Vanadium	mg/L	.02	0.019	95	81-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 238959 238960

Parameter	Units	2038768001 Result	MS Spike Conc.	MSD Spike Conc.	238959		238960		% Rec Limits	RPD	Max RPD	Qual
					MS Result	MSD Result	MS % Rec	MSD % Rec				
Arsenic	mg/L	ND	.02	.02	0.019	0.019	93	94	80-120	1	20	
Chromium	mg/L	ND	.02	.02	0.019	0.019	93	94	80-120	1	20	
Lead	mg/L	ND	.02	.02	0.019	0.019	93	94	80-120	1	20	
Vanadium	mg/L	ND	.02	.02	0.018	0.019	92	93	80-120	1	20	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

QC Batch: 57794 Analysis Method: EPA 5030B/8260  
 QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Low Level  
 Associated Lab Samples: 2038768001, 2038768002, 2038768003, 2038768004, 2038768005, 2038768006, 2038768007, 2038768008,  
 2038768009, 2038768010, 2038768011

METHOD BLANK: 238865 Matrix: Water  
 Associated Lab Samples: 2038768001, 2038768002, 2038768003, 2038768004, 2038768005, 2038768006, 2038768007, 2038768008,  
 2038768009, 2038768010, 2038768011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	06/29/16 15:01	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	06/29/16 15:01	
1,1,2-Trichloroethane	ug/L	ND	0.50	06/29/16 15:01	
1,1-Dichloroethane	ug/L	ND	0.50	06/29/16 15:01	
1,1-Dichloroethene	ug/L	ND	0.50	06/29/16 15:01	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	06/29/16 15:01	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	06/29/16 15:01	
1,2-Dichloroethane	ug/L	ND	0.50	06/29/16 15:01	
1,2-Dichloropropane	ug/L	ND	0.50	06/29/16 15:01	
2-Butanone (MEK)	ug/L	ND	2.0	06/29/16 15:01	
2-Hexanone	ug/L	ND	1.0	06/29/16 15:01	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	06/29/16 15:01	
Acetone	ug/L	ND	4.0	06/29/16 15:01	
Benzene	ug/L	ND	0.50	06/29/16 15:01	
Bromodichloromethane	ug/L	ND	0.50	06/29/16 15:01	
Bromoform	ug/L	ND	0.50	06/29/16 15:01	
Bromomethane	ug/L	ND	0.50	06/29/16 15:01	
Carbon disulfide	ug/L	ND	1.0	06/29/16 15:01	
Carbon tetrachloride	ug/L	ND	0.50	06/29/16 15:01	
Chlorobenzene	ug/L	ND	0.50	06/29/16 15:01	
Chloroethane	ug/L	ND	0.50	06/29/16 15:01	
Chloroform	ug/L	ND	0.50	06/29/16 15:01	
Chloromethane	ug/L	ND	0.50	06/29/16 15:01	
cis-1,2-Dichloroethene	ug/L	ND	1.0	06/29/16 15:01	
cis-1,3-Dichloropropene	ug/L	ND	0.50	06/29/16 15:01	
Dibromochloromethane	ug/L	ND	0.50	06/29/16 15:01	
Dichlorodifluoromethane	ug/L	ND	1.0	06/29/16 15:01	
Ethanol	ug/L	ND	500	06/29/16 15:01	
Ethylbenzene	ug/L	ND	0.50	06/29/16 15:01	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	06/29/16 15:01	
m&p-Xylene	ug/L	ND	2.0	06/29/16 15:01	
Methyl acetate	ug/L	ND	2.0	06/29/16 15:01	
Methyl-tert-butyl ether	ug/L	ND	0.50	06/29/16 15:01	
Methylene Chloride	ug/L	ND	0.50	06/29/16 15:01	
o-Xylene	ug/L	ND	1.0	06/29/16 15:01	
Styrene	ug/L	ND	1.0	06/29/16 15:01	
tert-Butyl Alcohol	ug/L	ND	200	06/29/16 15:01	
Tetrachloroethene	ug/L	ND	0.50	06/29/16 15:01	
Toluene	ug/L	ND	0.50	06/29/16 15:01	
trans-1,2-Dichloroethene	ug/L	ND	0.50	06/29/16 15:01	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038768

METHOD BLANK: 238865 Matrix: Water  
Associated Lab Samples: 2038768001, 2038768002, 2038768003, 2038768004, 2038768005, 2038768006, 2038768007, 2038768008, 2038768009, 2038768010, 2038768011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
trans-1,3-Dichloropropene	ug/L	ND	0.50	06/29/16 15:01	
Trichloroethene	ug/L	ND	0.50	06/29/16 15:01	
Trichlorofluoromethane	ug/L	ND	0.50	06/29/16 15:01	
Vinyl chloride	ug/L	ND	0.50	06/29/16 15:01	
4-Bromofluorobenzene (S)	%	96	68-124	06/29/16 15:01	
Dibromofluoromethane (S)	%	98	72-126	06/29/16 15:01	
Toluene-d8 (S)	%	103	79-119	06/29/16 15:01	

LABORATORY CONTROL SAMPLE: 238866

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	49.5	99	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	51.6	103	15-179	
1,1,2-Trichloroethane	ug/L	50	50.2	100	58-144	
1,1-Dichloroethane	ug/L	50	46.9	94	63-129	
1,1-Dichloroethene	ug/L	50	40.4	81	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	54.4	109	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	53.5	107	52-161	
1,2-Dichloroethane	ug/L	50	53.1	106	57-148	
1,2-Dichloropropane	ug/L	50	50.8	102	66-128	
2-Butanone (MEK)	ug/L	50	55.6	111	32-183	
2-Hexanone	ug/L	50	59.7	119	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	58.0	116	26-171	
Acetone	ug/L	50	54.8	110	22-165	
Benzene	ug/L	50	47.5	95	62-131	
Bromodichloromethane	ug/L	50	50.3	101	69-132	
Bromoform	ug/L	50	45.6	91	35-166	
Bromomethane	ug/L	50	52.1	104	34-158	
Carbon disulfide	ug/L	50	40.1	80	31-128	
Carbon tetrachloride	ug/L	50	45.3	91	54-144	
Chlorobenzene	ug/L	50	51.1	102	70-127	
Chloroethane	ug/L	50	47.7	95	17-195	
Chloroform	ug/L	50	44.7	89	73-134	
Chloromethane	ug/L	50	56.8	114	17-153	
cis-1,2-Dichloroethene	ug/L	50	48.1	96	68-129	
cis-1,3-Dichloropropene	ug/L	50	46.0	92	72-138	
Dibromochloromethane	ug/L	50	49.7	99	49-146	
Dichlorodifluoromethane	ug/L	50	40.8	82	10-179	
Ethylbenzene	ug/L	50	52.6	105	66-126	
Isopropylbenzene (Cumene)	ug/L	50	54.7	109	51-138	
m&p-Xylene	ug/L	100	103	103	65-129	
Methyl acetate	ug/L	50	43.5	87	20-142	
Methyl-tert-butyl ether	ug/L	50	43.7	87	37-166	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038768

LABORATORY CONTROL SAMPLE: 238866

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Methylene Chloride	ug/L	50	43.2	86	46-168	
o-Xylene	ug/L	50	51.0	102	65-124	
Styrene	ug/L	50	54.5	109	72-133	
Tetrachloroethene	ug/L	50	49.2	98	46-157	
Toluene	ug/L	50	52.3	105	69-126	
trans-1,2-Dichloroethene	ug/L	50	45.3	91	60-129	
trans-1,3-Dichloropropene	ug/L	50	51.0	102	59-149	
Trichloroethene	ug/L	50	47.5	95	67-132	
Trichlorofluoromethane	ug/L	50	58.3	117	39-171	
Vinyl chloride	ug/L	50	46.3	93	27-149	
4-Bromofluorobenzene (S)	%			96	68-124	
Dibromofluoromethane (S)	%			99	72-126	
Toluene-d8 (S)	%			101	79-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 238867 238868

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2038768002 Result	Spike Conc.	Spike Conc.	Result							
1,1,1-Trichloroethane	ug/L	ND	50	50	56.1	55.4	112	111	54-137	1	20	
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	53.3	54.0	107	108	15-187	1	20	
1,1,2-Trichloroethane	ug/L	ND	50	50	53.1	52.5	106	105	59-148	1	20	
1,1-Dichloroethane	ug/L	ND	50	50	51.6	50.5	103	101	59-133	2	20	
1,1-Dichloroethene	ug/L	ND	50	50	45.4	44.1	91	88	44-146	3	20	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	56.5	56.9	113	114	23-166	1	20	
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	56.2	56.7	112	113	55-166	1	20	
1,2-Dichloroethane	ug/L	ND	50	50	55.3	55.5	111	111	56-154	1	20	
1,2-Dichloropropane	ug/L	ND	50	50	55.1	55.0	110	110	62-135	0	20	
2-Butanone (MEK)	ug/L	ND	50	50	59.4	59.3	119	119	20-205	0	20	
2-Hexanone	ug/L	ND	50	50	61.3	61.2	123	122	25-189	0	20	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	50	59.5	59.9	119	120	23-184	1	20	
Acetone	ug/L	14.5	50	50	68.5	70.9	108	113	11-217	3	20	
Benzene	ug/L	ND	50	50	52.5	52.7	105	105	52-141	0	20	
Bromodichloromethane	ug/L	ND	50	50	54.0	53.1	108	106	70-134	2	20	
Bromoform	ug/L	ND	50	50	46.8	46.0	94	92	37-171	2	20	
Bromomethane	ug/L	ND	50	50	58.8	56.4	118	113	34-155	4	20	
Carbon disulfide	ug/L	ND	50	50	47.7	44.5	95	89	28-130	7	20	
Carbon tetrachloride	ug/L	ND	50	50	51.5	51.2	103	102	48-146	1	20	
Chlorobenzene	ug/L	ND	50	50	55.7	54.0	111	108	67-129	3	20	
Chloroethane	ug/L	ND	50	50	53.2	51.9	106	104	12-192	3	20	
Chloroform	ug/L	ND	50	50	48.4	47.9	97	96	66-143	1	20	
Chloromethane	ug/L	ND	50	50	63.6	60.7	127	121	14-155	5	20	
cis-1,2-Dichloroethene	ug/L	ND	50	50	52.6	52.1	105	104	56-141	1	20	
cis-1,3-Dichloropropene	ug/L	ND	50	50	49.5	49.5	99	99	70-139	0	20	
Dibromochloromethane	ug/L	ND	50	50	52.6	52.1	105	104	50-150	1	20	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

Parameter	Units	2038768002		238867		238868		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Dichlorodifluoromethane	ug/L	ND	50	50	46.5	43.5	93	87	10-173	7	20		
Ethylbenzene	ug/L	ND	50	50	58.1	56.6	116	113	57-135	3	20		
Isopropylbenzene (Cumene)	ug/L	ND	50	50	60.9	61.4	121	122	40-146	1	20		
m&p-Xylene	ug/L	ND	100	100	113	110	113	109	56-136	3	20		
Methyl acetate	ug/L	ND	50	50	43.3	43.0	87	86	10-142	1	20		
Methyl-tert-butyl ether	ug/L	2.3	50	50	48.7	48.6	93	93	35-176	0	20		
Methylene Chloride	ug/L	ND	50	50	45.4	45.5	91	91	45-166	0	20		
o-Xylene	ug/L	ND	50	50	55.6	55.2	111	110	57-133	1	20		
Styrene	ug/L	ND	50	50	58.6	57.6	117	115	58-144	2	20		
Tetrachloroethene	ug/L	ND	50	50	55.5	54.1	111	108	48-143	3	20		
Toluene	ug/L	ND	50	50	59.2	57.5	118	115	59-136	3	20		
trans-1,2-Dichloroethene	ug/L	ND	50	50	50.9	49.4	102	99	57-132	3	20		
trans-1,3-Dichloropropene	ug/L	ND	50	50	53.3	53.8	107	108	59-154	1	20		
Trichloroethene	ug/L	ND	50	50	53.6	51.5	107	103	58-140	4	20		
Trichlorofluoromethane	ug/L	ND	50	50	67.7	64.8	135	130	24-175	4	20		
Vinyl chloride	ug/L	ND	50	50	54.7	52.3	109	105	21-150	4	20		
4-Bromofluorobenzene (S)	%.						96	97	68-124				
Dibromofluoromethane (S)	%.						99	100	72-126				
Toluene-d8 (S)	%.						102	102	79-119				

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

---

QC Batch: 57859 Analysis Method: EPA 8015B Modified  
 QC Batch Method: EPA 3535 Analysis Description: EPA 8015 ORO  
 Associated Lab Samples: 2038768001, 2038768002, 2038768003, 2038768004, 2038768006, 2038768007, 2038768008

---

METHOD BLANK: 239124 Matrix: Water  
 Associated Lab Samples: 2038768001, 2038768002, 2038768003, 2038768004, 2038768006, 2038768007, 2038768008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	ND	0.25	07/01/16 17:56	
Oil Range Organics (>C28-C40)	mg/L	ND	0.50	07/01/16 17:56	
n-Pentacosane (S)	%	59	16-137	07/01/16 17:56	
o-Terphenyl (S)	%	64	10-121	07/01/16 17:56	

LABORATORY CONTROL SAMPLE: 239125

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	.4	ND	47	10-115	
n-Pentacosane (S)	%			57	16-137	
o-Terphenyl (S)	%			72	10-121	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

QC Batch: 57800 Analysis Method: EPA 8270 by SIM  
 QC Batch Method: EPA 3510 Analysis Description: 8270 Water by SIM MSSV  
 Associated Lab Samples: 2038768001, 2038768002, 2038768003, 2038768004, 2038768006, 2038768007, 2038768008

METHOD BLANK: 238881 Matrix: Water  
 Associated Lab Samples: 2038768001, 2038768002, 2038768003, 2038768004, 2038768006, 2038768007, 2038768008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	07/01/16 11:29	
Anthracene	mg/L	ND	0.00010	07/01/16 11:29	
Benzo(a)anthracene	mg/L	ND	0.00010	07/01/16 11:29	
Benzo(a)pyrene	mg/L	ND	0.00010	07/01/16 11:29	
Benzo(b)fluoranthene	mg/L	ND	0.00010	07/01/16 11:29	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	07/01/16 11:29	
Benzo(k)fluoranthene	mg/L	ND	0.00010	07/01/16 11:29	
Chrysene	mg/L	ND	0.00010	07/01/16 11:29	
Fluoranthene	mg/L	ND	0.00010	07/01/16 11:29	
Fluorene	mg/L	ND	0.00010	07/01/16 11:29	
Naphthalene	mg/L	ND	0.00010	07/01/16 11:29	
Phenanthrene	mg/L	ND	0.00010	07/01/16 11:29	
Pyrene	mg/L	ND	0.00010	07/01/16 11:29	
2-Fluorobiphenyl (S)	%	76	25-150	07/01/16 11:29	
Terphenyl-d14 (S)	%	91	25-150	07/01/16 11:29	

LABORATORY CONTROL SAMPLE: 238882

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0025	62	35-150	
Anthracene	mg/L	.004	0.0028	71	35-150	
Benzo(a)anthracene	mg/L	.004	0.0028	70	35-150	
Benzo(a)pyrene	mg/L	.004	0.0029	72	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0031	77	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0031	77	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0032	79	35-150	
Chrysene	mg/L	.004	0.0033	82	35-150	
Fluoranthene	mg/L	.004	0.0030	76	35-150	
Fluorene	mg/L	.004	0.0026	65	35-150	
Naphthalene	mg/L	.004	0.0027	67	35-150	
Phenanthrene	mg/L	.004	0.0029	72	35-150	
Pyrene	mg/L	.004	0.0028	71	35-150	
2-Fluorobiphenyl (S)	%			79	25-150	
Terphenyl-d14 (S)	%			104	25-150	

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### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038768

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The Nelac Institute

### LABORATORIES

PASI-N Pace Analytical Services - New Orleans

### BATCH QUALIFIERS

Batch: 57795

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 57810

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 58006

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2038768001	EB-062416	EPA 3535	57859	EPA 8015B Modified	57942
2038768002	88A	EPA 3535	57859	EPA 8015B Modified	57942
2038768003	18D	EPA 3535	57859	EPA 8015B Modified	57942
2038768004	P-120	EPA 3535	57859	EPA 8015B Modified	57942
2038768006	EB-062316	EPA 3535	57859	EPA 8015B Modified	57942
2038768007	98A	EPA 3535	57859	EPA 8015B Modified	57942
2038768008	99A	EPA 3535	57859	EPA 8015B Modified	57942
2038768001	EB-062416	EPA 8015/8021	57795		
2038768002	88A	EPA 8015/8021	57795		
2038768003	18D	EPA 8015/8021	57795		
2038768004	P-120	EPA 8015/8021	57795		
2038768005	FB-062416	EPA 8015/8021	57795		
2038768006	EB-062316	EPA 8015/8021	57795		
2038768007	98A	EPA 8015/8021	57795		
2038768008	99A	EPA 8015/8021	57795		
2038768009	FB-062316	EPA 8015/8021	57795		
2038768010	TRIP BLANK -062316	EPA 8015/8021	57795		
2038768011	TRIP BLANK -062416	EPA 8015/8021	57810		
2038768001	EB-062416	EPA 3010	57818	EPA 6020	57961
2038768002	88A	EPA 3010	57818	EPA 6020	57961
2038768003	18D	EPA 3010	57818	EPA 6020	57961
2038768004	P-120	EPA 3010	57818	EPA 6020	57961
2038768006	EB-062316	EPA 3010	57818	EPA 6020	57961
2038768007	98A	EPA 3010	57818	EPA 6020	57961
2038768008	99A	EPA 3010	57818	EPA 6020	57961
2038768001	EB-062416	EPA 7470	57809	EPA 7470	57970
2038768002	88A	EPA 7470	57809	EPA 7470	57970
2038768003	18D	EPA 7470	57809	EPA 7470	57970
2038768004	P-120	EPA 7470	57809	EPA 7470	57970
2038768006	EB-062316	EPA 7470	57809	EPA 7470	57970
2038768007	98A	EPA 7470	57809	EPA 7470	57970
2038768008	99A	EPA 7470	57809	EPA 7470	57970
2038768001	EB-062416	EPA 3510	57800	EPA 8270 by SIM	58006
2038768002	88A	EPA 3510	57800	EPA 8270 by SIM	58006
2038768003	18D	EPA 3510	57800	EPA 8270 by SIM	58006
2038768004	P-120	EPA 3510	57800	EPA 8270 by SIM	58006
2038768006	EB-062316	EPA 3510	57800	EPA 8270 by SIM	58006
2038768007	98A	EPA 3510	57800	EPA 8270 by SIM	58006
2038768008	99A	EPA 3510	57800	EPA 8270 by SIM	58006
2038768001	EB-062416	EPA 5030B/8260	57794		
2038768002	88A	EPA 5030B/8260	57794		
2038768003	18D	EPA 5030B/8260	57794		
2038768004	P-120	EPA 5030B/8260	57794		
2038768005	FB-062416	EPA 5030B/8260	57794		
2038768006	EB-062316	EPA 5030B/8260	57794		
2038768007	98A	EPA 5030B/8260	57794		

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038768

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2038768008	99A	EPA 5030B/8260	57794		
2038768009	FB-062316	EPA 5030B/8260	57794		
2038768010	TRIP BLANK -062316	EPA 5030B/8260	57794		
2038768011	TRIP BLANK -062416	EPA 5030B/8260	57794		

### REPORT OF LABORATORY ANALYSIS

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WO#: 2038768

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



2038768

Section A  
Required Client Information.

Section C  
Invoice Information:

Page: 1 of 1  
2035962

Company: Bob Carbo / Arcadis Report To: Estrain Calderon  
 Address: City View Plaza I Ste 401 Copy To:  
Guaynabo, P.R. 00968  
 Email To: Estrain.Calderon@arcadis.com Purchase Order No.:  
 Phone: 787-7740017 / 787-778085 Project Name: Puma Terminal NW Sailing  
 Requested Due Date/TAT: Project Number: B0063767

Company Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Pace Quote Reference: \_\_\_\_\_  
 Site Location: Bayamon  
 STATE: PR

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER \_\_\_\_\_

ITEM #	SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OI Wipe WP Air AR Tissue TS Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)							
					COMPOSITE START	COMPOSITE END/GRAB	DATE	TIME			DATE	TIME	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH				Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other				
1	EB-062416	WTG	WTG	G			6/24/16	0735	9	4			1	1					V	V	V	V	V	V	V		
2	88A	WTG	WTG	G			6/24/16	0900	9	4			1	1					V	V	V	V	V	V	V		
3	10D	WTG	WTG	G			6/24/16	1037	9	4			1	1					V	V	V	V	V	V	V		
4	P-120	WTG	WTG	G			6/24/16	1230	9	4			1	1					V	V	V	V	V	V	V		
5	FB-062416	WTG	WTG	G			6/24/16	1235	4										V	V							
6	EB-062316	WTG	WTG	G			6/23/16	1200	9	4			1	1					V	V	V	V	V	V	V		
7	98A	WTG	WTG	G			6/23/16	1310	9	4			1	1					V	V	V	V	V	V	V		
8	99A	WTG	WTG	G			6/23/16	1432	9	4			1	1					V	V	V	V	V	V	V		
9	FB-062316	WTG	WTG	G			6/23/16	1440	4										V	V							
10	trip blank - 062316	WTG	WTG	G			6/23/16	0000	4										V	V							
11	trip blank - 062416	WTG	WTG	G			6/24/16	0000	4										V	V							

2038768  
Pace Project No./ Lab I.D.

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<u>[Signature]</u> / Arcadis	6/24/16	14:21	<u>[Signature]</u> / Pace	6-24-16	14:21	
		6-27-16	17:00	Fed Exp			2.6
	Fed Exp	6-29-16	0830	<u>[Signature]</u> / Pace	6-29-16	0830	4.5 4.3

ORIGINAL

SAMPLER NAME AND SIGNATURE: [Signature]

PRINT Name of SAMPLER: Mananelli Mercedes Hernandez Colon

SIGNATURE of SAMPLER: [Signature] DATE Signed (MM/DD/YY): 6/24/16

Temp in °C: \_\_\_\_\_  
 Received on Ice (Y/N): \_\_\_\_\_  
 Custody Sealed Cooler (Y/N): \_\_\_\_\_  
 Samples Intact (Y/N): \_\_\_\_\_

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Urb. Jardines de Guaynabo  
Calle Marginal Bldg A-10  
Guaynabo, PR 00989

Sample Condition Upon Receipt

WO#: 2038768

PM: JAR1

Due Date: 07/11/16

Project #:

CLIENT: 98-ARCADISPR

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 4  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person-examining contents: 6-24-16 JAR

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

### Sample Condition Upon Receipt

Project #: **20**

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 5  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 6-29-16-mlb

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15

#### Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

July 13, 2016

Efrain Calderon  
BBL Caribe Engineering P.S.C.  
48 City View Plaza1, Suite 401  
Road 16, Km. 1.2  
Guaynabo, PR 00968

RE: Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038800

Dear Efrain Calderon:

Enclosed are the analytical results for sample(s) received by the laboratory on June 27, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Juan Redondo  
juan.redondo@pacelabs.com  
Project Manager

Enclosures

cc: Sharon Colon  
Abner Hernandez  
Marianela Mercado-Burgos



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

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### New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:  
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):  
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):  
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):  
T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-  
00119

Commonwealth of Virginia (TNI): 480246

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2038800001	EB-062716	Water	06/27/16 07:44	06/27/16 14:22
2038800002	TRIP BLANK	Water	06/27/16 00:00	06/27/16 14:22
2038800003	AD-4	Water	06/27/16 10:28	06/27/16 14:22
2038800004	AD-3	Water	06/27/16 11:37	06/27/16 14:22
2038800005	57-A	Water	06/27/16 12:42	06/27/16 14:22
2038800006	AD-1	Water	06/27/16 13:38	06/27/16 14:22
2038800007	FB-062716	Water	06/27/16 13:42	06/27/16 14:22
2038800008	33A	Water	06/27/16 09:01	06/27/16 14:22

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2038800001	EB-062716	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	KJR	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2038800002	TRIP BLANK	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2038800003	AD-4	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	KJR	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2038800004	AD-3	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	KJR	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2038800005	57-A	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	KJR	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2038800006	AD-1	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	KJR	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2038800007	FB-062716	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2038800008	33A	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 7470	KJR	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

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**Method:** EPA 8015B Modified

**Description:** 8015M DRO/ORO Organics

**Client:** BBL Caribe / Arcadis PR

**Date:** July 13, 2016

**General Information:**

6 samples were analyzed for EPA 8015B Modified. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3535 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

QC Batch: 57859

S5: Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

- AD-1 (Lab ID: 2038800006)
- n-Pentacosane (S)

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

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**Method:** EPA 8015/8021

**Description:** 8021 GCV BTEX, MTBE, GRO

**Client:** BBL Caribe / Arcadis PR

**Date:** July 13, 2016

### General Information:

8 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 57810

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

### Additional Comments:

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

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**Method:** EPA 6020

**Description:** 6020 MET ICPMS

**Client:** BBL Caribe / Arcadis PR

**Date:** July 13, 2016

**General Information:**

6 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

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**Method:** EPA 7470

**Description:** 7470 Mercury

**Client:** BBL Caribe / Arcadis PR

**Date:** July 13, 2016

**General Information:**

6 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

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**Method:** EPA 8270 by SIM

**Description:** 8270 MSSV PAH by SIM SEP

**Client:** BBL Caribe / Arcadis PR

**Date:** July 13, 2016

**General Information:**

6 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 57887

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

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**Method:** EPA 5030B/8260

**Description:** 8260 MSV Low Level

**Client:** BBL Caribe / Arcadis PR

**Date:** July 13, 2016

**General Information:**

8 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

Sample: EB-062716	Lab ID: 2038800001	Collected: 06/27/16 07:44	Received: 06/27/16 14:22	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/30/16 08:50	07/02/16 01:57		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/30/16 08:50	07/02/16 01:57		
<b>Surrogates</b>								
n-Pentacosane (S)	53	%	16-137	1	06/30/16 08:50	07/02/16 01:57	629-99-2	
o-Terphenyl (S)	54	%	10-121	1	06/30/16 08:50	07/02/16 01:57	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/30/16 07:01		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	93	%	44-148	1		06/30/16 07:01	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:01	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:01	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:01	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/30/16 19:00	07/06/16 19:01	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/30/16 18:35	07/05/16 09:54	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:26	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:26	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:26	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:26	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:26	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:26	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:26	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:26	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:26	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:26	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:26	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:26	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:26	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	80	%	25-150	1	06/30/16 10:32	07/07/16 18:26	321-60-8	
Terphenyl-d14 (S)	98	%	25-150	1	06/30/16 10:32	07/07/16 18:26	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	13.9	ug/L	4.0	1		06/30/16 20:00	67-64-1	
Benzene	ND	ug/L	0.50	1		06/30/16 20:00	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/30/16 20:00	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/30/16 20:00	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/30/16 20:00	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/30/16 20:00	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/30/16 20:00	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

Sample: EB-062716	Lab ID: 2038800001	Collected: 06/27/16 07:44	Received: 06/27/16 14:22	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/30/16 20:00	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/30/16 20:00	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/30/16 20:00	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/30/16 20:00	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/30/16 20:00	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/30/16 20:00	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/30/16 20:00	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/30/16 20:00	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/30/16 20:00	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/30/16 20:00	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/30/16 20:00	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/30/16 20:00	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/30/16 20:00	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/30/16 20:00	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/30/16 20:00	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/30/16 20:00	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 20:00	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 20:00	10061-02-6	
Ethanol	ND	ug/L	500	1		06/30/16 20:00	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/30/16 20:00	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/30/16 20:00	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/30/16 20:00	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/30/16 20:00	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/30/16 20:00	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/30/16 20:00	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/30/16 20:00	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/30/16 20:00	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/30/16 20:00	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/30/16 20:00	127-18-4	
Toluene	0.63	ug/L	0.50	1		06/30/16 20:00	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/30/16 20:00	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/30/16 20:00	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/30/16 20:00	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/30/16 20:00	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/30/16 20:00	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/30/16 20:00	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/30/16 20:00	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	98	%	72-126	1		06/30/16 20:00	1868-53-7	
4-Bromofluorobenzene (S)	96	%	68-124	1		06/30/16 20:00	460-00-4	
Toluene-d8 (S)	100	%	79-119	1		06/30/16 20:00	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

Sample: TRIP BLANK	Lab ID: 2038800002	Collected: 06/27/16 00:00	Received: 06/27/16 14:22	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/30/16 00:59		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	94	%	44-148	1		06/30/16 00:59	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	23.0	ug/L	4.0	1		06/30/16 20:18	67-64-1	
Benzene	ND	ug/L	0.50	1		06/30/16 20:18	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/30/16 20:18	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/30/16 20:18	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/30/16 20:18	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/30/16 20:18	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/30/16 20:18	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/30/16 20:18	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/30/16 20:18	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/30/16 20:18	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/30/16 20:18	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/30/16 20:18	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/30/16 20:18	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/30/16 20:18	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/30/16 20:18	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/30/16 20:18	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/30/16 20:18	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/30/16 20:18	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/30/16 20:18	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/30/16 20:18	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/30/16 20:18	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/30/16 20:18	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/30/16 20:18	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 20:18	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 20:18	10061-02-6	
Ethanol	ND	ug/L	500	1		06/30/16 20:18	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/30/16 20:18	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/30/16 20:18	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/30/16 20:18	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/30/16 20:18	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/30/16 20:18	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/30/16 20:18	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/30/16 20:18	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/30/16 20:18	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/30/16 20:18	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/30/16 20:18	127-18-4	
Toluene	ND	ug/L	0.50	1		06/30/16 20:18	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/30/16 20:18	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/30/16 20:18	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/30/16 20:18	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/30/16 20:18	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/30/16 20:18	75-01-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Sample Project No.: 2038800

Sample:	Lab ID:	Collected:	Received:	Matrix:				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: TRIP BLANK</b>	<b>Lab ID: 2038800002</b>	06/27/16 00:00	06/27/16 14:22	Water				
<b>8260 MSV Low Level</b> Analytical Method: EPA 5030B/8260								
m&p-Xylene	ND	ug/L	2.0	1		06/30/16 20:18	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/30/16 20:18	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	98	%	72-126	1		06/30/16 20:18	1868-53-7	
4-Bromofluorobenzene (S)	96	%	68-124	1		06/30/16 20:18	460-00-4	
Toluene-d8 (S)	100	%	79-119	1		06/30/16 20:18	2037-26-5	
<b>Sample: AD-4</b>	<b>Lab ID: 2038800003</b>	06/27/16 10:28	06/27/16 14:22	Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b> Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/30/16 08:50	07/02/16 02:26		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/30/16 08:50	07/02/16 02:26		
<b>Surrogates</b>								
n-Pentacosane (S)	29	%	16-137	1	06/30/16 08:50	07/02/16 02:26	629-99-2	
o-Terphenyl (S)	35	%	10-121	1	06/30/16 08:50	07/02/16 02:26	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b> Analytical Method: EPA 8015/8021								
Gasoline Range Organics	<b>101</b>	ug/L	50.0	1		06/30/16 01:27		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	95	%	44-148	1		06/30/16 01:27	460-00-4	
<b>6020 MET ICPMS</b> Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:13	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:13	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:13	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/30/16 19:00	07/06/16 19:13	7440-62-2	
<b>7470 Mercury</b> Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/30/16 18:35	07/05/16 09:56	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	<b>0.0033</b>	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:48	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:48	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:48	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:48	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:48	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:48	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:48	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:48	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:48	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:48	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:48	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:48	50-32-8	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

Sample: AD-4	Lab ID: 2038800003	Collected: 06/27/16 10:28	Received: 06/27/16 14:22	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 18:48	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	70	%	25-150	1	06/30/16 10:32	07/07/16 18:48	321-60-8	
Terphenyl-d14 (S)	89	%	25-150	1	06/30/16 10:32	07/07/16 18:48	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	14.7	ug/L	4.0	1		06/30/16 19:42	67-64-1	
Benzene	ND	ug/L	0.50	1		06/30/16 19:42	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/30/16 19:42	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/30/16 19:42	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/30/16 19:42	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/30/16 19:42	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/30/16 19:42	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/30/16 19:42	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/30/16 19:42	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/30/16 19:42	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/30/16 19:42	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/30/16 19:42	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/30/16 19:42	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/30/16 19:42	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/30/16 19:42	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/30/16 19:42	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/30/16 19:42	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/30/16 19:42	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/30/16 19:42	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/30/16 19:42	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/30/16 19:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/30/16 19:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/30/16 19:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 19:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 19:42	10061-02-6	
Ethanol	ND	ug/L	500	1		06/30/16 19:42	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/30/16 19:42	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/30/16 19:42	591-78-6	
Isopropylbenzene (Cumene)	2.8	ug/L	1.0	1		06/30/16 19:42	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/30/16 19:42	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/30/16 19:42	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/30/16 19:42	108-10-1	
Methyl-tert-butyl ether	2.2	ug/L	0.50	1		06/30/16 19:42	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/30/16 19:42	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/30/16 19:42	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/30/16 19:42	127-18-4	
Toluene	ND	ug/L	0.50	1		06/30/16 19:42	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/30/16 19:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/30/16 19:42	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/30/16 19:42	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/30/16 19:42	75-69-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038800

Sample: AD-4	Lab ID: 2038800003	Collected: 06/27/16 10:28	Received: 06/27/16 14:22	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Vinyl chloride	ND	ug/L	0.50	1		06/30/16 19:42	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/30/16 19:42	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/30/16 19:42	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	100	%.	72-126	1		06/30/16 19:42	1868-53-7	
4-Bromofluorobenzene (S)	96	%.	68-124	1		06/30/16 19:42	460-00-4	
Toluene-d8 (S)	100	%.	79-119	1		06/30/16 19:42	2037-26-5	
<b>Sample: AD-3</b>		Lab ID: 2038800004 Collected: 06/27/16 11:37 Received: 06/27/16 14:22 Matrix: Water						
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535						
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/30/16 08:50	07/02/16 02:54		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/30/16 08:50	07/02/16 02:54		
<b>Surrogates</b>								
n-Pentacosane (S)	47	%.	16-137	1	06/30/16 08:50	07/02/16 02:54	629-99-2	
o-Terphenyl (S)	60	%.	10-121	1	06/30/16 08:50	07/02/16 02:54	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/30/16 01:55		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	94	%.	44-148	1		06/30/16 01:55	460-00-4	
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010						
Arsenic	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:17	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:17	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:17	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/30/16 19:00	07/06/16 19:17	7440-62-2	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470						
Mercury	ND	ug/L	0.20	1	06/30/16 18:35	07/05/16 09:58	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Naphthalene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:09	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:09	83-32-9	
Fluorene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:09	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:09	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:09	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:09	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:09	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:09	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:09	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:09	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:09	207-08-9	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Sample Project No.: 2038800

Sample: AD-3	Lab ID: 2038800004	Collected: 06/27/16 11:37	Received: 06/27/16 14:22	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:09	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:09	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	72	%	25-150	1	06/30/16 10:32	07/07/16 19:09	321-60-8	
Terphenyl-d14 (S)	86	%	25-150	1	06/30/16 10:32	07/07/16 19:09	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	<b>10.9</b>	ug/L	4.0	1		06/30/16 20:53	67-64-1	
Benzene	ND	ug/L	0.50	1		06/30/16 20:53	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/30/16 20:53	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/30/16 20:53	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/30/16 20:53	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/30/16 20:53	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/30/16 20:53	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/30/16 20:53	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/30/16 20:53	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/30/16 20:53	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/30/16 20:53	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/30/16 20:53	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/30/16 20:53	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/30/16 20:53	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/30/16 20:53	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/30/16 20:53	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/30/16 20:53	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/30/16 20:53	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/30/16 20:53	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/30/16 20:53	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/30/16 20:53	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/30/16 20:53	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/30/16 20:53	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 20:53	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 20:53	10061-02-6	
Ethanol	ND	ug/L	500	1		06/30/16 20:53	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/30/16 20:53	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/30/16 20:53	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/30/16 20:53	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/30/16 20:53	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/30/16 20:53	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/30/16 20:53	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/30/16 20:53	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/30/16 20:53	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/30/16 20:53	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/30/16 20:53	127-18-4	
Toluene	ND	ug/L	0.50	1		06/30/16 20:53	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/30/16 20:53	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/30/16 20:53	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/30/16 20:53	79-01-6	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
 Lab Project No.: 2038800

Sample:	Lab ID:	Collected:	Received:	Matrix:				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: AD-3</b>	<b>Lab ID: 2038800004</b>	06/27/16 11:37	06/27/16 14:22	Water				
<b>8260 MSV Low Level</b> Analytical Method: EPA 5030B/8260								
Trichlorofluoromethane	ND	ug/L	0.50	1		06/30/16 20:53	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/30/16 20:53	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/30/16 20:53	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/30/16 20:53	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	96	%	72-126	1		06/30/16 20:53	1868-53-7	
4-Bromofluorobenzene (S)	96	%	68-124	1		06/30/16 20:53	460-00-4	
Toluene-d8 (S)	100	%	79-119	1		06/30/16 20:53	2037-26-5	
<b>Sample: 57-A</b>	<b>Lab ID: 2038800005</b>	06/27/16 12:42	06/27/16 14:22	Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b> Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	<b>0.75</b>	mg/L	0.50	1	06/30/16 08:50	07/02/16 03:22		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/30/16 08:50	07/02/16 03:22		
<b>Surrogates</b>								
n-Pentacosane (S)	54	%	16-137	1	06/30/16 08:50	07/02/16 03:22	629-99-2	
o-Terphenyl (S)	67	%	10-121	1	06/30/16 08:50	07/02/16 03:22	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b> Analytical Method: EPA 8015/8021								
Gasoline Range Organics	<b>96.5</b>	ug/L	50.0	1		06/30/16 02:23		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	92	%	44-148	1		06/30/16 02:23	460-00-4	
<b>6020 MET ICPMS</b> Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	<b>0.0069</b>	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:21	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:21	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:21	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/30/16 19:00	07/06/16 19:21	7440-62-2	
<b>7470 Mercury</b> Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/30/16 18:35	07/05/16 10:00	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	<b>0.0011</b>	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:31	91-20-3	
Acenaphthene	<b>0.0028</b>	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:31	83-32-9	
Fluorene	<b>0.0046</b>	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:31	86-73-7	
Phenanthrene	<b>0.0016</b>	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:31	85-01-8	
Anthracene	<b>0.00019</b>	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:31	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:31	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:31	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:31	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:31	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:31	205-99-2	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Project No.: 2038800

Sample: 57-A	Lab ID: 2038800005	Collected: 06/27/16 12:42	Received: 06/27/16 14:22	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:31	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:31	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:31	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	72	%	25-150	1	06/30/16 10:32	07/07/16 19:31	321-60-8	
Terphenyl-d14 (S)	85	%	25-150	1	06/30/16 10:32	07/07/16 19:31	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	<b>10.5</b>	ug/L	4.0	1		06/30/16 21:11	67-64-1	
Benzene	ND	ug/L	0.50	1		06/30/16 21:11	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/30/16 21:11	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/30/16 21:11	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/30/16 21:11	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/30/16 21:11	78-93-3	
tert-Butyl Alcohol	<b>282</b>	ug/L	200	1		06/30/16 21:11	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/30/16 21:11	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/30/16 21:11	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/30/16 21:11	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/30/16 21:11	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/30/16 21:11	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/30/16 21:11	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/30/16 21:11	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/30/16 21:11	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/30/16 21:11	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/30/16 21:11	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/30/16 21:11	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/30/16 21:11	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/30/16 21:11	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/30/16 21:11	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/30/16 21:11	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/30/16 21:11	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 21:11	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 21:11	10061-02-6	
Ethanol	ND	ug/L	500	1		06/30/16 21:11	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/30/16 21:11	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/30/16 21:11	591-78-6	
Isopropylbenzene (Cumene)	<b>2.0</b>	ug/L	1.0	1		06/30/16 21:11	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/30/16 21:11	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/30/16 21:11	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/30/16 21:11	108-10-1	
Methyl-tert-butyl ether	<b>4.3</b>	ug/L	0.50	1		06/30/16 21:11	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/30/16 21:11	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/30/16 21:11	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/30/16 21:11	127-18-4	
Toluene	ND	ug/L	0.50	1		06/30/16 21:11	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/30/16 21:11	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/30/16 21:11	79-00-5	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
Project No.: 2038800

Sample: 57-A	Lab ID: 2038800005	Collected: 06/27/16 12:42	Received: 06/27/16 14:22	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Trichloroethene	ND	ug/L	0.50	1		06/30/16 21:11	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/30/16 21:11	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/30/16 21:11	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/30/16 21:11	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/30/16 21:11	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	96	%	72-126	1		06/30/16 21:11	1868-53-7	
4-Bromofluorobenzene (S)	98	%	68-124	1		06/30/16 21:11	460-00-4	
Toluene-d8 (S)	99	%	79-119	1		06/30/16 21:11	2037-26-5	
<b>Sample: AD-1</b>		Lab ID: 2038800006 Collected: 06/27/16 13:38 Received: 06/27/16 14:22 Matrix: Water						
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535						
Diesel Range Organic (C10-C28)	4.4	mg/L	0.50	1	06/30/16 08:50	07/02/16 03:50		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/30/16 08:50	07/02/16 03:50		
<b>Surrogates</b>								
n-Pentacosane (S)	142	%	16-137	1	06/30/16 08:50	07/02/16 03:50	629-99-2	S5
o-Terphenyl (S)	102	%	10-121	1	06/30/16 08:50	07/02/16 03:50	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	295	ug/L	50.0	1		06/30/16 02:51		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	99	%	44-148	1		06/30/16 02:51	460-00-4	
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010						
Arsenic	0.027	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:25	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:25	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:25	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/30/16 19:00	07/06/16 19:25	7440-62-2	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470						
Mercury	ND	ug/L	0.20	1	06/30/16 18:35	07/05/16 10:02	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Naphthalene	0.015	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:52	91-20-3	
Acenaphthene	0.0015	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:52	83-32-9	
Fluorene	0.0031	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:52	86-73-7	
Phenanthrene	0.0016	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:52	85-01-8	
Anthracene	0.00017	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:52	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:52	206-44-0	
Pyrene	0.00032	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:52	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:52	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:52	218-01-9	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Sample Project No.: 2038800

Sample: AD-1	Lab ID: 2038800006	Collected: 06/27/16 13:38	Received: 06/27/16 14:22	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:52	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:52	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:52	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 19:52	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	68	%	25-150	1	06/30/16 10:32	07/07/16 19:52	321-60-8	
Terphenyl-d14 (S)	76	%	25-150	1	06/30/16 10:32	07/07/16 19:52	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	12.1	ug/L	4.0	1		06/30/16 21:29	67-64-1	
Benzene	ND	ug/L	0.50	1		06/30/16 21:29	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/30/16 21:29	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/30/16 21:29	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/30/16 21:29	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/30/16 21:29	78-93-3	
tert-Butyl Alcohol	286	ug/L	200	1		06/30/16 21:29	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/30/16 21:29	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/30/16 21:29	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/30/16 21:29	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/30/16 21:29	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/30/16 21:29	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/30/16 21:29	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/30/16 21:29	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/30/16 21:29	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/30/16 21:29	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/30/16 21:29	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/30/16 21:29	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/30/16 21:29	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/30/16 21:29	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/30/16 21:29	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/30/16 21:29	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/30/16 21:29	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 21:29	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 21:29	10061-02-6	
Ethanol	ND	ug/L	500	1		06/30/16 21:29	64-17-5	
Ethylbenzene	1.4	ug/L	0.50	1		06/30/16 21:29	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/30/16 21:29	591-78-6	
Isopropylbenzene (Cumene)	13.1	ug/L	1.0	1		06/30/16 21:29	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/30/16 21:29	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/30/16 21:29	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/30/16 21:29	108-10-1	
Methyl-tert-butyl ether	1.8	ug/L	0.50	1		06/30/16 21:29	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/30/16 21:29	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/30/16 21:29	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/30/16 21:29	127-18-4	
Toluene	ND	ug/L	0.50	1		06/30/16 21:29	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/30/16 21:29	71-55-6	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

Sample: AD-1		Lab ID: 2038800006		Collected: 06/27/16 13:38		Received: 06/27/16 14:22		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/30/16 21:29	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		06/30/16 21:29	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/30/16 21:29	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/30/16 21:29	75-01-4		
m&p-Xylene	<b>3.5</b>	ug/L	2.0	1		06/30/16 21:29	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		06/30/16 21:29	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	95	%	72-126	1		06/30/16 21:29	1868-53-7		
4-Bromofluorobenzene (S)	98	%	68-124	1		06/30/16 21:29	460-00-4		
Toluene-d8 (S)	99	%	79-119	1		06/30/16 21:29	2037-26-5		

Sample: FB-062716		Lab ID: 2038800007		Collected: 06/27/16 13:42		Received: 06/27/16 14:22		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		06/30/16 03:19			
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	94	%	44-148	1		06/30/16 03:19	460-00-4		
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Acetone	<b>15.6</b>	ug/L	4.0	1		06/30/16 21:46	67-64-1		
Benzene	ND	ug/L	0.50	1		06/30/16 21:46	71-43-2		
Bromodichloromethane	ND	ug/L	0.50	1		06/30/16 21:46	75-27-4		
Bromoform	ND	ug/L	0.50	1		06/30/16 21:46	75-25-2		
Bromomethane	ND	ug/L	0.50	1		06/30/16 21:46	74-83-9		
2-Butanone (MEK)	ND	ug/L	2.0	1		06/30/16 21:46	78-93-3		
tert-Butyl Alcohol	ND	ug/L	200	1		06/30/16 21:46	75-65-0		
Carbon disulfide	ND	ug/L	1.0	1		06/30/16 21:46	75-15-0		
Carbon tetrachloride	ND	ug/L	0.50	1		06/30/16 21:46	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		06/30/16 21:46	108-90-7		
Chloroethane	ND	ug/L	0.50	1		06/30/16 21:46	75-00-3		
Chloroform	ND	ug/L	0.50	1		06/30/16 21:46	67-66-3		
Chloromethane	ND	ug/L	0.50	1		06/30/16 21:46	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/30/16 21:46	96-12-8		
Dibromochloromethane	ND	ug/L	0.50	1		06/30/16 21:46	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/30/16 21:46	106-93-4		
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/30/16 21:46	75-71-8		
1,1-Dichloroethane	ND	ug/L	0.50	1		06/30/16 21:46	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		06/30/16 21:46	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		06/30/16 21:46	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/30/16 21:46	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/30/16 21:46	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		06/30/16 21:46	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 21:46	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 21:46	10061-02-6		

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038800

Sample: <b>FB-062716</b>		Lab ID: <b>2038800007</b>		Collected: 06/27/16 13:42	Received: 06/27/16 14:22	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Ethanol	ND	ug/L	500	1		06/30/16 21:46	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/30/16 21:46	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/30/16 21:46	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/30/16 21:46	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/30/16 21:46	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/30/16 21:46	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/30/16 21:46	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/30/16 21:46	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/30/16 21:46	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/30/16 21:46	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/30/16 21:46	127-18-4	
Toluene	ND	ug/L	0.50	1		06/30/16 21:46	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/30/16 21:46	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/30/16 21:46	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/30/16 21:46	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/30/16 21:46	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/30/16 21:46	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/30/16 21:46	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/30/16 21:46	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	94	%.	72-126	1		06/30/16 21:46	1868-53-7	
4-Bromofluorobenzene (S)	97	%.	68-124	1		06/30/16 21:46	460-00-4	
Toluene-d8 (S)	100	%.	79-119	1		06/30/16 21:46	2037-26-5	

Sample: <b>33A</b>		Lab ID: <b>2038800008</b>		Collected: 06/27/16 09:01	Received: 06/27/16 14:22	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535						
Diesel Range Organic (C10-C28)	<b>0.64</b>	mg/L	0.50	1	06/30/16 08:50	07/02/16 05:15		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/30/16 08:50	07/02/16 05:15		
<b>Surrogates</b>								
n-Pentacosane (S)	38	%.	16-137	1	06/30/16 08:50	07/02/16 05:15	629-99-2	
o-Terphenyl (S)	57	%.	10-121	1	06/30/16 08:50	07/02/16 05:15	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	<b>649</b>	ug/L	50.0	1		06/30/16 06:34		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	111	%.	44-148	1		06/30/16 06:34	460-00-4	
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010						
Arsenic	<b>0.0091</b>	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:29	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:29	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:29	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/30/16 19:00	07/06/16 19:29	7440-62-2	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

Sample: 33A	Lab ID: 2038800008	Collected: 06/27/16 09:01	Received: 06/27/16 14:22	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/30/16 18:35	07/05/16 10:04	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	<b>0.0023</b>	mg/L	0.00010	1	06/30/16 10:32	07/07/16 20:13	91-20-3	
Acenaphthene	<b>0.0016</b>	mg/L	0.00010	1	06/30/16 10:32	07/07/16 20:13	83-32-9	
Fluorene	<b>0.00050</b>	mg/L	0.00010	1	06/30/16 10:32	07/07/16 20:13	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 20:13	85-01-8	
Anthracene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 20:13	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 20:13	206-44-0	
Pyrene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 20:13	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 20:13	56-55-3	
Chrysene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 20:13	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 20:13	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 20:13	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 20:13	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	06/30/16 10:32	07/07/16 20:13	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	78	%	25-150	1	06/30/16 10:32	07/07/16 20:13	321-60-8	
Terphenyl-d14 (S)	90	%	25-150	1	06/30/16 10:32	07/07/16 20:13	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	<b>5.8</b>	ug/L	4.0	1		06/30/16 22:04	67-64-1	
Benzene	ND	ug/L	0.50	1		06/30/16 22:04	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/30/16 22:04	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/30/16 22:04	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/30/16 22:04	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/30/16 22:04	78-93-3	
tert-Butyl Alcohol	<b>2540</b>	ug/L	1000	5		07/01/16 12:24	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/30/16 22:04	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/30/16 22:04	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/30/16 22:04	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/30/16 22:04	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/30/16 22:04	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/30/16 22:04	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/30/16 22:04	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/30/16 22:04	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/30/16 22:04	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/30/16 22:04	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/30/16 22:04	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/30/16 22:04	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/30/16 22:04	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/30/16 22:04	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/30/16 22:04	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/30/16 22:04	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 22:04	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 22:04	10061-02-6	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

Sample: 33A	Lab ID: 2038800008	Collected: 06/27/16 09:01	Received: 06/27/16 14:22	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Ethanol	ND	ug/L	500	1		06/30/16 22:04	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/30/16 22:04	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/30/16 22:04	591-78-6	
Isopropylbenzene (Cumene)	<b>2.9</b>	ug/L	1.0	1		06/30/16 22:04	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/30/16 22:04	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/30/16 22:04	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/30/16 22:04	108-10-1	
Methyl-tert-butyl ether	<b>8.6</b>	ug/L	0.50	1		06/30/16 22:04	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/30/16 22:04	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/30/16 22:04	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/30/16 22:04	127-18-4	
Toluene	ND	ug/L	0.50	1		06/30/16 22:04	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/30/16 22:04	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/30/16 22:04	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/30/16 22:04	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/30/16 22:04	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/30/16 22:04	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/30/16 22:04	179601-23-1	
o-Xylene	<b>1.1</b>	ug/L	1.0	1		06/30/16 22:04	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	95	%.	72-126	1		06/30/16 22:04	1868-53-7	
Dibromofluoromethane (S)	94	%.	72-126	5		07/01/16 12:24	1868-53-7	
4-Bromofluorobenzene (S)	96	%.	68-124	5		07/01/16 12:24	460-00-4	
4-Bromofluorobenzene (S)	98	%.	68-124	1		06/30/16 22:04	460-00-4	
Toluene-d8 (S)	98	%.	79-119	5		07/01/16 12:24	2037-26-5	
Toluene-d8 (S)	100	%.	79-119	1		06/30/16 22:04	2037-26-5	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

QC Batch: 57810

Analysis Method: EPA 8015/8021

QC Batch Method: EPA 8015/8021

Analysis Description: 8021 W GCV BTEX, MTBE, GRO

Associated Lab Samples: 2038800001, 2038800002, 2038800003, 2038800004, 2038800005, 2038800006, 2038800007, 2038800008

METHOD BLANK: 238927

Matrix: Water

Associated Lab Samples: 2038800001, 2038800002, 2038800003, 2038800004, 2038800005, 2038800006, 2038800007, 2038800008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	06/29/16 22:11	
4-Bromofluorobenzene (S)	%.	93	44-148	06/29/16 22:11	

LABORATORY CONTROL SAMPLE: 238928

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	398	80	61-136	
4-Bromofluorobenzene (S)	%.			96	44-148	
4-Bromofluorobenzene (S)	%.			94	44-148	

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038800

QC Batch: 57809 Analysis Method: EPA 7470  
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
Associated Lab Samples: 2038800001, 2038800003, 2038800004, 2038800005, 2038800006, 2038800008

METHOD BLANK: 238922 Matrix: Water  
Associated Lab Samples: 2038800001, 2038800003, 2038800004, 2038800005, 2038800006, 2038800008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	07/05/16 09:27	

LABORATORY CONTROL SAMPLE: 238923

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	1.1	114	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 238924 238925

Parameter	Units	2038768001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	1	1	1.1	1.1	109	110	75-125	1	20	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038800

QC Batch: 57818 Analysis Method: EPA 6020  
QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
Associated Lab Samples: 2038800001, 2038800003, 2038800004, 2038800005, 2038800006, 2038800008

METHOD BLANK: 238957 Matrix: Water  
Associated Lab Samples: 2038800001, 2038800003, 2038800004, 2038800005, 2038800006, 2038800008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	07/06/16 17:40	
Chromium	mg/L	ND	0.0010	07/06/16 17:40	
Lead	mg/L	ND	0.0010	07/06/16 17:40	
Vanadium	mg/L	ND	0.0050	07/06/16 17:40	

LABORATORY CONTROL SAMPLE: 238958

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.02	0.019	97	83-115	
Chromium	mg/L	.02	0.019	96	85-115	
Lead	mg/L	.02	0.019	95	84-115	
Vanadium	mg/L	.02	0.019	95	81-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 238959 238960

Parameter	Units	2038768001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max		Qual
										RPD	RPD	
Arsenic	mg/L	ND	.02	.02	0.019	0.019	93	94	80-120	1	20	
Chromium	mg/L	ND	.02	.02	0.019	0.019	93	94	80-120	1	20	
Lead	mg/L	ND	.02	.02	0.019	0.019	93	94	80-120	1	20	
Vanadium	mg/L	ND	.02	.02	0.018	0.019	92	93	80-120	1	20	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

QC Batch: 57891 Analysis Method: EPA 5030B/8260  
 QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Low Level  
 Associated Lab Samples: 2038800001, 2038800002, 2038800003, 2038800004, 2038800005, 2038800006, 2038800007, 2038800008

METHOD BLANK: 239233 Matrix: Water  
 Associated Lab Samples: 2038800001, 2038800002, 2038800003, 2038800004, 2038800005, 2038800006, 2038800007, 2038800008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	06/30/16 18:13	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	06/30/16 18:13	
1,1,2-Trichloroethane	ug/L	ND	0.50	06/30/16 18:13	
1,1-Dichloroethane	ug/L	ND	0.50	06/30/16 18:13	
1,1-Dichloroethene	ug/L	ND	0.50	06/30/16 18:13	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	06/30/16 18:13	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	06/30/16 18:13	
1,2-Dichloroethane	ug/L	ND	0.50	06/30/16 18:13	
1,2-Dichloropropane	ug/L	ND	0.50	06/30/16 18:13	
2-Butanone (MEK)	ug/L	ND	2.0	06/30/16 18:13	
2-Hexanone	ug/L	ND	1.0	06/30/16 18:13	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	06/30/16 18:13	
Acetone	ug/L	ND	4.0	06/30/16 18:13	
Benzene	ug/L	ND	0.50	06/30/16 18:13	
Bromodichloromethane	ug/L	ND	0.50	06/30/16 18:13	
Bromoform	ug/L	ND	0.50	06/30/16 18:13	
Bromomethane	ug/L	ND	0.50	06/30/16 18:13	
Carbon disulfide	ug/L	ND	1.0	06/30/16 18:13	
Carbon tetrachloride	ug/L	ND	0.50	06/30/16 18:13	
Chlorobenzene	ug/L	ND	0.50	06/30/16 18:13	
Chloroethane	ug/L	ND	0.50	06/30/16 18:13	
Chloroform	ug/L	ND	0.50	06/30/16 18:13	
Chloromethane	ug/L	ND	0.50	06/30/16 18:13	
cis-1,2-Dichloroethene	ug/L	ND	1.0	06/30/16 18:13	
cis-1,3-Dichloropropene	ug/L	ND	0.50	06/30/16 18:13	
Dibromochloromethane	ug/L	ND	0.50	06/30/16 18:13	
Dichlorodifluoromethane	ug/L	ND	1.0	06/30/16 18:13	
Ethanol	ug/L	ND	500	06/30/16 18:13	
Ethylbenzene	ug/L	ND	0.50	06/30/16 18:13	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	06/30/16 18:13	
m&p-Xylene	ug/L	ND	2.0	06/30/16 18:13	
Methyl acetate	ug/L	ND	2.0	06/30/16 18:13	
Methyl-tert-butyl ether	ug/L	ND	0.50	06/30/16 18:13	
Methylene Chloride	ug/L	ND	0.50	06/30/16 18:13	
o-Xylene	ug/L	ND	1.0	06/30/16 18:13	
Styrene	ug/L	ND	1.0	06/30/16 18:13	
tert-Butyl Alcohol	ug/L	ND	200	06/30/16 18:13	
Tetrachloroethene	ug/L	ND	0.50	06/30/16 18:13	
Toluene	ug/L	ND	0.50	06/30/16 18:13	
trans-1,2-Dichloroethene	ug/L	ND	0.50	06/30/16 18:13	
trans-1,3-Dichloropropene	ug/L	ND	0.50	06/30/16 18:13	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

METHOD BLANK: 239233

Matrix: Water

Associated Lab Samples: 2038800001, 2038800002, 2038800003, 2038800004, 2038800005, 2038800006, 2038800007, 2038800008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	0.50	06/30/16 18:13	
Trichlorofluoromethane	ug/L	ND	0.50	06/30/16 18:13	
Vinyl chloride	ug/L	ND	0.50	06/30/16 18:13	
4-Bromofluorobenzene (S)	%.	97	68-124	06/30/16 18:13	
Dibromofluoromethane (S)	%.	103	72-126	06/30/16 18:13	
Toluene-d8 (S)	%.	101	79-119	06/30/16 18:13	

METHOD BLANK: 239691

Matrix: Water

Associated Lab Samples: 2038800001, 2038800002, 2038800003, 2038800004, 2038800005, 2038800006, 2038800007, 2038800008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	07/01/16 10:56	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	07/01/16 10:56	
1,1,2-Trichloroethane	ug/L	ND	0.50	07/01/16 10:56	
1,1-Dichloroethane	ug/L	ND	0.50	07/01/16 10:56	
1,1-Dichloroethene	ug/L	ND	0.50	07/01/16 10:56	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	07/01/16 10:56	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	07/01/16 10:56	
1,2-Dichloroethane	ug/L	ND	0.50	07/01/16 10:56	
1,2-Dichloropropane	ug/L	ND	0.50	07/01/16 10:56	
2-Butanone (MEK)	ug/L	ND	2.0	07/01/16 10:56	
2-Hexanone	ug/L	ND	1.0	07/01/16 10:56	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	07/01/16 10:56	
Acetone	ug/L	ND	4.0	07/01/16 10:56	
Benzene	ug/L	ND	0.50	07/01/16 10:56	
Bromodichloromethane	ug/L	ND	0.50	07/01/16 10:56	
Bromoform	ug/L	ND	0.50	07/01/16 10:56	
Bromomethane	ug/L	ND	0.50	07/01/16 10:56	
Carbon disulfide	ug/L	ND	1.0	07/01/16 10:56	
Carbon tetrachloride	ug/L	ND	0.50	07/01/16 10:56	
Chlorobenzene	ug/L	ND	0.50	07/01/16 10:56	
Chloroethane	ug/L	ND	0.50	07/01/16 10:56	
Chloroform	ug/L	ND	0.50	07/01/16 10:56	
Chloromethane	ug/L	ND	0.50	07/01/16 10:56	
cis-1,2-Dichloroethene	ug/L	ND	1.0	07/01/16 10:56	
cis-1,3-Dichloropropene	ug/L	ND	0.50	07/01/16 10:56	
Dibromochloromethane	ug/L	ND	0.50	07/01/16 10:56	
Dichlorodifluoromethane	ug/L	ND	1.0	07/01/16 10:56	
Ethanol	ug/L	ND	500	07/01/16 10:56	
Ethylbenzene	ug/L	ND	0.50	07/01/16 10:56	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	07/01/16 10:56	
m&p-Xylene	ug/L	ND	2.0	07/01/16 10:56	
Methyl acetate	ug/L	ND	2.0	07/01/16 10:56	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

METHOD BLANK: 239691

Matrix: Water

Associated Lab Samples: 2038800001, 2038800002, 2038800003, 2038800004, 2038800005, 2038800006, 2038800007, 2038800008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Methyl-tert-butyl ether	ug/L	ND	0.50	07/01/16 10:56	
Methylene Chloride	ug/L	ND	0.50	07/01/16 10:56	
o-Xylene	ug/L	ND	1.0	07/01/16 10:56	
Styrene	ug/L	ND	1.0	07/01/16 10:56	
tert-Butyl Alcohol	ug/L	ND	200	07/01/16 10:56	
Tetrachloroethene	ug/L	ND	0.50	07/01/16 10:56	
Toluene	ug/L	ND	0.50	07/01/16 10:56	
trans-1,2-Dichloroethene	ug/L	ND	0.50	07/01/16 10:56	
trans-1,3-Dichloropropene	ug/L	ND	0.50	07/01/16 10:56	
Trichloroethene	ug/L	ND	0.50	07/01/16 10:56	
Trichlorofluoromethane	ug/L	ND	0.50	07/01/16 10:56	
Vinyl chloride	ug/L	ND	0.50	07/01/16 10:56	
4-Bromofluorobenzene (S)	%	96	68-124	07/01/16 10:56	
Dibromofluoromethane (S)	%	94	72-126	07/01/16 10:56	
Toluene-d8 (S)	%	99	79-119	07/01/16 10:56	

LABORATORY CONTROL SAMPLE: 239234

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	51.2	102	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	57.5	115	15-179	
1,1,2-Trichloroethane	ug/L	50	52.7	105	58-144	
1,1-Dichloroethane	ug/L	50	52.4	105	63-129	
1,1-Dichloroethene	ug/L	50	41.7	83	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	51.7	103	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	56.7	113	52-161	
1,2-Dichloroethane	ug/L	50	44.0	88	57-148	
1,2-Dichloropropane	ug/L	50	53.8	108	66-128	
2-Butanone (MEK)	ug/L	50	58.3	117	32-183	
2-Hexanone	ug/L	50	56.8	114	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	54.5	109	26-171	
Acetone	ug/L	50	57.3	115	22-165	
Benzene	ug/L	50	53.4	107	62-131	
Bromodichloromethane	ug/L	50	49.0	98	69-132	
Bromoform	ug/L	50	44.0	88	35-166	
Bromomethane	ug/L	50	47.8	96	34-158	
Carbon disulfide	ug/L	50	39.7	79	31-128	
Carbon tetrachloride	ug/L	50	42.7	85	54-144	
Chlorobenzene	ug/L	50	47.9	96	70-127	
Chloroethane	ug/L	50	47.1	94	17-195	
Chloroform	ug/L	50	51.1	102	73-134	
Chloromethane	ug/L	50	56.9	114	17-153	
cis-1,2-Dichloroethene	ug/L	50	55.2	110	68-129	
cis-1,3-Dichloropropene	ug/L	50	52.2	104	72-138	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

LABORATORY CONTROL SAMPLE: 239234

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	50	43.9	88	49-146	
Dichlorodifluoromethane	ug/L	50	45.3	91	10-179	
Ethylbenzene	ug/L	50	48.0	96	66-126	
Isopropylbenzene (Cumene)	ug/L	50	50.9	102	51-138	
m&p-Xylene	ug/L	100	92.5	92	65-129	
Methyl acetate	ug/L	50	56.8	114	20-142	
Methyl-tert-butyl ether	ug/L	50	54.8	110	37-166	
Methylene Chloride	ug/L	50	54.4	109	46-168	
o-Xylene	ug/L	50	47.6	95	65-124	
Styrene	ug/L	50	49.0	98	72-133	
Tetrachloroethene	ug/L	50	42.7	85	46-157	
Toluene	ug/L	50	52.2	104	69-126	
trans-1,2-Dichloroethene	ug/L	50	51.0	102	60-129	
trans-1,3-Dichloropropene	ug/L	50	52.3	105	59-149	
Trichloroethene	ug/L	50	47.0	94	67-132	
Trichlorofluoromethane	ug/L	50	46.8	94	39-171	
Vinyl chloride	ug/L	50	45.5	91	27-149	
4-Bromofluorobenzene (S)	%			103	68-124	
Dibromofluoromethane (S)	%			110	72-126	
Toluene-d8 (S)	%			102	79-119	

LABORATORY CONTROL SAMPLE: 239692

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	46.0	92	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	48.6	97	15-179	
1,1,2-Trichloroethane	ug/L	50	49.1	98	58-144	
1,1-Dichloroethane	ug/L	50	46.1	92	63-129	
1,1-Dichloroethene	ug/L	50	39.1	78	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	45.1	90	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	52.5	105	52-161	
1,2-Dichloroethane	ug/L	50	41.5	83	57-148	
1,2-Dichloropropane	ug/L	50	50.4	101	66-128	
2-Butanone (MEK)	ug/L	50	49.1	98	32-183	
2-Hexanone	ug/L	50	51.7	103	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	49.1	98	26-171	
Acetone	ug/L	50	51.0	102	22-165	
Benzene	ug/L	50	49.8	100	62-131	
Bromodichloromethane	ug/L	50	46.5	93	69-132	
Bromoform	ug/L	50	39.9	80	35-166	
Bromomethane	ug/L	50	42.2	84	34-158	
Carbon disulfide	ug/L	50	36.9	74	31-128	
Carbon tetrachloride	ug/L	50	42.9	86	54-144	
Chlorobenzene	ug/L	50	44.9	90	70-127	
Chloroethane	ug/L	50	40.5	81	17-195	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

LABORATORY CONTROL SAMPLE: 239692

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloroform	ug/L	50	45.6	91	73-134	
Chloromethane	ug/L	50	50.5	101	17-153	
cis-1,2-Dichloroethene	ug/L	50	48.9	98	68-129	
cis-1,3-Dichloropropene	ug/L	50	49.4	99	72-138	
Dibromochloromethane	ug/L	50	42.0	84	49-146	
Dichlorodifluoromethane	ug/L	50	41.3	83	10-179	
Ethylbenzene	ug/L	50	44.8	90	66-126	
Isopropylbenzene (Cumene)	ug/L	50	47.3	95	51-138	
m&p-Xylene	ug/L	100	86.1	86	65-129	
Methyl acetate	ug/L	50	49.6	99	20-142	
Methyl-tert-butyl ether	ug/L	50	46.5	93	37-166	
Methylene Chloride	ug/L	50	48.8	98	46-168	
o-Xylene	ug/L	50	44.1	88	65-124	
Styrene	ug/L	50	43.9	88	72-133	
Tetrachloroethene	ug/L	50	42.8	86	46-157	
Toluene	ug/L	50	48.5	97	69-126	
trans-1,2-Dichloroethene	ug/L	50	46.6	93	60-129	
trans-1,3-Dichloropropene	ug/L	50	49.3	99	59-149	
Trichloroethene	ug/L	50	44.8	90	67-132	
Trichlorofluoromethane	ug/L	50	43.2	86	39-171	
Vinyl chloride	ug/L	50	42.1	84	27-149	
4-Bromofluorobenzene (S)	%			101	68-124	
Dibromofluoromethane (S)	%			101	72-126	
Toluene-d8 (S)	%			101	79-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 239235 239236

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2038800003 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
1,1,1-Trichloroethane	ug/L	ND	50	50	58.7	53.2	117	106	54-137	10	20	
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	61.9	54.3	124	109	15-187	13	20	
1,1,2-Trichloroethane	ug/L	ND	50	50	60.4	55.7	121	111	59-148	8	20	
1,1-Dichloroethane	ug/L	ND	50	50	58.4	53.4	117	107	59-133	9	20	
1,1-Dichloroethene	ug/L	ND	50	50	46.9	43.0	94	86	44-146	9	20	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	55.6	51.2	111	102	23-166	8	20	
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	62.1	57.5	124	115	55-166	8	20	
1,2-Dichloroethane	ug/L	ND	50	50	48.4	44.4	97	89	56-154	9	20	
1,2-Dichloropropane	ug/L	ND	50	50	59.7	54.6	119	109	62-135	9	20	
2-Butanone (MEK)	ug/L	ND	50	50	68.4	63.4	137	127	20-205	8	20	
2-Hexanone	ug/L	ND	50	50	62.1	54.6	124	109	25-189	13	20	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	50	60.1	54.1	120	108	23-184	11	20	
Acetone	ug/L	14.7	50	50	76.1	71.3	123	113	11-217	7	20	
Benzene	ug/L	ND	50	50	61.0	55.0	122	110	52-141	10	20	
Bromodichloromethane	ug/L	ND	50	50	54.0	49.0	108	98	70-134	10	20	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

Parameter	Units	2038800003		239235		239236		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec						
Bromoform	ug/L	ND	50	50	49.2	46.8	98	94	37-171	5	20		
Bromomethane	ug/L	ND	50	50	50.3	46.5	101	93	34-155	8	20		
Carbon disulfide	ug/L	ND	50	50	46.7	39.8	93	80	28-130	16	20		
Carbon tetrachloride	ug/L	ND	50	50	51.0	46.0	102	92	48-146	10	20		
Chlorobenzene	ug/L	ND	50	50	54.3	49.9	109	100	67-129	8	20		
Chloroethane	ug/L	ND	50	50	52.8	47.6	106	95	12-192	10	20		
Chloroform	ug/L	ND	50	50	56.7	51.8	113	104	66-143	9	20		
Chloromethane	ug/L	ND	50	50	62.8	55.6	125	111	14-155	12	20		
cis-1,2-Dichloroethene	ug/L	ND	50	50	61.6	55.9	123	112	56-141	10	20		
cis-1,3-Dichloropropene	ug/L	ND	50	50	58.0	52.9	116	106	70-139	9	20		
Dibromochloromethane	ug/L	ND	50	50	49.3	46.2	99	92	50-150	6	20		
Dichlorodifluoromethane	ug/L	ND	50	50	52.8	47.1	106	94	10-173	11	20		
Ethylbenzene	ug/L	ND	50	50	55.8	50.6	112	101	57-135	10	20		
Isopropylbenzene (Cumene)	ug/L	2.8	50	50	61.7	57.3	118	109	40-146	7	20		
m&p-Xylene	ug/L	ND	100	100	107	97.2	107	97	56-136	10	20		
Methyl acetate	ug/L	ND	50	50	52.4	50.9	105	102	10-142	3	20		
Methyl-tert-butyl ether	ug/L	2.2	50	50	60.4	56.3	117	108	35-176	7	20		
Methylene Chloride	ug/L	ND	50	50	59.4	55.1	119	110	45-166	8	20		
o-Xylene	ug/L	ND	50	50	54.4	50.2	109	100	57-133	8	20		
Styrene	ug/L	ND	50	50	55.6	50.3	111	101	58-144	10	20		
Tetrachloroethene	ug/L	ND	50	50	50.1	46.7	100	93	48-143	7	20		
Toluene	ug/L	ND	50	50	60.3	54.6	121	109	59-136	10	20		
trans-1,2-Dichloroethene	ug/L	ND	50	50	58.5	52.6	117	105	57-132	11	20		
trans-1,3-Dichloropropene	ug/L	ND	50	50	57.4	52.3	115	105	59-154	9	20		
Trichloroethene	ug/L	ND	50	50	54.3	48.7	109	97	58-140	11	20		
Trichlorofluoromethane	ug/L	ND	50	50	54.8	49.7	110	99	24-175	10	20		
Vinyl chloride	ug/L	ND	50	50	50.5	44.9	101	90	21-150	12	20		
4-Bromofluorobenzene (S)	%						102	104	68-124				
Dibromofluoromethane (S)	%						108	108	72-126				
Toluene-d8 (S)	%						103	103	79-119				

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

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QC Batch: 57859 Analysis Method: EPA 8015B Modified  
 QC Batch Method: EPA 3535 Analysis Description: EPA 8015 ORO  
 Associated Lab Samples: 2038800001, 2038800003, 2038800004, 2038800005, 2038800006, 2038800008

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METHOD BLANK: 239124 Matrix: Water  
 Associated Lab Samples: 2038800001, 2038800003, 2038800004, 2038800005, 2038800006, 2038800008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	ND	0.25	07/01/16 17:56	
Oil Range Organics (>C28-C40)	mg/L	ND	0.50	07/01/16 17:56	
n-Pentacosane (S)	%	59	16-137	07/01/16 17:56	
o-Terphenyl (S)	%	64	10-121	07/01/16 17:56	

LABORATORY CONTROL SAMPLE: 239125

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	.4	ND	47	10-115	
n-Pentacosane (S)	%			57	16-137	
o-Terphenyl (S)	%			72	10-121	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038800

QC Batch: 57887 Analysis Method: EPA 8270 by SIM  
 QC Batch Method: EPA 3510 Analysis Description: 8270 Water by SIM MSSV  
 Associated Lab Samples: 2038800001, 2038800003, 2038800004, 2038800005, 2038800006, 2038800008

METHOD BLANK: 239222 Matrix: Water  
 Associated Lab Samples: 2038800001, 2038800003, 2038800004, 2038800005, 2038800006, 2038800008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	07/07/16 14:51	
Anthracene	mg/L	ND	0.00010	07/07/16 14:51	
Benzo(a)anthracene	mg/L	ND	0.00010	07/07/16 14:51	
Benzo(a)pyrene	mg/L	ND	0.00010	07/07/16 14:51	
Benzo(b)fluoranthene	mg/L	ND	0.00010	07/07/16 14:51	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	07/07/16 14:51	
Benzo(k)fluoranthene	mg/L	ND	0.00010	07/07/16 14:51	
Chrysene	mg/L	ND	0.00010	07/07/16 14:51	
Fluoranthene	mg/L	ND	0.00010	07/07/16 14:51	
Fluorene	mg/L	ND	0.00010	07/07/16 14:51	
Naphthalene	mg/L	ND	0.00010	07/07/16 14:51	
Phenanthrene	mg/L	ND	0.00010	07/07/16 14:51	
Pyrene	mg/L	ND	0.00010	07/07/16 14:51	
2-Fluorobiphenyl (S)	%	101	25-150	07/07/16 14:51	
Terphenyl-d14 (S)	%	138	25-150	07/07/16 14:51	

LABORATORY CONTROL SAMPLE: 239223

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0029	73	35-150	
Anthracene	mg/L	.004	0.0032	81	35-150	
Benzo(a)anthracene	mg/L	.004	0.0033	84	35-150	
Benzo(a)pyrene	mg/L	.004	0.0035	88	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0037	91	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0036	90	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0034	86	35-150	
Chrysene	mg/L	.004	0.0036	91	35-150	
Fluoranthene	mg/L	.004	0.0036	89	35-150	
Fluorene	mg/L	.004	0.0031	78	35-150	
Naphthalene	mg/L	.004	0.0032	80	35-150	
Phenanthrene	mg/L	.004	0.0034	84	35-150	
Pyrene	mg/L	.004	0.0032	81	35-150	
2-Fluorobiphenyl (S)	%			85	25-150	
Terphenyl-d14 (S)	%			99	25-150	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038800

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.  
ND - Not Detected at or above adjusted reporting limit.  
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.  
MDL - Adjusted Method Detection Limit.  
PQL - Practical Quantitation Limit.  
RL - Reporting Limit.  
S - Surrogate  
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.  
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.  
LCS(D) - Laboratory Control Sample (Duplicate)  
MS(D) - Matrix Spike (Duplicate)  
DUP - Sample Duplicate  
RPD - Relative Percent Difference  
NC - Not Calculable.  
SG - Silica Gel - Clean-Up  
U - Indicates the compound was analyzed for, but not detected.  
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.  
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.  
TNI - The Nelac Institute

### LABORATORIES

PASI-N Pace Analytical Services - New Orleans

### BATCH QUALIFIERS

Batch: 57810  
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.  
Batch: 58333  
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### ANALYTE QUALIFIERS

S5 Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038800

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2038800001	EB-062716	EPA 3535	57859	EPA 8015B Modified	57942
2038800003	AD-4	EPA 3535	57859	EPA 8015B Modified	57942
2038800004	AD-3	EPA 3535	57859	EPA 8015B Modified	57942
2038800005	57-A	EPA 3535	57859	EPA 8015B Modified	57942
2038800006	AD-1	EPA 3535	57859	EPA 8015B Modified	57942
2038800008	33A	EPA 3535	57859	EPA 8015B Modified	57942
2038800001	EB-062716	EPA 8015/8021	57810		
2038800002	TRIP BLANK	EPA 8015/8021	57810		
2038800003	AD-4	EPA 8015/8021	57810		
2038800004	AD-3	EPA 8015/8021	57810		
2038800005	57-A	EPA 8015/8021	57810		
2038800006	AD-1	EPA 8015/8021	57810		
2038800007	FB-062716	EPA 8015/8021	57810		
2038800008	33A	EPA 8015/8021	57810		
2038800001	EB-062716	EPA 3010	57818	EPA 6020	57961
2038800003	AD-4	EPA 3010	57818	EPA 6020	57961
2038800004	AD-3	EPA 3010	57818	EPA 6020	57961
2038800005	57-A	EPA 3010	57818	EPA 6020	57961
2038800006	AD-1	EPA 3010	57818	EPA 6020	57961
2038800008	33A	EPA 3010	57818	EPA 6020	57961
2038800001	EB-062716	EPA 7470	57809	EPA 7470	57970
2038800003	AD-4	EPA 7470	57809	EPA 7470	57970
2038800004	AD-3	EPA 7470	57809	EPA 7470	57970
2038800005	57-A	EPA 7470	57809	EPA 7470	57970
2038800006	AD-1	EPA 7470	57809	EPA 7470	57970
2038800008	33A	EPA 7470	57809	EPA 7470	57970
2038800001	EB-062716	EPA 3510	57887	EPA 8270 by SIM	58333
2038800003	AD-4	EPA 3510	57887	EPA 8270 by SIM	58333
2038800004	AD-3	EPA 3510	57887	EPA 8270 by SIM	58333
2038800005	57-A	EPA 3510	57887	EPA 8270 by SIM	58333
2038800006	AD-1	EPA 3510	57887	EPA 8270 by SIM	58333
2038800008	33A	EPA 3510	57887	EPA 8270 by SIM	58333
2038800001	EB-062716	EPA 5030B/8260	57891		
2038800002	TRIP BLANK	EPA 5030B/8260	57891		
2038800003	AD-4	EPA 5030B/8260	57891		
2038800004	AD-3	EPA 5030B/8260	57891		
2038800005	57-A	EPA 5030B/8260	57891		
2038800006	AD-1	EPA 5030B/8260	57891		
2038800007	FB-062716	EPA 5030B/8260	57891		
2038800008	33A	EPA 5030B/8260	57891		

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WO#: 2038800

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



2038800

Section A Required Client Information

Company: Arcadis BBL Canal
Address: City View Plaza I
Email To: train.caldern@arcadis.com
Phone: 777-4000
Requested Due Date/TAT:

Report To: E Train Caldern
Copy To:
Purchase Order No.:
Project Name: Puma Terminal New Sm...
Project Number: B0063767

Section C Invoice Information:

Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project No.:
Pace Profile #:

Page: 1 of 1
2035875
REGULATORY AGENCY
NPDES GROUND WATER DRINKING WATER
UST RCRA OTHER
Site Location: Bayamon
STATE: P.R.

Section D Required Client Information

Matrix Codes
Drinking Water DW
Water WT
Waste Water WW
Product P
Soil/Solid SL
Oil OL
Wipe WP
Air AR
Tissue TS
Other OT

Table with columns: ITEM #, SAMPLE ID, MATRIX CODE, SAMPLE TYPE, COLLECTED (DATE, TIME), SAMPLE TEMP AT COLLECTION, # OF CONTAINERS, Preservatives (Unpreserved, H2SO4, HNO3, HCl, NaOH, Na2S2O3, Methanol, Other), Analysis Test (V/A, TPH, DRO, PAM, METALS), Residual Chlorine (Y/N), Pace Project No./ Lab I.D.

Table with columns: ADDITIONAL COMMENTS, RELINQUISHED BY / AFFILIATION, DATE, TIME, ACCEPTED BY / AFFILIATION, DATE, TIME, SAMPLE CONDITIONS

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Fernando Colon
SIGNATURE of SAMPLER:
DATE Signed (MM/DD/YY): 6/27/16
Temperature °C
Received on Ice (Y/N)
Custody Sealed Cooler (Y/N)
Samples Intact (Y/N)

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\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.



Urb. Jardines de Guaynabo  
Calle Marginal Blq A-10  
Guaynabo, PR 00989

**Sample Condition Upon Receipt**

**WO# : 2038800**

PM: JAR1 Due Date: 07/12/16  
CLIENT: 98-ARCADISPR

Project

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

**Thermometer Used:**  
 Therm Fisher IR 4  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: [Signature]

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_



1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

### Sample Condition Upon Receipt

Project #: **20**

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 5  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 6-29-16 JMB

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15

#### Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

July 13, 2016

Efrain Calderon  
BBL Caribe Engineering P.S.C.  
48 City View Plaza1, Suite 401  
Road 16, Km. 1.2  
Guaynabo, PR 00968

RE: Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038900

Dear Efrain Calderon:

Enclosed are the analytical results for sample(s) received by the laboratory on June 28, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Juan Redondo  
juan.redondo@pacelabs.com  
Project Manager

Enclosures

cc: Sharon Colon  
Abner Hernandez  
Marianela Mercado-Burgos



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

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### New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:  
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):  
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):  
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):  
T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-  
00119

Commonwealth of Virginia (TNI): 480246

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### SAMPLE SUMMARY

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2038900001	EB-062816	Water	06/28/16 09:05	06/28/16 15:05
2038900002	TRIPBLANK	Water	06/28/16 00:00	06/28/16 15:05
2038900003	AD-2	Water	06/28/16 10:02	06/28/16 15:05
2038900004	83A	Water	06/28/16 11:10	06/28/16 15:05
2038900005	83B2	Water	06/28/16 12:00	06/28/16 15:05
2038900006	P-118	Water	06/28/16 13:05	06/28/16 15:05
2038900007	FB-062816	Water	06/28/16 13:08	06/28/16 15:05

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2038900001	EB-062816	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	KJR	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038900002	TRIPBLANK	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038900003	AD-2	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	KJR	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038900004	83A	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	KJR	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038900005	83B2	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	KJR	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038900006	P-118	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	KJR	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2038900007	FB-062816	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

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**Method:** EPA 8015B Modified

**Description:** 8015M DRO/ORO Organics

**Client:** BBL Caribe / Arcadis PR

**Date:** July 13, 2016

**General Information:**

5 samples were analyzed for EPA 8015B Modified. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3535 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

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**Method:** EPA 8015/8021

**Description:** 8021 GCV BTEX, MTBE, GRO

**Client:** BBL Caribe / Arcadis PR

**Date:** July 13, 2016

**General Information:**

7 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

---

**Method:** EPA 6020

**Description:** 6020 MET ICPMS

**Client:** BBL Caribe / Arcadis PR

**Date:** July 13, 2016

**General Information:**

5 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

---

**Method:** EPA 7470

**Description:** 7470 Mercury

**Client:** BBL Caribe / Arcadis PR

**Date:** July 13, 2016

**General Information:**

5 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

---

**Method:** EPA 8270 by SIM

**Description:** 8270 MSSV PAH by SIM SEP

**Client:** BBL Caribe / Arcadis PR

**Date:** July 13, 2016

**General Information:**

5 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 58010

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

---

**Method:** EPA 5030B/8260

**Description:** 8260 MSV Low Level

**Client:** BBL Caribe / Arcadis PR

**Date:** July 13, 2016

**General Information:**

7 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

Sample: EB-062816	Lab ID: 2038900001	Collected: 06/28/16 09:05	Received: 06/28/16 15:05	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/30/16 12:21	07/02/16 06:40		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/30/16 12:21	07/02/16 06:40		
<b>Surrogates</b>								
n-Pentacosane (S)	60	%	16-137	1	06/30/16 12:21	07/02/16 06:40	629-99-2	
o-Terphenyl (S)	67	%	10-121	1	06/30/16 12:21	07/02/16 06:40	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/30/16 15:01		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	88	%	44-148	1		06/30/16 15:01	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:32	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:32	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:32	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/30/16 19:00	07/06/16 19:32	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/30/16 18:10	07/05/16 10:27	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:29	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:29	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:29	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:29	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:29	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:29	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:29	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:29	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:29	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:29	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:29	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:29	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:29	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	72	%	25-150	1	07/01/16 13:25	07/06/16 16:29	321-60-8	
Terphenyl-d14 (S)	98	%	25-150	1	07/01/16 13:25	07/06/16 16:29	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	17.9	ug/L	4.0	1		06/30/16 17:14	67-64-1	
Benzene	ND	ug/L	0.50	1		06/30/16 17:14	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/30/16 17:14	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/30/16 17:14	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/30/16 17:14	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/30/16 17:14	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/30/16 17:14	75-65-0	

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

Sample: EB-062816	Lab ID: 2038900001	Collected: 06/28/16 09:05	Received: 06/28/16 15:05	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		06/30/16 17:14	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/30/16 17:14	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/30/16 17:14	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/30/16 17:14	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/30/16 17:14	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/30/16 17:14	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/30/16 17:14	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/30/16 17:14	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/30/16 17:14	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/30/16 17:14	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/30/16 17:14	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/30/16 17:14	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/30/16 17:14	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/30/16 17:14	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/30/16 17:14	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/30/16 17:14	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 17:14	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 17:14	10061-02-6	
Ethanol	ND	ug/L	500	1		06/30/16 17:14	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/30/16 17:14	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/30/16 17:14	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/30/16 17:14	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/30/16 17:14	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/30/16 17:14	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/30/16 17:14	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/30/16 17:14	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/30/16 17:14	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/30/16 17:14	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/30/16 17:14	127-18-4	
Toluene	ND	ug/L	0.50	1		06/30/16 17:14	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/30/16 17:14	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/30/16 17:14	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/30/16 17:14	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/30/16 17:14	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/30/16 17:14	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/30/16 17:14	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/30/16 17:14	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	99	%	72-126	1		06/30/16 17:14	1868-53-7	
4-Bromofluorobenzene (S)	96	%	68-124	1		06/30/16 17:14	460-00-4	
Toluene-d8 (S)	103	%	79-119	1		06/30/16 17:14	2037-26-5	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038900

Sample: TRIPBLANK	Lab ID: 2038900002	Collected: 06/28/16 00:00	Received: 06/28/16 15:05	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>	Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		06/30/16 15:27		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	90	%	44-148	1		06/30/16 15:27	460-00-4	
<b>8260 MSV Low Level</b>	Analytical Method: EPA 5030B/8260							
Acetone	26.4	ug/L	4.0	1		06/30/16 17:32	67-64-1	
Benzene	ND	ug/L	0.50	1		06/30/16 17:32	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/30/16 17:32	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/30/16 17:32	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/30/16 17:32	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/30/16 17:32	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/30/16 17:32	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/30/16 17:32	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/30/16 17:32	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/30/16 17:32	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/30/16 17:32	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/30/16 17:32	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/30/16 17:32	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/30/16 17:32	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/30/16 17:32	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/30/16 17:32	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/30/16 17:32	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/30/16 17:32	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/30/16 17:32	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/30/16 17:32	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/30/16 17:32	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/30/16 17:32	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/30/16 17:32	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 17:32	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 17:32	10061-02-6	
Ethanol	ND	ug/L	500	1		06/30/16 17:32	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/30/16 17:32	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/30/16 17:32	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/30/16 17:32	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/30/16 17:32	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/30/16 17:32	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/30/16 17:32	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/30/16 17:32	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/30/16 17:32	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/30/16 17:32	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/30/16 17:32	127-18-4	
Toluene	ND	ug/L	0.50	1		06/30/16 17:32	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/30/16 17:32	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/30/16 17:32	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/30/16 17:32	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/30/16 17:32	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/30/16 17:32	75-01-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Sample Project No.: 2038900

Sample:	Lab ID:	Collected:	Received:	Matrix:				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: TRIPBLANK</b>	<b>Lab ID: 2038900002</b>	06/28/16 00:00	06/28/16 15:05	Water				
<b>8260 MSV Low Level</b> Analytical Method: EPA 5030B/8260								
m&p-Xylene	ND	ug/L	2.0	1		06/30/16 17:32	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/30/16 17:32	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	98	%	72-126	1		06/30/16 17:32	1868-53-7	
4-Bromofluorobenzene (S)	97	%	68-124	1		06/30/16 17:32	460-00-4	
Toluene-d8 (S)	104	%	79-119	1		06/30/16 17:32	2037-26-5	
<b>Sample: AD-2</b>	<b>Lab ID: 2038900003</b>	06/28/16 10:02	06/28/16 15:05	Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b> Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/30/16 12:21	07/02/16 07:08		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/30/16 12:21	07/02/16 07:08		
<b>Surrogates</b>								
n-Pentacosane (S)	37	%	16-137	1	06/30/16 12:21	07/02/16 07:08	629-99-2	
o-Terphenyl (S)	63	%	10-121	1	06/30/16 12:21	07/02/16 07:08	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b> Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/30/16 15:53		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	86	%	44-148	1		06/30/16 15:53	460-00-4	
<b>6020 MET ICPMS</b> Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:36	7440-38-2	
Chromium	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:36	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:36	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/30/16 19:00	07/06/16 19:36	7440-62-2	
<b>7470 Mercury</b> Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/30/16 18:10	07/05/16 10:33	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:51	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:51	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:51	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:51	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:51	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:51	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:51	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:51	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:51	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:51	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:51	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:51	50-32-8	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

Sample: AD-2	Lab ID: 2038900003	Collected: 06/28/16 10:02	Received: 06/28/16 15:05	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 16:51	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	67	%	25-150	1	07/01/16 13:25	07/06/16 16:51	321-60-8	
Terphenyl-d14 (S)	86	%	25-150	1	07/01/16 13:25	07/06/16 16:51	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	10.5	ug/L	4.0	1		06/30/16 17:50	67-64-1	
Benzene	ND	ug/L	0.50	1		06/30/16 17:50	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/30/16 17:50	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/30/16 17:50	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/30/16 17:50	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/30/16 17:50	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/30/16 17:50	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/30/16 17:50	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/30/16 17:50	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/30/16 17:50	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/30/16 17:50	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/30/16 17:50	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/30/16 17:50	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/30/16 17:50	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/30/16 17:50	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/30/16 17:50	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/30/16 17:50	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/30/16 17:50	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/30/16 17:50	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/30/16 17:50	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/30/16 17:50	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/30/16 17:50	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/30/16 17:50	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 17:50	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 17:50	10061-02-6	
Ethanol	ND	ug/L	500	1		06/30/16 17:50	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/30/16 17:50	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/30/16 17:50	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/30/16 17:50	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/30/16 17:50	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/30/16 17:50	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/30/16 17:50	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/30/16 17:50	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/30/16 17:50	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/30/16 17:50	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/30/16 17:50	127-18-4	
Toluene	ND	ug/L	0.50	1		06/30/16 17:50	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/30/16 17:50	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/30/16 17:50	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/30/16 17:50	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/30/16 17:50	75-69-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Sample Project No.: 2038900

Sample:	Lab ID:	Collected:	Received:	Matrix:				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: AD-2</b>	<b>Lab ID: 2038900003</b>	06/28/16 10:02	06/28/16 15:05	Water				
<b>8260 MSV Low Level</b> Analytical Method: EPA 5030B/8260								
Vinyl chloride	ND	ug/L	0.50	1		06/30/16 17:50	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/30/16 17:50	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/30/16 17:50	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	99	%.	72-126	1		06/30/16 17:50	1868-53-7	
4-Bromofluorobenzene (S)	96	%.	68-124	1		06/30/16 17:50	460-00-4	
Toluene-d8 (S)	104	%.	79-119	1		06/30/16 17:50	2037-26-5	
<b>Sample: 83A</b>	<b>Lab ID: 2038900004</b>	06/28/16 11:10	06/28/16 15:05	Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b> Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/30/16 12:21	07/02/16 07:36		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/30/16 12:21	07/02/16 07:36		
<b>Surrogates</b>								
n-Pentacosane (S)	41	%.	16-137	1	06/30/16 12:21	07/02/16 07:36	629-99-2	
o-Terphenyl (S)	57	%.	10-121	1	06/30/16 12:21	07/02/16 07:36	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b> Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		06/30/16 17:10		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	90	%.	44-148	1		06/30/16 17:10	460-00-4	
<b>6020 MET ICPMS</b> Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	<b>0.0017</b>	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:40	7440-38-2	
Chromium	<b>0.0014</b>	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:40	7440-47-3	
Lead	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:40	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	06/30/16 19:00	07/06/16 19:40	7440-62-2	
<b>7470 Mercury</b> Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	06/30/16 18:10	07/05/16 10:35	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:12	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:12	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:12	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:12	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:12	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:12	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:12	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:12	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:12	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:12	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:12	207-08-9	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Sample Project No.: 2038900

Sample: 83A	Lab ID: 2038900004	Collected: 06/28/16 11:10	Received: 06/28/16 15:05	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:12	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:12	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	68	%	25-150	1	07/01/16 13:25	07/06/16 17:12	321-60-8	
Terphenyl-d14 (S)	80	%	25-150	1	07/01/16 13:25	07/06/16 17:12	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	14.5	ug/L	4.0	1		06/30/16 18:08	67-64-1	
Benzene	ND	ug/L	0.50	1		06/30/16 18:08	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/30/16 18:08	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/30/16 18:08	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/30/16 18:08	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/30/16 18:08	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/30/16 18:08	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/30/16 18:08	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/30/16 18:08	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/30/16 18:08	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/30/16 18:08	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/30/16 18:08	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/30/16 18:08	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/30/16 18:08	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/30/16 18:08	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/30/16 18:08	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/30/16 18:08	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/30/16 18:08	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/30/16 18:08	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/30/16 18:08	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/30/16 18:08	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/30/16 18:08	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/30/16 18:08	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 18:08	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 18:08	10061-02-6	
Ethanol	ND	ug/L	500	1		06/30/16 18:08	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/30/16 18:08	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/30/16 18:08	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/30/16 18:08	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/30/16 18:08	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/30/16 18:08	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/30/16 18:08	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/30/16 18:08	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/30/16 18:08	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/30/16 18:08	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/30/16 18:08	127-18-4	
Toluene	ND	ug/L	0.50	1		06/30/16 18:08	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/30/16 18:08	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/30/16 18:08	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/30/16 18:08	79-01-6	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Sample Project No.: 2038900

Sample: 83A		Lab ID: 2038900004		Collected: 06/28/16 11:10		Received: 06/28/16 15:05		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Trichlorofluoromethane	ND	ug/L	0.50	1		06/30/16 18:08	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/30/16 18:08	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		06/30/16 18:08	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		06/30/16 18:08	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	98	%	72-126	1		06/30/16 18:08	1868-53-7		
4-Bromofluorobenzene (S)	98	%	68-124	1		06/30/16 18:08	460-00-4		
Toluene-d8 (S)	103	%	79-119	1		06/30/16 18:08	2037-26-5		
<b>Sample: 83B2</b>		Lab ID: 2038900005		Collected: 06/28/16 12:00		Received: 06/28/16 15:05		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535							
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/30/16 12:21	07/02/16 08:04			
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/30/16 12:21	07/02/16 08:04			
<b>Surrogates</b>									
n-Pentacosane (S)	58	%	16-137	1	06/30/16 12:21	07/02/16 08:04	629-99-2		
o-Terphenyl (S)	47	%	10-121	1	06/30/16 12:21	07/02/16 08:04	84-15-1		
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		06/30/16 17:36			
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	90	%	44-148	1		06/30/16 17:36	460-00-4		
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Arsenic	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:44	7440-38-2		
Chromium	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:44	7440-47-3		
Lead	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:44	7439-92-1		
Vanadium	ND	mg/L	0.0050	1	06/30/16 19:00	07/06/16 19:44	7440-62-2		
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	ND	ug/L	0.20	1	06/30/16 18:10	07/05/16 10:41	7439-97-6		
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510							
Naphthalene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:34	91-20-3		
Acenaphthene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:34	83-32-9		
Fluorene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:34	86-73-7		
Phenanthrene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:34	85-01-8		
Anthracene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:34	120-12-7		
Fluoranthene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:34	206-44-0		
Pyrene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:34	129-00-0		
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:34	56-55-3		
Chrysene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:34	218-01-9		
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:34	205-99-2		

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

Sample: 83B2	Lab ID: 2038900005	Collected: 06/28/16 12:00	Received: 06/28/16 15:05	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:34	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:34	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:34	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	80	%	25-150	1	07/01/16 13:25	07/06/16 17:34	321-60-8	
Terphenyl-d14 (S)	92	%	25-150	1	07/01/16 13:25	07/06/16 17:34	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	13.4	ug/L	4.0	1		06/30/16 18:26	67-64-1	
Benzene	ND	ug/L	0.50	1		06/30/16 18:26	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/30/16 18:26	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/30/16 18:26	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/30/16 18:26	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/30/16 18:26	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/30/16 18:26	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/30/16 18:26	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/30/16 18:26	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/30/16 18:26	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/30/16 18:26	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/30/16 18:26	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/30/16 18:26	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/30/16 18:26	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/30/16 18:26	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/30/16 18:26	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/30/16 18:26	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/30/16 18:26	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/30/16 18:26	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/30/16 18:26	75-35-4	
cis-1,2-Dichloroethene	2.1	ug/L	1.0	1		06/30/16 18:26	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/30/16 18:26	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/30/16 18:26	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 18:26	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 18:26	10061-02-6	
Ethanol	ND	ug/L	500	1		06/30/16 18:26	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/30/16 18:26	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/30/16 18:26	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/30/16 18:26	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/30/16 18:26	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/30/16 18:26	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/30/16 18:26	108-10-1	
Methyl-tert-butyl ether	1.7	ug/L	0.50	1		06/30/16 18:26	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/30/16 18:26	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/30/16 18:26	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/30/16 18:26	127-18-4	
Toluene	ND	ug/L	0.50	1		06/30/16 18:26	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/30/16 18:26	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/30/16 18:26	79-00-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Sample Project No.: 2038900

Sample: 83B2		Lab ID: 2038900005		Collected: 06/28/16 12:00		Received: 06/28/16 15:05		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Trichloroethene	18.1	ug/L	0.50	1		06/30/16 18:26	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		06/30/16 18:26	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		06/30/16 18:26	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		06/30/16 18:26	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		06/30/16 18:26	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	99	%	72-126	1		06/30/16 18:26	1868-53-7		
4-Bromofluorobenzene (S)	97	%	68-124	1		06/30/16 18:26	460-00-4		
Toluene-d8 (S)	102	%	79-119	1		06/30/16 18:26	2037-26-5		
<b>Sample: P-118</b>		Lab ID: 2038900006		Collected: 06/28/16 13:05		Received: 06/28/16 15:05		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535							
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	06/30/16 12:21	07/02/16 08:33			
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	06/30/16 12:21	07/02/16 08:33			
<b>Surrogates</b>									
n-Pentacosane (S)	56	%	16-137	1	06/30/16 12:21	07/02/16 08:33	629-99-2		
o-Terphenyl (S)	62	%	10-121	1	06/30/16 12:21	07/02/16 08:33	84-15-1		
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021							
Gasoline Range Organics	63.1	ug/L	50.0	1		06/30/16 18:02			
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	90	%	44-148	1		06/30/16 18:02	460-00-4		
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Arsenic	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:48	7440-38-2		
Chromium	0.0010	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:48	7440-47-3		
Lead	ND	mg/L	0.0010	1	06/30/16 19:00	07/06/16 19:48	7439-92-1		
Vanadium	ND	mg/L	0.0050	1	06/30/16 19:00	07/06/16 19:48	7440-62-2		
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	1.6	ug/L	0.20	1	06/30/16 18:10	07/05/16 10:43	7439-97-6		
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510							
Naphthalene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:56	91-20-3		
Acenaphthene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:56	83-32-9		
Fluorene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:56	86-73-7		
Phenanthrene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:56	85-01-8		
Anthracene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:56	120-12-7		
Fluoranthene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:56	206-44-0		
Pyrene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:56	129-00-0		
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:56	56-55-3		
Chrysene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:56	218-01-9		

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Project No.: 2038900

Sample: P-118	Lab ID: 2038900006	Collected: 06/28/16 13:05	Received: 06/28/16 15:05	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:56	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:56	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:56	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/01/16 13:25	07/06/16 17:56	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	65	%	25-150	1	07/01/16 13:25	07/06/16 17:56	321-60-8	
Terphenyl-d14 (S)	84	%	25-150	1	07/01/16 13:25	07/06/16 17:56	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	16.4	ug/L	4.0	1		06/30/16 18:43	67-64-1	
Benzene	ND	ug/L	0.50	1		06/30/16 18:43	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/30/16 18:43	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/30/16 18:43	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/30/16 18:43	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/30/16 18:43	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/30/16 18:43	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/30/16 18:43	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/30/16 18:43	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/30/16 18:43	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/30/16 18:43	75-00-3	
Chloroform	0.54	ug/L	0.50	1		06/30/16 18:43	67-66-3	
Chloromethane	1.0	ug/L	0.50	1		06/30/16 18:43	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/30/16 18:43	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/30/16 18:43	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/30/16 18:43	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/30/16 18:43	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/30/16 18:43	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/30/16 18:43	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/30/16 18:43	75-35-4	
cis-1,2-Dichloroethene	6.9	ug/L	1.0	1		06/30/16 18:43	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/30/16 18:43	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/30/16 18:43	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 18:43	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 18:43	10061-02-6	
Ethanol	ND	ug/L	500	1		06/30/16 18:43	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/30/16 18:43	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/30/16 18:43	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/30/16 18:43	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/30/16 18:43	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/30/16 18:43	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/30/16 18:43	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/30/16 18:43	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/30/16 18:43	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/30/16 18:43	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/30/16 18:43	127-18-4	
Toluene	ND	ug/L	0.50	1		06/30/16 18:43	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/30/16 18:43	71-55-6	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

Sample: P-118		Lab ID: 2038900006		Collected: 06/28/16 13:05	Received: 06/28/16 15:05	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/30/16 18:43	79-00-5	
Trichloroethene	61.9	ug/L	0.50	1		06/30/16 18:43	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/30/16 18:43	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/30/16 18:43	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/30/16 18:43	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/30/16 18:43	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	98	%.	72-126	1		06/30/16 18:43	1868-53-7	
4-Bromofluorobenzene (S)	97	%.	68-124	1		06/30/16 18:43	460-00-4	
Toluene-d8 (S)	102	%.	79-119	1		06/30/16 18:43	2037-26-5	

Sample: FB-062816		Lab ID: 2038900007		Collected: 06/28/16 13:08	Received: 06/28/16 15:05	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		06/30/16 18:54		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	89	%.	44-148	1		06/30/16 18:54	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	22.9	ug/L	4.0	1		06/30/16 19:01	67-64-1	
Benzene	ND	ug/L	0.50	1		06/30/16 19:01	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		06/30/16 19:01	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/30/16 19:01	75-25-2	
Bromomethane	ND	ug/L	0.50	1		06/30/16 19:01	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		06/30/16 19:01	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		06/30/16 19:01	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		06/30/16 19:01	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		06/30/16 19:01	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/30/16 19:01	108-90-7	
Chloroethane	ND	ug/L	0.50	1		06/30/16 19:01	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/30/16 19:01	67-66-3	
Chloromethane	ND	ug/L	0.50	1		06/30/16 19:01	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		06/30/16 19:01	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/30/16 19:01	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		06/30/16 19:01	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		06/30/16 19:01	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/30/16 19:01	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/30/16 19:01	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/30/16 19:01	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		06/30/16 19:01	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/30/16 19:01	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/30/16 19:01	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 19:01	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/30/16 19:01	10061-02-6	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038900

Sample: <b>FB-062816</b>	Lab ID: <b>2038900007</b>	Collected: 06/28/16 13:08	Received: 06/28/16 15:05	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Ethanol	ND	ug/L	500	1		06/30/16 19:01	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		06/30/16 19:01	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		06/30/16 19:01	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		06/30/16 19:01	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		06/30/16 19:01	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		06/30/16 19:01	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		06/30/16 19:01	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/30/16 19:01	1634-04-4	
Styrene	ND	ug/L	1.0	1		06/30/16 19:01	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/30/16 19:01	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/30/16 19:01	127-18-4	
Toluene	ND	ug/L	0.50	1		06/30/16 19:01	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/30/16 19:01	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/30/16 19:01	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/30/16 19:01	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		06/30/16 19:01	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		06/30/16 19:01	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		06/30/16 19:01	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/30/16 19:01	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	100	%.	72-126	1		06/30/16 19:01	1868-53-7	
4-Bromofluorobenzene (S)	98	%.	68-124	1		06/30/16 19:01	460-00-4	
Toluene-d8 (S)	102	%.	79-119	1		06/30/16 19:01	2037-26-5	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

QC Batch: 57919 Analysis Method: EPA 8015/8021  
 QC Batch Method: EPA 8015/8021 Analysis Description: 8021 W GCV BTEX, MTBE, GRO  
 Associated Lab Samples: 2038900001, 2038900002, 2038900003, 2038900004, 2038900005, 2038900006, 2038900007

METHOD BLANK: 239311 Matrix: Water  
 Associated Lab Samples: 2038900001, 2038900002, 2038900003, 2038900004, 2038900005, 2038900006, 2038900007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	06/30/16 13:43	
4-Bromofluorobenzene (S)	%.	91	44-148	06/30/16 13:43	

LABORATORY CONTROL SAMPLE: 239312

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	421	84	61-136	
4-Bromofluorobenzene (S)	%.			91	44-148	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 239358 239359

Parameter	Units	2038900003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Gasoline Range Organics	ug/L	ND	500	500	475	460	88	85	15-147	3	20	
4-Bromofluorobenzene (S)	%.						90	90	44-148			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038900

QC Batch: 57958 Analysis Method: EPA 7470  
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
Associated Lab Samples: 2038900001, 2038900003, 2038900004, 2038900005, 2038900006

METHOD BLANK: 239530 Matrix: Water  
Associated Lab Samples: 2038900001, 2038900003, 2038900004, 2038900005, 2038900006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	07/05/16 10:23	

LABORATORY CONTROL SAMPLE: 239531

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	1.0	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 239532 239533

Parameter	Units	2038900001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	1	1	1.0	1.1	105	106	75-125	1	20	

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### REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038900

QC Batch: 57818 Analysis Method: EPA 6020  
QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
Associated Lab Samples: 2038900001, 2038900003, 2038900004, 2038900005, 2038900006

METHOD BLANK: 238957 Matrix: Water  
Associated Lab Samples: 2038900001, 2038900003, 2038900004, 2038900005, 2038900006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	07/06/16 17:40	
Chromium	mg/L	ND	0.0010	07/06/16 17:40	
Lead	mg/L	ND	0.0010	07/06/16 17:40	
Vanadium	mg/L	ND	0.0050	07/06/16 17:40	

LABORATORY CONTROL SAMPLE: 238958

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.02	0.019	97	83-115	
Chromium	mg/L	.02	0.019	96	85-115	
Lead	mg/L	.02	0.019	95	84-115	
Vanadium	mg/L	.02	0.019	95	81-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 238959 238960

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2038768001 Result	Spike Conc.	Spike Conc.	Result						
Arsenic	mg/L	ND	.02	.02	0.019	0.019	93	94	80-120	1	20
Chromium	mg/L	ND	.02	.02	0.019	0.019	93	94	80-120	1	20
Lead	mg/L	ND	.02	.02	0.019	0.019	93	94	80-120	1	20
Vanadium	mg/L	ND	.02	.02	0.018	0.019	92	93	80-120	1	20

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

QC Batch: 57924 Analysis Method: EPA 5030B/8260  
 QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Low Level  
 Associated Lab Samples: 2038900001, 2038900002, 2038900003, 2038900004, 2038900005, 2038900006, 2038900007

METHOD BLANK: 239351 Matrix: Water  
 Associated Lab Samples: 2038900001, 2038900002, 2038900003, 2038900004, 2038900005, 2038900006, 2038900007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	06/30/16 13:22	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	06/30/16 13:22	
1,1,2-Trichloroethane	ug/L	ND	0.50	06/30/16 13:22	
1,1-Dichloroethane	ug/L	ND	0.50	06/30/16 13:22	
1,1-Dichloroethene	ug/L	ND	0.50	06/30/16 13:22	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	06/30/16 13:22	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	06/30/16 13:22	
1,2-Dichloroethane	ug/L	ND	0.50	06/30/16 13:22	
1,2-Dichloropropane	ug/L	ND	0.50	06/30/16 13:22	
2-Butanone (MEK)	ug/L	ND	2.0	06/30/16 13:22	
2-Hexanone	ug/L	ND	1.0	06/30/16 13:22	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	06/30/16 13:22	
Acetone	ug/L	ND	4.0	06/30/16 13:22	
Benzene	ug/L	ND	0.50	06/30/16 13:22	
Bromodichloromethane	ug/L	ND	0.50	06/30/16 13:22	
Bromoform	ug/L	ND	0.50	06/30/16 13:22	
Bromomethane	ug/L	ND	0.50	06/30/16 13:22	
Carbon disulfide	ug/L	ND	1.0	06/30/16 13:22	
Carbon tetrachloride	ug/L	ND	0.50	06/30/16 13:22	
Chlorobenzene	ug/L	ND	0.50	06/30/16 13:22	
Chloroethane	ug/L	ND	0.50	06/30/16 13:22	
Chloroform	ug/L	ND	0.50	06/30/16 13:22	
Chloromethane	ug/L	ND	0.50	06/30/16 13:22	
cis-1,2-Dichloroethene	ug/L	ND	1.0	06/30/16 13:22	
cis-1,3-Dichloropropene	ug/L	ND	0.50	06/30/16 13:22	
Dibromochloromethane	ug/L	ND	0.50	06/30/16 13:22	
Dichlorodifluoromethane	ug/L	ND	1.0	06/30/16 13:22	
Ethanol	ug/L	ND	500	06/30/16 13:22	
Ethylbenzene	ug/L	ND	0.50	06/30/16 13:22	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	06/30/16 13:22	
m&p-Xylene	ug/L	ND	2.0	06/30/16 13:22	
Methyl acetate	ug/L	ND	2.0	06/30/16 13:22	
Methyl-tert-butyl ether	ug/L	ND	0.50	06/30/16 13:22	
Methylene Chloride	ug/L	ND	0.50	06/30/16 13:22	
o-Xylene	ug/L	ND	1.0	06/30/16 13:22	
Styrene	ug/L	ND	1.0	06/30/16 13:22	
tert-Butyl Alcohol	ug/L	ND	200	06/30/16 13:22	
Tetrachloroethene	ug/L	ND	0.50	06/30/16 13:22	
Toluene	ug/L	ND	0.50	06/30/16 13:22	
trans-1,2-Dichloroethene	ug/L	ND	0.50	06/30/16 13:22	
trans-1,3-Dichloropropene	ug/L	ND	0.50	06/30/16 13:22	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

METHOD BLANK: 239351

Matrix: Water

Associated Lab Samples: 2038900001, 2038900002, 2038900003, 2038900004, 2038900005, 2038900006, 2038900007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	0.50	06/30/16 13:22	
Trichlorofluoromethane	ug/L	ND	0.50	06/30/16 13:22	
Vinyl chloride	ug/L	ND	0.50	06/30/16 13:22	
4-Bromofluorobenzene (S)	%	98	68-124	06/30/16 13:22	
Dibromofluoromethane (S)	%	100	72-126	06/30/16 13:22	
Toluene-d8 (S)	%	103	79-119	06/30/16 13:22	

LABORATORY CONTROL SAMPLE: 239352

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	49.5	99	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	50.0	100	15-179	
1,1,2-Trichloroethane	ug/L	50	49.9	100	58-144	
1,1-Dichloroethane	ug/L	50	46.7	93	63-129	
1,1-Dichloroethene	ug/L	50	40.3	81	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	52.0	104	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	54.8	110	52-161	
1,2-Dichloroethane	ug/L	50	52.5	105	57-148	
1,2-Dichloropropane	ug/L	50	50.2	100	66-128	
2-Butanone (MEK)	ug/L	50	57.2	114	32-183	
2-Hexanone	ug/L	50	59.2	118	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	58.2	116	26-171	
Acetone	ug/L	50	53.7	107	22-165	
Benzene	ug/L	50	47.6	95	62-131	
Bromodichloromethane	ug/L	50	49.7	99	69-132	
Bromoform	ug/L	50	45.6	91	35-166	
Bromomethane	ug/L	50	54.4	109	34-158	
Carbon disulfide	ug/L	50	39.2	78	31-128	
Carbon tetrachloride	ug/L	50	45.6	91	54-144	
Chlorobenzene	ug/L	50	51.5	103	70-127	
Chloroethane	ug/L	50	48.3	97	17-195	
Chloroform	ug/L	50	44.6	89	73-134	
Chloromethane	ug/L	50	59.9	120	17-153	
cis-1,2-Dichloroethene	ug/L	50	48.3	97	68-129	
cis-1,3-Dichloropropene	ug/L	50	46.2	92	72-138	
Dibromochloromethane	ug/L	50	50.5	101	49-146	
Dichlorodifluoromethane	ug/L	50	45.8	92	10-179	
Ethylbenzene	ug/L	50	53.0	106	66-126	
Isopropylbenzene (Cumene)	ug/L	50	53.5	107	51-138	
m&p-Xylene	ug/L	100	104	104	65-129	
Methyl acetate	ug/L	50	44.6	89	20-142	
Methyl-tert-butyl ether	ug/L	50	43.8	88	37-166	
Methylene Chloride	ug/L	50	43.0	86	46-168	
o-Xylene	ug/L	50	52.5	105	65-124	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

LABORATORY CONTROL SAMPLE: 239352

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Styrene	ug/L	50	55.0	110	72-133	
Tetrachloroethene	ug/L	50	51.2	102	46-157	
Toluene	ug/L	50	52.2	104	69-126	
trans-1,2-Dichloroethene	ug/L	50	45.5	91	60-129	
trans-1,3-Dichloropropene	ug/L	50	51.0	102	59-149	
Trichloroethene	ug/L	50	48.0	96	67-132	
Trichlorofluoromethane	ug/L	50	60.5	121	39-171	
Vinyl chloride	ug/L	50	48.3	97	27-149	
4-Bromofluorobenzene (S)	%			96	68-124	
Dibromofluoromethane (S)	%			100	72-126	
Toluene-d8 (S)	%			101	79-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 239353 239354

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2038904004 Result	Spike Conc.	Spike Conc.	MS Result						
1,1,1-Trichloroethane	ug/L	ND	50	50	58.2	55.8	116	112	54-137	4	20
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	53.0	51.8	106	104	15-187	2	20
1,1,2-Trichloroethane	ug/L	ND	50	50	52.6	50.9	105	102	59-148	3	20
1,1-Dichloroethane	ug/L	ND	50	50	52.1	50.1	104	100	59-133	4	20
1,1-Dichloroethene	ug/L	ND	50	50	45.8	43.9	92	88	44-146	4	20
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	55.4	54.0	111	108	23-166	2	20
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	57.3	55.0	115	110	55-166	4	20
1,2-Dichloroethane	ug/L	ND	50	50	56.0	53.7	112	107	56-154	4	20
1,2-Dichloropropane	ug/L	ND	50	50	54.1	52.8	108	106	62-135	2	20
2-Butanone (MEK)	ug/L	2.3	50	50	60.2	59.3	116	114	20-205	1	20
2-Hexanone	ug/L	ND	50	50	62.1	60.1	124	120	25-189	3	20
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	50	61.5	59.5	123	119	23-184	3	20
Acetone	ug/L	13.7	50	50	68.1	69.0	109	110	11-217	1	20
Benzene	ug/L	ND	50	50	53.2	51.5	106	103	52-141	3	20
Bromodichloromethane	ug/L	ND	50	50	53.7	51.4	107	103	70-134	4	20
Bromoform	ug/L	ND	50	50	47.5	45.9	95	92	37-171	3	20
Bromomethane	ug/L	ND	50	50	60.4	56.9	121	114	34-155	6	20
Carbon disulfide	ug/L	ND	50	50	48.5	43.7	97	87	28-130	10	20
Carbon tetrachloride	ug/L	ND	50	50	53.4	50.3	107	101	48-146	6	20
Chlorobenzene	ug/L	ND	50	50	55.8	53.5	112	107	67-129	4	20
Chloroethane	ug/L	ND	50	50	54.5	51.4	109	103	12-192	6	20
Chloroform	ug/L	ND	50	50	49.6	47.9	99	96	66-143	3	20
Chloromethane	ug/L	ND	50	50	66.4	61.9	132	123	14-155	7	20
cis-1,2-Dichloroethene	ug/L	ND	50	50	54.0	51.5	108	103	56-141	5	20
cis-1,3-Dichloropropene	ug/L	ND	50	50	49.0	47.5	98	95	70-139	3	20
Dibromochloromethane	ug/L	ND	50	50	52.8	50.9	106	102	50-150	4	20
Dichlorodifluoromethane	ug/L	ND	50	50	51.5	49.2	103	98	10-173	5	20
Ethylbenzene	ug/L	ND	50	50	58.7	56.0	117	112	57-135	5	20

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

Parameter	Units	2038904004		239353		239354		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Isopropylbenzene (Cumene)	ug/L	ND	50	50	61.0	59.2	122	118	40-146	3	20		
m&p-Xylene	ug/L	ND	100	100	114	110	114	110	56-136	4	20		
Methyl acetate	ug/L	ND	50	50	45.8	45.1	92	90	10-142	2	20		
Methyl-tert-butyl ether	ug/L	ND	50	50	45.7	45.1	91	90	35-176	1	20		
Methylene Chloride	ug/L	ND	50	50	46.9	44.5	94	89	45-166	5	20		
o-Xylene	ug/L	ND	50	50	56.2	54.5	112	109	57-133	3	20		
Styrene	ug/L	ND	50	50	57.9	55.0	116	110	58-144	5	20		
Tetrachloroethene	ug/L	ND	50	50	57.2	54.7	114	109	48-143	4	20		
Toluene	ug/L	ND	50	50	58.1	55.9	116	111	59-136	4	20		
trans-1,2-Dichloroethene	ug/L	ND	50	50	52.0	48.9	104	98	57-132	6	20		
trans-1,3-Dichloropropene	ug/L	ND	50	50	54.1	52.7	108	105	59-154	3	20		
Trichloroethene	ug/L	ND	50	50	54.3	51.6	109	103	58-140	5	20		
Trichlorofluoromethane	ug/L	ND	50	50	71.1	67.9	142	136	24-175	5	20		
Vinyl chloride	ug/L	ND	50	50	57.1	53.4	114	107	21-150	7	20		
4-Bromofluorobenzene (S)	%.						97	97	68-124				
Dibromofluoromethane (S)	%.						101	101	72-126				
Toluene-d8 (S)	%.						101	101	79-119				

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

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QC Batch: 57914 Analysis Method: EPA 8015B Modified  
 QC Batch Method: EPA 3535 Analysis Description: EPA 8015 ORO  
 Associated Lab Samples: 2038900001, 2038900003, 2038900004, 2038900005, 2038900006

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METHOD BLANK: 239292 Matrix: Water  
 Associated Lab Samples: 2038900001, 2038900003, 2038900004, 2038900005, 2038900006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	ND	0.25	07/02/16 05:43	
Oil Range Organics (>C28-C40)	mg/L	ND	0.50	07/02/16 05:43	
n-Pentacosane (S)	%	56	16-137	07/02/16 05:43	
o-Terphenyl (S)	%	64	10-121	07/02/16 05:43	

LABORATORY CONTROL SAMPLE: 239293

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	.4	ND	58	10-115	
n-Pentacosane (S)	%			63	16-137	
o-Terphenyl (S)	%			76	10-121	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

QC Batch: 58010 Analysis Method: EPA 8270 by SIM  
QC Batch Method: EPA 3510 Analysis Description: 8270 Water by SIM MSSV  
Associated Lab Samples: 2038900001, 2038900003, 2038900004, 2038900005, 2038900006

METHOD BLANK: 239696 Matrix: Water  
Associated Lab Samples: 2038900001, 2038900003, 2038900004, 2038900005, 2038900006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	07/06/16 14:39	
Anthracene	mg/L	ND	0.00010	07/06/16 14:39	
Benzo(a)anthracene	mg/L	ND	0.00010	07/06/16 14:39	
Benzo(a)pyrene	mg/L	ND	0.00010	07/06/16 14:39	
Benzo(b)fluoranthene	mg/L	ND	0.00010	07/06/16 14:39	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	07/06/16 14:39	
Benzo(k)fluoranthene	mg/L	ND	0.00010	07/06/16 14:39	
Chrysene	mg/L	ND	0.00010	07/06/16 14:39	
Fluoranthene	mg/L	ND	0.00010	07/06/16 14:39	
Fluorene	mg/L	ND	0.00010	07/06/16 14:39	
Naphthalene	mg/L	ND	0.00010	07/06/16 14:39	
Phenanthrene	mg/L	ND	0.00010	07/06/16 14:39	
Pyrene	mg/L	ND	0.00010	07/06/16 14:39	
2-Fluorobiphenyl (S)	%	68	25-150	07/06/16 14:39	
Terphenyl-d14 (S)	%	89	25-150	07/06/16 14:39	

LABORATORY CONTROL SAMPLE: 239697

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0026	65	35-150	
Anthracene	mg/L	.004	0.0032	80	35-150	
Benzo(a)anthracene	mg/L	.004	0.0031	77	35-150	
Benzo(a)pyrene	mg/L	.004	0.0032	80	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0033	83	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0033	82	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0035	88	35-150	
Chrysene	mg/L	.004	0.0033	83	35-150	
Fluoranthene	mg/L	.004	0.0034	85	35-150	
Fluorene	mg/L	.004	0.0028	70	35-150	
Naphthalene	mg/L	.004	0.0029	71	35-150	
Phenanthrene	mg/L	.004	0.0032	80	35-150	
Pyrene	mg/L	.004	0.0029	74	35-150	
2-Fluorobiphenyl (S)	%			77	25-150	
Terphenyl-d14 (S)	%			95	25-150	

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## QUALIFIERS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2038900

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The Nelac Institute

### LABORATORIES

PASI-N Pace Analytical Services - New Orleans

### BATCH QUALIFIERS

Batch: 58255

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2038900

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2038900001	EB-062816	EPA 3535	57914	EPA 8015B Modified	57950
2038900003	AD-2	EPA 3535	57914	EPA 8015B Modified	57950
2038900004	83A	EPA 3535	57914	EPA 8015B Modified	57950
2038900005	83B2	EPA 3535	57914	EPA 8015B Modified	57950
2038900006	P-118	EPA 3535	57914	EPA 8015B Modified	57950
2038900001	EB-062816	EPA 8015/8021	57919		
2038900002	TRIPBLANK	EPA 8015/8021	57919		
2038900003	AD-2	EPA 8015/8021	57919		
2038900004	83A	EPA 8015/8021	57919		
2038900005	83B2	EPA 8015/8021	57919		
2038900006	P-118	EPA 8015/8021	57919		
2038900007	FB-062816	EPA 8015/8021	57919		
2038900001	EB-062816	EPA 3010	57818	EPA 6020	57961
2038900003	AD-2	EPA 3010	57818	EPA 6020	57961
2038900004	83A	EPA 3010	57818	EPA 6020	57961
2038900005	83B2	EPA 3010	57818	EPA 6020	57961
2038900006	P-118	EPA 3010	57818	EPA 6020	57961
2038900001	EB-062816	EPA 7470	57958	EPA 7470	57973
2038900003	AD-2	EPA 7470	57958	EPA 7470	57973
2038900004	83A	EPA 7470	57958	EPA 7470	57973
2038900005	83B2	EPA 7470	57958	EPA 7470	57973
2038900006	P-118	EPA 7470	57958	EPA 7470	57973
2038900001	EB-062816	EPA 3510	58010	EPA 8270 by SIM	58255
2038900003	AD-2	EPA 3510	58010	EPA 8270 by SIM	58255
2038900004	83A	EPA 3510	58010	EPA 8270 by SIM	58255
2038900005	83B2	EPA 3510	58010	EPA 8270 by SIM	58255
2038900006	P-118	EPA 3510	58010	EPA 8270 by SIM	58255
2038900001	EB-062816	EPA 5030B/8260	57924		
2038900002	TRIPBLANK	EPA 5030B/8260	57924		
2038900003	AD-2	EPA 5030B/8260	57924		
2038900004	83A	EPA 5030B/8260	57924		
2038900005	83B2	EPA 5030B/8260	57924		
2038900006	P-118	EPA 5030B/8260	57924		
2038900007	FB-062816	EPA 5030B/8260	57924		

### REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

WO#: 2038900

Urb. Jardines de Guaynabo
Calle Marginal Blq A-10
Guaynabo, PR 00989

PM: JAR1 Due Date: 07/13/16
CLIENT: 98-ARCADISPR

Project #:

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 4 Therm Fisher IR 6 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 6-29-16 [Signature]

Temp must be measured from Temperature blank when present

Comments:

Table with 15 rows of checklist items and checkboxes. Items include: Temperature Blank Present, Chain of Custody Present, Chain of Custody Complete, Chain of Custody Relinquished, Sampler Name & Signature on COC, Samples Arrived within Hold Time, Sufficient Volume, Correct Containers Used, Filtered vol. Rec. for Diss. tests, Sample Labels match COC, All containers received within manufacture's precautionary and/or expiration dates, All containers needing chemical preservation have been checked, All containers preservation checked found to be in compliance with EPA recommendation, Headspace in VOA Vials (>6mm), Trip Blank Present.

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

Multiple horizontal lines for additional notes or comments.



# Sample Condition Upon Receipt

1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

Project #: **20**

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 5  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 6-30-16 Jmb

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present??	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
		If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15 <u>did not rec.</u>

### Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

July 29, 2016

Efrain Calderon  
BBL Caribe Engineering P.S.C.  
48 City View Plaza1, Suite 401  
Road 16, Km. 1.2  
Guaynabo, PR 00968

RE: Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039244

Dear Efrain Calderon:

Enclosed are the analytical results for sample(s) received by the laboratory on July 06, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Juan Redondo  
juan.redondo@pacelabs.com  
Project Manager

Enclosures

cc: Sharon Colon  
Abner Hernandez  
Marianela Mercado-Burgos



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

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### New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:  
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):  
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):  
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):  
T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-  
00119

Commonwealth of Virginia (TNI): 480246

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2039244001	EB-070616	Water	07/06/16 07:50	07/06/16 14:40
2039244002	TRIPBLANK	Water	07/06/16 00:00	07/06/16 14:40
2039244003	13A	Water	07/06/16 09:00	07/06/16 14:40
2039244004	13B2	Water	07/06/16 10:05	07/06/16 14:40
2039244005	84B2	Water	07/06/16 11:10	07/06/16 14:40
2039244006	48B	Water	07/06/16 12:22	07/06/16 14:40
2039244007	DUP 4	Water	07/06/16 00:00	07/06/16 14:40
2039244008	DUP 5	Water	07/06/16 00:00	07/06/16 14:40
2039244009	FB-070616	Water	07/06/16 12:25	07/06/16 14:40

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2039244001	EB-070616	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2039244002	TRIPBLANK	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2039244003	13A	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2039244004	13B2	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2039244005	84B2	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2039244006	48B	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2039244007	DUP 4	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2039244008	DUP 5	EPA 5030B/8260	MLS	47	PASI-N
		EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
2039244009	FB-070616	EPA 5030B/8260	MLS	47	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

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**Method:** EPA 8015B Modified

**Description:** 8015M DRO/ORO Organics

**Client:** BBL Caribe / Arcadis PR

**Date:** July 29, 2016

**General Information:**

7 samples were analyzed for EPA 8015B Modified. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3535 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 58589

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

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**Method:** EPA 8015/8021

**Description:** 8021 GCV BTEX, MTBE, GRO

**Client:** BBL Caribe / Arcadis PR

**Date:** July 29, 2016

**General Information:**

9 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 58419

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039244

---

**Method:** EPA 6020  
**Description:** 6020 MET ICPMS  
**Client:** BBL Caribe / Arcadis PR  
**Date:** July 29, 2016

**General Information:**

7 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

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**Method:** EPA 7470

**Description:** 7470 Mercury

**Client:** BBL Caribe / Arcadis PR

**Date:** July 29, 2016

**General Information:**

7 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

---

**Method:** EPA 8270 by SIM

**Description:** 8270 MSSV PAH by SIM SEP

**Client:** BBL Caribe / Arcadis PR

**Date:** July 29, 2016

**General Information:**

7 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 58486

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

---

**Method:** EPA 5030B/8260

**Description:** 8260 MSV Low Level

**Client:** BBL Caribe / Arcadis PR

**Date:** July 29, 2016

**General Information:**

9 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

Sample: EB-070616	Lab ID: 2039244001	Collected: 07/06/16 07:50	Received: 07/06/16 14:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/12/16 08:19	07/12/16 13:49		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/12/16 08:19	07/12/16 13:49		
<b>Surrogates</b>								
n-Pentacosane (S)	57	%	16-137	1	07/12/16 08:19	07/12/16 13:49	629-99-2	
o-Terphenyl (S)	64	%	10-121	1	07/12/16 08:19	07/12/16 13:49	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		07/08/16 17:39		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	87	%	44-148	1		07/08/16 17:39	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:07	7440-38-2	
Chromium	ND	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:07	7440-47-3	
Lead	ND	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:07	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	07/08/16 08:57	07/13/16 16:07	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	07/08/16 08:50	07/11/16 12:41	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:14	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:14	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:14	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:14	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:14	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:14	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:14	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:14	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:14	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:14	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:14	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:14	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:14	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	82	%	25-150	1	07/09/16 14:12	07/11/16 18:14	321-60-8	
Terphenyl-d14 (S)	107	%	25-150	1	07/09/16 14:12	07/11/16 18:14	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	19.1	ug/L	4.0	1		07/11/16 17:07	67-64-1	
Benzene	ND	ug/L	0.50	1		07/11/16 17:07	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/11/16 17:07	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/11/16 17:07	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/11/16 17:07	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/11/16 17:07	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/11/16 17:07	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

Sample: EB-070616	Lab ID: 2039244001	Collected: 07/06/16 07:50	Received: 07/06/16 14:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		07/11/16 17:07	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/11/16 17:07	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/11/16 17:07	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/11/16 17:07	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/11/16 17:07	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/11/16 17:07	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/11/16 17:07	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/11/16 17:07	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/11/16 17:07	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/11/16 17:07	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/11/16 17:07	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/11/16 17:07	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/11/16 17:07	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/11/16 17:07	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/11/16 17:07	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/11/16 17:07	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/11/16 17:07	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/11/16 17:07	10061-02-6	
Ethanol	ND	ug/L	500	1		07/11/16 17:07	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/11/16 17:07	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/11/16 17:07	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/11/16 17:07	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/11/16 17:07	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/11/16 17:07	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/11/16 17:07	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/11/16 17:07	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/11/16 17:07	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/11/16 17:07	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/11/16 17:07	127-18-4	
Toluene	ND	ug/L	0.50	1		07/11/16 17:07	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/11/16 17:07	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/11/16 17:07	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/11/16 17:07	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/11/16 17:07	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/11/16 17:07	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/11/16 17:07	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/11/16 17:07	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	94	%	72-126	1		07/11/16 17:07	1868-53-7	
4-Bromofluorobenzene (S)	98	%	68-124	1		07/11/16 17:07	460-00-4	
Toluene-d8 (S)	99	%	79-119	1		07/11/16 17:07	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

Sample: TRIPBLANK	Lab ID: 2039244002	Collected: 07/06/16 00:00	Received: 07/06/16 14:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		07/08/16 18:07		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	87	%	44-148	1		07/08/16 18:07	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	65.0	ug/L	4.0	1		07/11/16 17:25	67-64-1	
Benzene	ND	ug/L	0.50	1		07/11/16 17:25	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/11/16 17:25	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/11/16 17:25	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/11/16 17:25	74-83-9	
2-Butanone (MEK)	2.5	ug/L	2.0	1		07/11/16 17:25	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/11/16 17:25	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		07/11/16 17:25	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/11/16 17:25	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/11/16 17:25	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/11/16 17:25	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/11/16 17:25	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/11/16 17:25	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/11/16 17:25	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/11/16 17:25	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/11/16 17:25	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/11/16 17:25	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/11/16 17:25	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/11/16 17:25	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/11/16 17:25	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/11/16 17:25	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/11/16 17:25	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/11/16 17:25	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/11/16 17:25	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/11/16 17:25	10061-02-6	
Ethanol	ND	ug/L	500	1		07/11/16 17:25	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/11/16 17:25	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/11/16 17:25	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/11/16 17:25	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/11/16 17:25	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/11/16 17:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/11/16 17:25	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/11/16 17:25	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/11/16 17:25	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/11/16 17:25	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/11/16 17:25	127-18-4	
Toluene	ND	ug/L	0.50	1		07/11/16 17:25	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/11/16 17:25	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/11/16 17:25	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/11/16 17:25	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/11/16 17:25	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/11/16 17:25	75-01-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Sample Project No.: 2039244

Sample: TRIPBLANK		Lab ID: 2039244002		Collected: 07/06/16 00:00		Received: 07/06/16 14:40		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
m&p-Xylene	ND	ug/L	2.0	1		07/11/16 17:25	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		07/11/16 17:25	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	92	%	72-126	1		07/11/16 17:25	1868-53-7		
4-Bromofluorobenzene (S)	99	%	68-124	1		07/11/16 17:25	460-00-4		
Toluene-d8 (S)	99	%	79-119	1		07/11/16 17:25	2037-26-5		
<b>Sample: 13A</b>		Lab ID: 2039244003		Collected: 07/06/16 09:00		Received: 07/06/16 14:40		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535							
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/12/16 08:19	07/12/16 14:17			
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/12/16 08:19	07/12/16 14:17			
<b>Surrogates</b>									
n-Pentacosane (S)	64	%	16-137	1	07/12/16 08:19	07/12/16 14:17	629-99-2		
o-Terphenyl (S)	68	%	10-121	1	07/12/16 08:19	07/12/16 14:17	84-15-1		
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021							
Gasoline Range Organics	<b>1130</b>	ug/L	50.0	1		07/08/16 18:35			
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	100	%	44-148	1		07/08/16 18:35	460-00-4		
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Arsenic	<b>0.0049</b>	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:23	7440-38-2		
Chromium	ND	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:23	7440-47-3		
Lead	ND	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:23	7439-92-1		
Vanadium	ND	mg/L	0.0050	1	07/08/16 08:57	07/13/16 16:23	7440-62-2		
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	ND	ug/L	0.20	1	07/08/16 08:50	07/11/16 12:43	7439-97-6		
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510							
Naphthalene	<b>0.0036</b>	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:36	91-20-3		
Acenaphthene	<b>0.00022</b>	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:36	83-32-9		
Fluorene	<b>0.00012</b>	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:36	86-73-7		
Phenanthrene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:36	85-01-8		
Anthracene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:36	120-12-7		
Fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:36	206-44-0		
Pyrene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:36	129-00-0		
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:36	56-55-3		
Chrysene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:36	218-01-9		
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:36	205-99-2		
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:36	207-08-9		
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:36	50-32-8		

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

Sample: 13A	Lab ID: 2039244003	Collected: 07/06/16 09:00	Received: 07/06/16 14:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:36	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	84	%	25-150	1	07/09/16 14:12	07/11/16 18:36	321-60-8	
Terphenyl-d14 (S)	104	%	25-150	1	07/09/16 14:12	07/11/16 18:36	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	20.0	ug/L	4.0	1		07/11/16 16:49	67-64-1	
Benzene	1.4	ug/L	0.50	1		07/11/16 16:49	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/11/16 16:49	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/11/16 16:49	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/11/16 16:49	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/11/16 16:49	78-93-3	
tert-Butyl Alcohol	9770	ug/L	4000	20		07/12/16 15:03	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		07/11/16 16:49	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/11/16 16:49	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/11/16 16:49	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/11/16 16:49	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/11/16 16:49	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/11/16 16:49	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/11/16 16:49	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/11/16 16:49	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/11/16 16:49	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/11/16 16:49	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/11/16 16:49	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/11/16 16:49	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/11/16 16:49	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/11/16 16:49	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/11/16 16:49	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/11/16 16:49	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/11/16 16:49	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/11/16 16:49	10061-02-6	
Ethanol	ND	ug/L	500	1		07/11/16 16:49	64-17-5	
Ethylbenzene	2.6	ug/L	0.50	1		07/11/16 16:49	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/11/16 16:49	591-78-6	
Isopropylbenzene (Cumene)	2.8	ug/L	1.0	1		07/11/16 16:49	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/11/16 16:49	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/11/16 16:49	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/11/16 16:49	108-10-1	
Methyl-tert-butyl ether	20.5	ug/L	0.50	1		07/11/16 16:49	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/11/16 16:49	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/11/16 16:49	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/11/16 16:49	127-18-4	
Toluene	ND	ug/L	0.50	1		07/11/16 16:49	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/11/16 16:49	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/11/16 16:49	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/11/16 16:49	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/11/16 16:49	75-69-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Sample Project No.: 2039244

Sample: 13A	Lab ID: 2039244003	Collected: 07/06/16 09:00	Received: 07/06/16 14:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Vinyl chloride	ND	ug/L	0.50	1		07/11/16 16:49	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/11/16 16:49	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/11/16 16:49	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	100	%.	72-126	20		07/12/16 15:03	1868-53-7	
Dibromofluoromethane (S)	95	%.	72-126	1		07/11/16 16:49	1868-53-7	
4-Bromofluorobenzene (S)	100	%.	68-124	1		07/11/16 16:49	460-00-4	
4-Bromofluorobenzene (S)	96	%.	68-124	20		07/12/16 15:03	460-00-4	
Toluene-d8 (S)	93	%.	79-119	20		07/12/16 15:03	2037-26-5	
Toluene-d8 (S)	99	%.	79-119	1		07/11/16 16:49	2037-26-5	
<b>Sample: 13B2</b>		Lab ID: 2039244004 Collected: 07/06/16 10:05 Received: 07/06/16 14:40 Matrix: Water						
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535						
Diesel Range Organic (C10-C28)	<b>0.70</b>	mg/L	0.50	1	07/12/16 08:19	07/12/16 14:45		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/12/16 08:19	07/12/16 14:45		
<b>Surrogates</b>								
n-Pentacosane (S)	45	%.	16-137	1	07/12/16 08:19	07/12/16 14:45	629-99-2	
o-Terphenyl (S)	59	%.	10-121	1	07/12/16 08:19	07/12/16 14:45	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	<b>207</b>	ug/L	50.0	1		07/08/16 19:03		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	89	%.	44-148	1		07/08/16 19:03	460-00-4	
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010						
Arsenic	<b>0.0039</b>	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:27	7440-38-2	
Chromium	<b>0.0016</b>	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:27	7440-47-3	
Lead	ND	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:27	7439-92-1	
Vanadium	<b>0.0064</b>	mg/L	0.0050	1	07/08/16 08:57	07/13/16 16:27	7440-62-2	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470						
Mercury	ND	ug/L	0.20	1	07/08/16 08:50	07/11/16 12:45	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Naphthalene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:41	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:41	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:41	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:41	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:41	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:41	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:41	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:41	56-55-3	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

Sample: 13B2	Lab ID: 2039244004	Collected: 07/06/16 10:05	Received: 07/06/16 14:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Chrysene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:41	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:41	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:41	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:41	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:41	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	88	%	25-150	1	07/09/16 14:12	07/11/16 19:41	321-60-8	
Terphenyl-d14 (S)	88	%	25-150	1	07/09/16 14:12	07/11/16 19:41	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	18.3	ug/L	4.0	1		07/11/16 17:43	67-64-1	
Benzene	ND	ug/L	0.50	1		07/11/16 17:43	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/11/16 17:43	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/11/16 17:43	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/11/16 17:43	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/11/16 17:43	78-93-3	
tert-Butyl Alcohol	1850	ug/L	1000	5		07/12/16 14:28	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		07/11/16 17:43	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/11/16 17:43	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/11/16 17:43	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/11/16 17:43	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/11/16 17:43	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/11/16 17:43	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/11/16 17:43	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/11/16 17:43	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/11/16 17:43	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/11/16 17:43	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/11/16 17:43	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/11/16 17:43	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/11/16 17:43	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/11/16 17:43	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/11/16 17:43	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/11/16 17:43	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/11/16 17:43	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/11/16 17:43	10061-02-6	
Ethanol	ND	ug/L	500	1		07/11/16 17:43	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/11/16 17:43	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/11/16 17:43	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/11/16 17:43	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/11/16 17:43	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/11/16 17:43	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/11/16 17:43	108-10-1	
Methyl-tert-butyl ether	8.4	ug/L	0.50	1		07/11/16 17:43	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/11/16 17:43	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/11/16 17:43	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/11/16 17:43	127-18-4	
Toluene	ND	ug/L	0.50	1		07/11/16 17:43	108-88-3	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Sample Project No.: 2039244

Sample: 13B2	Lab ID: 2039244004	Collected: 07/06/16 10:05	Received: 07/06/16 14:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/11/16 17:43	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/11/16 17:43	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/11/16 17:43	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/11/16 17:43	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/11/16 17:43	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/11/16 17:43	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/11/16 17:43	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	90	%	72-126	1		07/11/16 17:43	1868-53-7	
Dibromofluoromethane (S)	99	%	72-126	5		07/12/16 14:28	1868-53-7	
4-Bromofluorobenzene (S)	97	%	68-124	5		07/12/16 14:28	460-00-4	
4-Bromofluorobenzene (S)	97	%	68-124	1		07/11/16 17:43	460-00-4	
Toluene-d8 (S)	94	%	79-119	5		07/12/16 14:28	2037-26-5	
Toluene-d8 (S)	99	%	79-119	1		07/11/16 17:43	2037-26-5	
<b>Sample: 84B2</b>		Lab ID: 2039244005 Collected: 07/06/16 11:10 Received: 07/06/16 14:40 Matrix: Water						
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535						
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/12/16 08:19	07/12/16 15:13		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/12/16 08:19	07/12/16 15:13		
<b>Surrogates</b>								
n-Pentacosane (S)	27	%	16-137	1	07/12/16 08:19	07/12/16 15:13	629-99-2	
o-Terphenyl (S)	61	%	10-121	1	07/12/16 08:19	07/12/16 15:13	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		07/08/16 19:31		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	89	%	44-148	1		07/08/16 19:31	460-00-4	
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010						
Arsenic	<b>0.018</b>	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:38	7440-38-2	
Chromium	<b>0.024</b>	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:38	7440-47-3	
Lead	<b>0.0067</b>	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:38	7439-92-1	
Vanadium	<b>0.057</b>	mg/L	0.0050	1	07/08/16 08:57	07/13/16 16:38	7440-62-2	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470						
Mercury	<b>0.20</b>	ug/L	0.20	1	07/08/16 08:50	07/11/16 12:51	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Naphthalene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:58	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:58	83-32-9	
Fluorene	<b>0.00016</b>	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:58	86-73-7	
Phenanthrene	<b>0.00017</b>	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:58	85-01-8	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

Sample: 84B2	Lab ID: 2039244005	Collected: 07/06/16 11:10	Received: 07/06/16 14:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Anthracene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:58	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:58	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:58	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:58	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:58	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:58	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:58	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:58	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 18:58	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	64	%	25-150	1	07/09/16 14:12	07/11/16 18:58	321-60-8	
Terphenyl-d14 (S)	68	%	25-150	1	07/09/16 14:12	07/11/16 18:58	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	16.3	ug/L	4.0	1		07/11/16 18:01	67-64-1	
Benzene	ND	ug/L	0.50	1		07/11/16 18:01	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/11/16 18:01	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/11/16 18:01	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/11/16 18:01	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/11/16 18:01	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/11/16 18:01	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		07/11/16 18:01	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/11/16 18:01	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/11/16 18:01	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/11/16 18:01	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/11/16 18:01	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/11/16 18:01	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/11/16 18:01	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/11/16 18:01	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/11/16 18:01	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/11/16 18:01	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/11/16 18:01	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/11/16 18:01	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/11/16 18:01	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/11/16 18:01	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/11/16 18:01	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/11/16 18:01	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/11/16 18:01	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/11/16 18:01	10061-02-6	
Ethanol	ND	ug/L	500	1		07/11/16 18:01	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/11/16 18:01	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/11/16 18:01	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/11/16 18:01	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/11/16 18:01	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/11/16 18:01	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/11/16 18:01	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/11/16 18:01	1634-04-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

Sample: 84B2	Lab ID: 2039244005	Collected: 07/06/16 11:10	Received: 07/06/16 14:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Styrene	ND	ug/L	1.0	1		07/11/16 18:01	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/11/16 18:01	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/11/16 18:01	127-18-4	
Toluene	ND	ug/L	0.50	1		07/11/16 18:01	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/11/16 18:01	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/11/16 18:01	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/11/16 18:01	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/11/16 18:01	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/11/16 18:01	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/11/16 18:01	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/11/16 18:01	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	91	%	72-126	1		07/11/16 18:01	1868-53-7	
4-Bromofluorobenzene (S)	98	%	68-124	1		07/11/16 18:01	460-00-4	
Toluene-d8 (S)	99	%	79-119	1		07/11/16 18:01	2037-26-5	
<b>Sample: 48B</b>		Lab ID: 2039244006		Collected: 07/06/16 12:22	Received: 07/06/16 14:40	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535						
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/12/16 08:19	07/12/16 15:42		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/12/16 08:19	07/12/16 15:42		
<b>Surrogates</b>								
n-Pentacosane (S)	17	%	16-137	1	07/12/16 08:19	07/12/16 15:42	629-99-2	
o-Terphenyl (S)	58	%	10-121	1	07/12/16 08:19	07/12/16 15:42	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	50.2	ug/L	50.0	1		07/08/16 19:59		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	87	%	44-148	1		07/08/16 19:59	460-00-4	
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010						
Arsenic	0.0040	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:42	7440-38-2	
Chromium	0.015	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:42	7440-47-3	
Lead	0.033	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:42	7439-92-1	
Vanadium	0.037	mg/L	0.0050	1	07/08/16 08:57	07/13/16 16:42	7440-62-2	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470						
Mercury	ND	ug/L	0.20	1	07/08/16 08:50	07/11/16 12:53	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Naphthalene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:02	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:02	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:02	86-73-7	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

Sample: 48B	Lab ID: 2039244006	Collected: 07/06/16 12:22	Received: 07/06/16 14:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Phenanthrene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:02	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:02	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:02	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:02	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:02	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:02	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:02	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:02	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:02	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:02	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	77	%.	25-150	1	07/09/16 14:12	07/11/16 20:02	321-60-8	
Terphenyl-d14 (S)	82	%.	25-150	1	07/09/16 14:12	07/11/16 20:02	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	20.0	ug/L	4.0	1		07/11/16 18:18	67-64-1	
Benzene	ND	ug/L	0.50	1		07/11/16 18:18	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/11/16 18:18	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/11/16 18:18	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/11/16 18:18	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/11/16 18:18	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/11/16 18:18	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		07/11/16 18:18	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/11/16 18:18	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/11/16 18:18	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/11/16 18:18	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/11/16 18:18	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/11/16 18:18	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/11/16 18:18	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/11/16 18:18	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/11/16 18:18	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/11/16 18:18	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/11/16 18:18	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/11/16 18:18	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/11/16 18:18	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/11/16 18:18	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/11/16 18:18	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/11/16 18:18	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/11/16 18:18	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/11/16 18:18	10061-02-6	
Ethanol	ND	ug/L	500	1		07/11/16 18:18	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/11/16 18:18	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/11/16 18:18	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/11/16 18:18	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/11/16 18:18	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/11/16 18:18	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/11/16 18:18	108-10-1	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

Sample: 48B	Lab ID: 2039244006	Collected: 07/06/16 12:22	Received: 07/06/16 14:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/11/16 18:18	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/11/16 18:18	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/11/16 18:18	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/11/16 18:18	127-18-4	
Toluene	ND	ug/L	0.50	1		07/11/16 18:18	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/11/16 18:18	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/11/16 18:18	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/11/16 18:18	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/11/16 18:18	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/11/16 18:18	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/11/16 18:18	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/11/16 18:18	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	90	%.	72-126	1		07/11/16 18:18	1868-53-7	
4-Bromofluorobenzene (S)	96	%.	68-124	1		07/11/16 18:18	460-00-4	
Toluene-d8 (S)	99	%.	79-119	1		07/11/16 18:18	2037-26-5	
<b>Sample: DUP 4</b>		Lab ID: 2039244007		Collected: 07/06/16 00:00	Received: 07/06/16 14:40	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535						
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/12/16 08:19	07/12/16 16:10		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/12/16 08:19	07/12/16 16:10		
<b>Surrogates</b>								
n-Pentacosane (S)	58	%.	16-137	1	07/12/16 08:19	07/12/16 16:10	629-99-2	
o-Terphenyl (S)	63	%.	10-121	1	07/12/16 08:19	07/12/16 16:10	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	<b>160</b>	ug/L	50.0	1		07/08/16 20:27		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	84	%.	44-148	1		07/08/16 20:27	460-00-4	
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010						
Arsenic	<b>0.0040</b>	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:46	7440-38-2	
Chromium	<b>0.0015</b>	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:46	7440-47-3	
Lead	ND	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:46	7439-92-1	
Vanadium	<b>0.0071</b>	mg/L	0.0050	1	07/08/16 08:57	07/13/16 16:46	7440-62-2	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470						
Mercury	ND	ug/L	0.20	1	07/08/16 08:50	07/11/16 12:55	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Naphthalene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:23	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:23	83-32-9	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

**Sample: DUP 4**      **Lab ID: 2039244007**      Collected: 07/06/16 00:00      Received: 07/06/16 14:40      Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
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**8270 MSSV PAH by SIM SEP**

Analytical Method: EPA 8270 by SIM      Preparation Method: EPA 3510

Fluorene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:23	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:23	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:23	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:23	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:23	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:23	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:23	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:23	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:23	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:23	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 20:23	191-24-2	

**Surrogates**

2-Fluorobiphenyl (S)	96	%	25-150	1	07/09/16 14:12	07/11/16 20:23	321-60-8	
Terphenyl-d14 (S)	96	%	25-150	1	07/09/16 14:12	07/11/16 20:23	1718-51-0	

**8260 MSV Low Level**

Analytical Method: EPA 5030B/8260

Acetone	<b>15.5</b>	ug/L	4.0	1		07/11/16 18:36	67-64-1	
Benzene	ND	ug/L	0.50	1		07/11/16 18:36	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/11/16 18:36	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/11/16 18:36	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/11/16 18:36	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/11/16 18:36	78-93-3	
tert-Butyl Alcohol	<b>1890</b>	ug/L	1000	5		07/12/16 14:45	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		07/11/16 18:36	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/11/16 18:36	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/11/16 18:36	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/11/16 18:36	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/11/16 18:36	67-66-3	
Chloromethane	<b>0.65</b>	ug/L	0.50	1		07/11/16 18:36	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/11/16 18:36	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/11/16 18:36	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/11/16 18:36	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/11/16 18:36	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/11/16 18:36	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/11/16 18:36	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/11/16 18:36	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/11/16 18:36	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/11/16 18:36	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/11/16 18:36	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/11/16 18:36	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/11/16 18:36	10061-02-6	
Ethanol	ND	ug/L	500	1		07/11/16 18:36	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/11/16 18:36	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/11/16 18:36	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/11/16 18:36	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/11/16 18:36	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/11/16 18:36	75-09-2	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Project No.: 2039244

Sample: DUP 4		Lab ID: 2039244007		Collected: 07/06/16 00:00		Received: 07/06/16 14:40		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/11/16 18:36	108-10-1		
Methyl-tert-butyl ether	8.0	ug/L	0.50	1		07/11/16 18:36	1634-04-4		
Styrene	ND	ug/L	1.0	1		07/11/16 18:36	100-42-5		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/11/16 18:36	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		07/11/16 18:36	127-18-4		
Toluene	ND	ug/L	0.50	1		07/11/16 18:36	108-88-3		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/11/16 18:36	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/11/16 18:36	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		07/11/16 18:36	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		07/11/16 18:36	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		07/11/16 18:36	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		07/11/16 18:36	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		07/11/16 18:36	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	101	%.	72-126	5		07/12/16 14:45	1868-53-7		
Dibromofluoromethane (S)	88	%.	72-126	1		07/11/16 18:36	1868-53-7		
4-Bromofluorobenzene (S)	96	%.	68-124	5		07/12/16 14:45	460-00-4		
4-Bromofluorobenzene (S)	96	%.	68-124	1		07/11/16 18:36	460-00-4		
Toluene-d8 (S)	99	%.	79-119	1		07/11/16 18:36	2037-26-5		
Toluene-d8 (S)	93	%.	79-119	5		07/12/16 14:45	2037-26-5		

Sample: DUP 5		Lab ID: 2039244008		Collected: 07/06/16 00:00		Received: 07/06/16 14:40		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535							
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/12/16 08:19	07/12/16 16:39			
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/12/16 08:19	07/12/16 16:39			
<b>Surrogates</b>									
n-Pentacosane (S)	18	%.	16-137	1	07/12/16 08:19	07/12/16 16:39	629-99-2		
o-Terphenyl (S)	42	%.	10-121	1	07/12/16 08:19	07/12/16 16:39	84-15-1		
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		07/08/16 20:55			
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	85	%.	44-148	1		07/08/16 20:55	460-00-4		
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Arsenic	0.0040	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:50	7440-38-2		
Chromium	0.019	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:50	7440-47-3		
Lead	0.047	mg/L	0.0010	1	07/08/16 08:57	07/13/16 16:50	7439-92-1		
Vanadium	0.047	mg/L	0.0050	1	07/08/16 08:57	07/13/16 16:50	7440-62-2		
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	ND	ug/L	0.20	1	07/08/16 08:50	07/11/16 12:57	7439-97-6		

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

Sample: DUP 5	Lab ID: 2039244008	Collected: 07/06/16 00:00	Received: 07/06/16 14:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Naphthalene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:19	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:19	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:19	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:19	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:19	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:19	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:19	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:19	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:19	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:19	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:19	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:19	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/09/16 14:12	07/11/16 19:19	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	89	%.	25-150	1	07/09/16 14:12	07/11/16 19:19	321-60-8	
Terphenyl-d14 (S)	101	%.	25-150	1	07/09/16 14:12	07/11/16 19:19	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	14.0	ug/L	4.0	1		07/11/16 18:54	67-64-1	
Benzene	ND	ug/L	0.50	1		07/11/16 18:54	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/11/16 18:54	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/11/16 18:54	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/11/16 18:54	74-83-9	
2-Butanone (MEK)	3.3	ug/L	2.0	1		07/11/16 18:54	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/11/16 18:54	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		07/11/16 18:54	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/11/16 18:54	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/11/16 18:54	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/11/16 18:54	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/11/16 18:54	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/11/16 18:54	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/11/16 18:54	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/11/16 18:54	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/11/16 18:54	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/11/16 18:54	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/11/16 18:54	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/11/16 18:54	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/11/16 18:54	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/11/16 18:54	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/11/16 18:54	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/11/16 18:54	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/11/16 18:54	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/11/16 18:54	10061-02-6	
Ethanol	ND	ug/L	500	1		07/11/16 18:54	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/11/16 18:54	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/11/16 18:54	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/11/16 18:54	98-82-8	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

Sample: DUP 5		Lab ID: 2039244008		Collected: 07/06/16 00:00	Received: 07/06/16 14:40	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Methyl acetate	ND	ug/L	2.0	1		07/11/16 18:54	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/11/16 18:54	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/11/16 18:54	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/11/16 18:54	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/11/16 18:54	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/11/16 18:54	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/11/16 18:54	127-18-4	
Toluene	ND	ug/L	0.50	1		07/11/16 18:54	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/11/16 18:54	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/11/16 18:54	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/11/16 18:54	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/11/16 18:54	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/11/16 18:54	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/11/16 18:54	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/11/16 18:54	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	89	%.	72-126	1		07/11/16 18:54	1868-53-7	
4-Bromofluorobenzene (S)	97	%.	68-124	1		07/11/16 18:54	460-00-4	
Toluene-d8 (S)	99	%.	79-119	1		07/11/16 18:54	2037-26-5	

Sample: FB-070616		Lab ID: 2039244009		Collected: 07/06/16 12:25	Received: 07/06/16 14:40	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		07/08/16 21:23		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	87	%.	44-148	1		07/08/16 21:23	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	<b>15.9</b>	ug/L	4.0	1		07/11/16 19:12	67-64-1	
Benzene	ND	ug/L	0.50	1		07/11/16 19:12	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/11/16 19:12	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/11/16 19:12	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/11/16 19:12	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/11/16 19:12	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/11/16 19:12	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		07/11/16 19:12	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/11/16 19:12	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/11/16 19:12	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/11/16 19:12	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/11/16 19:12	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/11/16 19:12	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/11/16 19:12	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/11/16 19:12	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/11/16 19:12	106-93-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

Sample: <b>FB-070616</b>	Lab ID: <b>2039244009</b>	Collected: 07/06/16 12:25	Received: 07/06/16 14:40	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/11/16 19:12	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/11/16 19:12	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/11/16 19:12	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/11/16 19:12	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/11/16 19:12	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/11/16 19:12	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/11/16 19:12	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/11/16 19:12	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/11/16 19:12	10061-02-6	
Ethanol	ND	ug/L	500	1		07/11/16 19:12	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/11/16 19:12	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/11/16 19:12	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/11/16 19:12	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/11/16 19:12	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/11/16 19:12	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/11/16 19:12	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/11/16 19:12	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/11/16 19:12	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/11/16 19:12	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/11/16 19:12	127-18-4	
Toluene	ND	ug/L	0.50	1		07/11/16 19:12	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/11/16 19:12	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/11/16 19:12	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/11/16 19:12	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/11/16 19:12	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/11/16 19:12	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/11/16 19:12	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/11/16 19:12	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	89	%.	72-126	1		07/11/16 19:12	1868-53-7	
4-Bromofluorobenzene (S)	99	%.	68-124	1		07/11/16 19:12	460-00-4	
Toluene-d8 (S)	98	%.	79-119	1		07/11/16 19:12	2037-26-5	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

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QC Batch: 58419 Analysis Method: EPA 8015/8021  
 QC Batch Method: EPA 8015/8021 Analysis Description: 8021 W GCV BTEX , MTBE, GRO  
 Associated Lab Samples: 2039244001, 2039244002, 2039244003, 2039244004, 2039244005, 2039244006, 2039244007, 2039244008, 2039244009

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METHOD BLANK: 241329 Matrix: Water  
 Associated Lab Samples: 2039244001, 2039244002, 2039244003, 2039244004, 2039244005, 2039244006, 2039244007, 2039244008, 2039244009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	07/08/16 15:19	
4-Bromofluorobenzene (S)	%.	86	44-148	07/08/16 15:19	

LABORATORY CONTROL SAMPLE: 241330

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	415	83	61-136	
4-Bromofluorobenzene (S)	%.			88	44-148	
4-Bromofluorobenzene (S)	%.			89	44-148	

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039244

QC Batch: 58392 Analysis Method: EPA 7470  
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
Associated Lab Samples: 2039244001, 2039244003, 2039244004, 2039244005, 2039244006, 2039244007, 2039244008

METHOD BLANK: 241221 Matrix: Water  
Associated Lab Samples: 2039244001, 2039244003, 2039244004, 2039244005, 2039244006, 2039244007, 2039244008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	07/11/16 12:18	

LABORATORY CONTROL SAMPLE: 241222

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	1.0	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 241223 241224

Parameter	Units	2039155001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	1	1	1.1	1.1	106	107	75-125	1	20	

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039244

QC Batch: 58397 Analysis Method: EPA 6020  
QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
Associated Lab Samples: 2039244001, 2039244003, 2039244004, 2039244005, 2039244006, 2039244007, 2039244008

METHOD BLANK: 241238 Matrix: Water  
Associated Lab Samples: 2039244001, 2039244003, 2039244004, 2039244005, 2039244006, 2039244007, 2039244008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	07/13/16 14:19	
Chromium	mg/L	ND	0.0010	07/13/16 14:19	
Lead	mg/L	ND	0.0010	07/13/16 14:19	
Vanadium	mg/L	ND	0.0050	07/13/16 14:19	

LABORATORY CONTROL SAMPLE: 241239

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.02	0.020	99	83-115	
Chromium	mg/L	.02	0.020	101	85-115	
Lead	mg/L	.02	0.020	98	84-115	
Vanadium	mg/L	.02	0.020	101	81-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 241240 241241

Parameter	Units	2039244001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result						
Arsenic	mg/L	ND	.02	.02	0.020	0.020	101	102	80-120	1	20	
Chromium	mg/L	ND	.02	.02	0.020	0.021	101	103	80-120	2	20	
Lead	mg/L	ND	.02	.02	0.020	0.020	99	100	80-120	1	20	
Vanadium	mg/L	ND	.02	.02	0.020	0.021	101	103	80-120	2	20	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

QC Batch: 58567 Analysis Method: EPA 5030B/8260

QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Low Level

Associated Lab Samples: 2039244001, 2039244002, 2039244003, 2039244004, 2039244005, 2039244006, 2039244007, 2039244008, 2039244009

METHOD BLANK: 241857 Matrix: Water

Associated Lab Samples: 2039244001, 2039244002, 2039244003, 2039244004, 2039244005, 2039244006, 2039244007, 2039244008, 2039244009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	07/11/16 15:21	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	07/11/16 15:21	
1,1,2-Trichloroethane	ug/L	ND	0.50	07/11/16 15:21	
1,1-Dichloroethane	ug/L	ND	0.50	07/11/16 15:21	
1,1-Dichloroethene	ug/L	ND	0.50	07/11/16 15:21	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	07/11/16 15:21	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	07/11/16 15:21	
1,2-Dichloroethane	ug/L	ND	0.50	07/11/16 15:21	
1,2-Dichloropropane	ug/L	ND	0.50	07/11/16 15:21	
2-Butanone (MEK)	ug/L	ND	2.0	07/11/16 15:21	
2-Hexanone	ug/L	ND	1.0	07/11/16 15:21	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	07/11/16 15:21	
Acetone	ug/L	ND	4.0	07/11/16 15:21	
Benzene	ug/L	ND	0.50	07/11/16 15:21	
Bromodichloromethane	ug/L	ND	0.50	07/11/16 15:21	
Bromoform	ug/L	ND	0.50	07/11/16 15:21	
Bromomethane	ug/L	ND	0.50	07/11/16 15:21	
Carbon disulfide	ug/L	ND	1.0	07/11/16 15:21	
Carbon tetrachloride	ug/L	ND	0.50	07/11/16 15:21	
Chlorobenzene	ug/L	ND	0.50	07/11/16 15:21	
Chloroethane	ug/L	ND	0.50	07/11/16 15:21	
Chloroform	ug/L	ND	0.50	07/11/16 15:21	
Chloromethane	ug/L	ND	0.50	07/11/16 15:21	
cis-1,2-Dichloroethene	ug/L	ND	1.0	07/11/16 15:21	
cis-1,3-Dichloropropene	ug/L	ND	0.50	07/11/16 15:21	
Dibromochloromethane	ug/L	ND	0.50	07/11/16 15:21	
Dichlorodifluoromethane	ug/L	ND	1.0	07/11/16 15:21	
Ethanol	ug/L	ND	500	07/11/16 15:21	
Ethylbenzene	ug/L	ND	0.50	07/11/16 15:21	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	07/11/16 15:21	
m&p-Xylene	ug/L	ND	2.0	07/11/16 15:21	
Methyl acetate	ug/L	ND	2.0	07/11/16 15:21	
Methyl-tert-butyl ether	ug/L	ND	0.50	07/11/16 15:21	
Methylene Chloride	ug/L	ND	0.50	07/11/16 15:21	
o-Xylene	ug/L	ND	1.0	07/11/16 15:21	
Styrene	ug/L	ND	1.0	07/11/16 15:21	
tert-Butyl Alcohol	ug/L	ND	200	07/11/16 15:21	
Tetrachloroethene	ug/L	ND	0.50	07/11/16 15:21	
Toluene	ug/L	ND	0.50	07/11/16 15:21	
trans-1,2-Dichloroethene	ug/L	ND	0.50	07/11/16 15:21	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

METHOD BLANK: 241857

Matrix: Water

Associated Lab Samples: 2039244001, 2039244002, 2039244003, 2039244004, 2039244005, 2039244006, 2039244007, 2039244008, 2039244009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
trans-1,3-Dichloropropene	ug/L	ND	0.50	07/11/16 15:21	
Trichloroethene	ug/L	ND	0.50	07/11/16 15:21	
Trichlorofluoromethane	ug/L	ND	0.50	07/11/16 15:21	
Vinyl chloride	ug/L	ND	0.50	07/11/16 15:21	
4-Bromofluorobenzene (S)	%	98	68-124	07/11/16 15:21	
Dibromofluoromethane (S)	%	95	72-126	07/11/16 15:21	
Toluene-d8 (S)	%	99	79-119	07/11/16 15:21	

METHOD BLANK: 242140

Matrix: Water

Associated Lab Samples: 2039244001, 2039244002, 2039244003, 2039244004, 2039244005, 2039244006, 2039244007, 2039244008, 2039244009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	07/12/16 13:52	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	07/12/16 13:52	
1,1,2-Trichloroethane	ug/L	ND	0.50	07/12/16 13:52	
1,1-Dichloroethane	ug/L	ND	0.50	07/12/16 13:52	
1,1-Dichloroethene	ug/L	ND	0.50	07/12/16 13:52	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	07/12/16 13:52	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	07/12/16 13:52	
1,2-Dichloroethane	ug/L	ND	0.50	07/12/16 13:52	
1,2-Dichloropropane	ug/L	ND	0.50	07/12/16 13:52	
2-Butanone (MEK)	ug/L	ND	2.0	07/12/16 13:52	
2-Hexanone	ug/L	ND	1.0	07/12/16 13:52	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	07/12/16 13:52	
Acetone	ug/L	ND	4.0	07/12/16 13:52	
Benzene	ug/L	ND	0.50	07/12/16 13:52	
Bromodichloromethane	ug/L	ND	0.50	07/12/16 13:52	
Bromoform	ug/L	ND	0.50	07/12/16 13:52	
Bromomethane	ug/L	ND	0.50	07/12/16 13:52	
Carbon disulfide	ug/L	ND	1.0	07/12/16 13:52	
Carbon tetrachloride	ug/L	ND	0.50	07/12/16 13:52	
Chlorobenzene	ug/L	ND	0.50	07/12/16 13:52	
Chloroethane	ug/L	ND	0.50	07/12/16 13:52	
Chloroform	ug/L	ND	0.50	07/12/16 13:52	
Chloromethane	ug/L	ND	0.50	07/12/16 13:52	
cis-1,2-Dichloroethene	ug/L	ND	1.0	07/12/16 13:52	
cis-1,3-Dichloropropene	ug/L	ND	0.50	07/12/16 13:52	
Dibromochloromethane	ug/L	ND	0.50	07/12/16 13:52	
Dichlorodifluoromethane	ug/L	ND	1.0	07/12/16 13:52	
Ethanol	ug/L	ND	500	07/12/16 13:52	
Ethylbenzene	ug/L	ND	0.50	07/12/16 13:52	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	07/12/16 13:52	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

METHOD BLANK: 242140

Matrix: Water

Associated Lab Samples: 2039244001, 2039244002, 2039244003, 2039244004, 2039244005, 2039244006, 2039244007, 2039244008, 2039244009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
m&p-Xylene	ug/L	ND	2.0	07/12/16 13:52	
Methyl acetate	ug/L	ND	2.0	07/12/16 13:52	
Methyl-tert-butyl ether	ug/L	ND	0.50	07/12/16 13:52	
Methylene Chloride	ug/L	ND	0.50	07/12/16 13:52	
o-Xylene	ug/L	ND	1.0	07/12/16 13:52	
Styrene	ug/L	ND	1.0	07/12/16 13:52	
tert-Butyl Alcohol	ug/L	ND	200	07/12/16 13:52	
Tetrachloroethene	ug/L	ND	0.50	07/12/16 13:52	
Toluene	ug/L	ND	0.50	07/12/16 13:52	
trans-1,2-Dichloroethene	ug/L	ND	0.50	07/12/16 13:52	
trans-1,3-Dichloropropene	ug/L	ND	0.50	07/12/16 13:52	
Trichloroethene	ug/L	ND	0.50	07/12/16 13:52	
Trichlorofluoromethane	ug/L	ND	0.50	07/12/16 13:52	
Vinyl chloride	ug/L	ND	0.50	07/12/16 13:52	
4-Bromofluorobenzene (S)	%	95	68-124	07/12/16 13:52	
Dibromofluoromethane (S)	%	99	72-126	07/12/16 13:52	
Toluene-d8 (S)	%	93	79-119	07/12/16 13:52	

LABORATORY CONTROL SAMPLE: 241858

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	56.4	113	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	43.0	86	15-179	
1,1,2-Trichloroethane	ug/L	50	50.1	100	58-144	
1,1-Dichloroethane	ug/L	50	46.6	93	63-129	
1,1-Dichloroethene	ug/L	50	44.9	90	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	47.0	94	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	54.6	109	52-161	
1,2-Dichloroethane	ug/L	50	49.5	99	57-148	
1,2-Dichloropropane	ug/L	50	47.3	95	66-128	
2-Butanone (MEK)	ug/L	50	51.8	104	32-183	
2-Hexanone	ug/L	50	53.6	107	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	51.5	103	26-171	
Acetone	ug/L	50	53.8	108	22-165	
Benzene	ug/L	50	50.4	101	62-131	
Bromodichloromethane	ug/L	50	49.6	99	69-132	
Bromoform	ug/L	50	48.1	96	35-166	
Bromomethane	ug/L	50	53.8	108	34-158	
Carbon disulfide	ug/L	50	41.4	83	31-128	
Carbon tetrachloride	ug/L	50	53.0	106	54-144	
Chlorobenzene	ug/L	50	50.3	101	70-127	
Chloroethane	ug/L	50	50.2	100	17-195	
Chloroform	ug/L	50	50.0	100	73-134	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

LABORATORY CONTROL SAMPLE: 241858

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloromethane	ug/L	50	50.8	102	17-153	
cis-1,2-Dichloroethene	ug/L	50	51.3	103	68-129	
cis-1,3-Dichloropropene	ug/L	50	49.6	99	72-138	
Dibromochloromethane	ug/L	50	46.5	93	49-146	
Dichlorodifluoromethane	ug/L	50	43.1	86	10-179	
Ethylbenzene	ug/L	50	49.2	98	66-126	
Isopropylbenzene (Cumene)	ug/L	50	47.0	94	51-138	
m&p-Xylene	ug/L	100	99.9	100	65-129	
Methyl acetate	ug/L	50	49.4	99	20-142	
Methyl-tert-butyl ether	ug/L	50	50.3	101	37-166	
Methylene Chloride	ug/L	50	47.6	95	46-168	
o-Xylene	ug/L	50	49.6	99	65-124	
Styrene	ug/L	50	50.2	100	72-133	
Tetrachloroethene	ug/L	50	49.7	99	46-157	
Toluene	ug/L	50	52.8	106	69-126	
trans-1,2-Dichloroethene	ug/L	50	48.2	96	60-129	
trans-1,3-Dichloropropene	ug/L	50	52.8	106	59-149	
Trichloroethene	ug/L	50	51.1	102	67-132	
Trichlorofluoromethane	ug/L	50	59.9	120	39-171	
Vinyl chloride	ug/L	50	44.1	88	27-149	
4-Bromofluorobenzene (S)	%			100	68-124	
Dibromofluoromethane (S)	%			103	72-126	
Toluene-d8 (S)	%			101	79-119	

LABORATORY CONTROL SAMPLE: 242141

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	50.6	101	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	45.3	91	15-179	
1,1,2-Trichloroethane	ug/L	50	44.5	89	58-144	
1,1-Dichloroethane	ug/L	50	52.8	106	63-129	
1,1-Dichloroethene	ug/L	50	40.3	81	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	44.8	90	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	48.2	96	52-161	
1,2-Dichloroethane	ug/L	50	43.0	86	57-148	
1,2-Dichloropropane	ug/L	50	51.8	104	66-128	
2-Butanone (MEK)	ug/L	50	59.3	119	32-183	
2-Hexanone	ug/L	50	62.3	125	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	59.3	119	26-171	
Acetone	ug/L	50	55.4	111	22-165	
Benzene	ug/L	50	44.6	89	62-131	
Bromodichloromethane	ug/L	50	44.2	88	69-132	
Bromoform	ug/L	50	45.5	91	35-166	
Bromomethane	ug/L	50	47.0	94	34-158	
Carbon disulfide	ug/L	50	37.8	76	31-128	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039244

LABORATORY CONTROL SAMPLE: 242141

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbon tetrachloride	ug/L	50	44.4	89	54-144	
Chlorobenzene	ug/L	50	49.8	100	70-127	
Chloroethane	ug/L	50	44.6	89	17-195	
Chloroform	ug/L	50	47.0	94	73-134	
Chloromethane	ug/L	50	59.4	119	17-153	
cis-1,2-Dichloroethene	ug/L	50	49.1	98	68-129	
cis-1,3-Dichloropropene	ug/L	50	45.7	91	72-138	
Dibromochloromethane	ug/L	50	46.1	92	49-146	
Dichlorodifluoromethane	ug/L	50	38.0	76	10-179	
Ethylbenzene	ug/L	50	49.1	98	66-126	
Isopropylbenzene (Cumene)	ug/L	50	46.5	93	51-138	
m&p-Xylene	ug/L	100	96.4	96	65-129	
Methyl acetate	ug/L	50	49.7	99	20-142	
Methyl-tert-butyl ether	ug/L	50	48.0	96	37-166	
Methylene Chloride	ug/L	50	48.2	96	46-168	
o-Xylene	ug/L	50	47.6	95	65-124	
Styrene	ug/L	50	48.5	97	72-133	
Tetrachloroethene	ug/L	50	45.8	92	46-157	
Toluene	ug/L	50	48.1	96	69-126	
trans-1,2-Dichloroethene	ug/L	50	47.2	94	60-129	
trans-1,3-Dichloropropene	ug/L	50	45.4	91	59-149	
Trichloroethene	ug/L	50	47.8	96	67-132	
Trichlorofluoromethane	ug/L	50	52.0	104	39-171	
Vinyl chloride	ug/L	50	46.7	93	27-149	
4-Bromofluorobenzene (S)	%			99	68-124	
Dibromofluoromethane (S)	%			108	72-126	
Toluene-d8 (S)	%			90	79-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 241859 241860

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual	
		2039244003 Result	Spike Conc.	Spike Conc.	MS Result						MSD Result
1,1,1-Trichloroethane	ug/L	ND	50	50	59.4	58.5	119	117	54-137	2	20
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	46.1	45.2	92	90	15-187	2	20
1,1,2-Trichloroethane	ug/L	ND	50	50	53.4	52.1	107	104	59-148	2	20
1,1-Dichloroethane	ug/L	ND	50	50	48.9	46.1	98	92	59-133	6	20
1,1-Dichloroethene	ug/L	ND	50	50	48.7	45.2	97	90	44-146	7	20
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	50.2	48.4	100	97	23-166	4	20
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	56.9	55.1	114	110	55-166	3	20
1,2-Dichloroethane	ug/L	ND	50	50	53.9	51.9	108	104	56-154	4	20
1,2-Dichloropropane	ug/L	ND	50	50	50.4	47.8	101	96	62-135	5	20
2-Butanone (MEK)	ug/L	ND	50	50	58.2	56.6	116	113	20-205	3	20
2-Hexanone	ug/L	ND	50	50	55.0	55.4	110	111	25-189	1	20
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	50	52.6	50.3	105	101	23-184	4	20

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

Parameter	Units	2039244003		241859		241860		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Acetone	ug/L	20.0	50	50	70.7	72.6	102	105	11-217	3	20		
Benzene	ug/L	1.4	50	50	56.6	53.7	110	105	52-141	5	20		
Bromodichloromethane	ug/L	ND	50	50	54.0	51.3	108	103	70-134	5	20		
Bromoform	ug/L	ND	50	50	51.7	51.1	103	102	37-171	1	20		
Bromomethane	ug/L	ND	50	50	56.2	53.6	112	107	34-155	5	20		
Carbon disulfide	ug/L	ND	50	50	49.4	44.5	98	89	28-130	10	20		
Carbon tetrachloride	ug/L	ND	50	50	54.2	51.7	108	103	48-146	5	20		
Chlorobenzene	ug/L	ND	50	50	54.0	52.8	108	106	67-129	2	20		
Chloroethane	ug/L	ND	50	50	55.7	52.2	111	104	12-192	7	20		
Chloroform	ug/L	ND	50	50	52.5	50.3	105	101	66-143	4	20		
Chloromethane	ug/L	ND	50	50	48.1	44.0	95	87	14-155	9	20		
cis-1,2-Dichloroethene	ug/L	ND	50	50	54.3	51.9	109	104	56-141	5	20		
cis-1,3-Dichloropropene	ug/L	ND	50	50	53.8	51.9	108	104	70-139	4	20		
Dibromochloromethane	ug/L	ND	50	50	49.7	48.9	99	98	50-150	2	20		
Dichlorodifluoromethane	ug/L	ND	50	50	43.3	39.5	87	79	10-173	9	20		
Ethylbenzene	ug/L	2.6	50	50	54.6	53.8	104	102	57-135	1	20		
Isopropylbenzene (Cumene)	ug/L	2.8	50	50	53.2	52.1	101	99	40-146	2	20		
m&p-Xylene	ug/L	ND	100	100	107	105	106	105	56-136	2	20		
Methyl acetate	ug/L	ND	50	50	47.9	48.7	96	97	10-142	2	20		
Methyl-tert-butyl ether	ug/L	20.5	50	50	74.5	72.5	108	104	35-176	3	20		
Methylene Chloride	ug/L	ND	50	50	51.2	48.3	102	97	45-166	6	20		
o-Xylene	ug/L	ND	50	50	53.2	52.5	105	104	57-133	1	20		
Styrene	ug/L	ND	50	50	54.0	52.4	108	105	58-144	3	20		
Tetrachloroethene	ug/L	ND	50	50	52.7	51.9	105	104	48-143	2	20		
Toluene	ug/L	ND	50	50	55.8	53.4	112	107	59-136	4	20		
trans-1,2-Dichloroethene	ug/L	ND	50	50	52.7	49.6	105	99	57-132	6	20		
trans-1,3-Dichloropropene	ug/L	ND	50	50	55.5	53.8	111	108	59-154	3	20		
Trichloroethene	ug/L	ND	50	50	54.2	51.8	108	104	58-140	4	20		
Trichlorofluoromethane	ug/L	ND	50	50	62.8	60.1	126	120	24-175	4	20		
Vinyl chloride	ug/L	ND	50	50	46.5	42.9	93	86	21-150	8	20		
4-Bromofluorobenzene (S)	%						100	101	68-124				
Dibromofluoromethane (S)	%						101	104	72-126				
Toluene-d8 (S)	%						101	101	79-119				

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

QC Batch: 58589 Analysis Method: EPA 8015B Modified

QC Batch Method: EPA 3535 Analysis Description: EPA 8015 ORO

Associated Lab Samples: 2039244001, 2039244003, 2039244004, 2039244005, 2039244006, 2039244007, 2039244008

METHOD BLANK: 242020 Matrix: Water

Associated Lab Samples: 2039244001, 2039244003, 2039244004, 2039244005, 2039244006, 2039244007, 2039244008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	ND	0.25	07/12/16 12:52	
Oil Range Organics (>C28-C40)	mg/L	ND	0.50	07/12/16 12:52	
n-Pentacosane (S)	%	53	16-137	07/12/16 12:52	
o-Terphenyl (S)	%	64	10-121	07/12/16 12:52	

LABORATORY CONTROL SAMPLE: 242021

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	.4	.18J	46	10-115	
n-Pentacosane (S)	%			56	16-137	
o-Terphenyl (S)	%			74	10-121	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

QC Batch: 58486 Analysis Method: EPA 8270 by SIM  
 QC Batch Method: EPA 3510 Analysis Description: 8270 Water by SIM MSSV  
 Associated Lab Samples: 2039244001, 2039244003, 2039244004, 2039244005, 2039244006, 2039244007, 2039244008

METHOD BLANK: 241608 Matrix: Water  
 Associated Lab Samples: 2039244001, 2039244003, 2039244004, 2039244005, 2039244006, 2039244007, 2039244008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	07/11/16 14:17	
Anthracene	mg/L	ND	0.00010	07/11/16 14:17	
Benzo(a)anthracene	mg/L	ND	0.00010	07/11/16 14:17	
Benzo(a)pyrene	mg/L	ND	0.00010	07/11/16 14:17	
Benzo(b)fluoranthene	mg/L	ND	0.00010	07/11/16 14:17	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	07/11/16 14:17	
Benzo(k)fluoranthene	mg/L	ND	0.00010	07/11/16 14:17	
Chrysene	mg/L	ND	0.00010	07/11/16 14:17	
Fluoranthene	mg/L	ND	0.00010	07/11/16 14:17	
Fluorene	mg/L	ND	0.00010	07/11/16 14:17	
Naphthalene	mg/L	ND	0.00010	07/11/16 14:17	
Phenanthrene	mg/L	ND	0.00010	07/11/16 14:17	
Pyrene	mg/L	ND	0.00010	07/11/16 14:17	
2-Fluorobiphenyl (S)	%	84	25-150	07/11/16 14:17	
Terphenyl-d14 (S)	%	110	25-150	07/11/16 14:17	

LABORATORY CONTROL SAMPLE: 241609

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0033	82	35-150	
Anthracene	mg/L	.004	0.0039	97	35-150	
Benzo(a)anthracene	mg/L	.004	0.0039	98	35-150	
Benzo(a)pyrene	mg/L	.004	0.0039	98	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0042	105	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0041	103	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0042	104	35-150	
Chrysene	mg/L	.004	0.0042	106	35-150	
Fluoranthene	mg/L	.004	0.0044	111	35-150	
Fluorene	mg/L	.004	0.0035	87	35-150	
Naphthalene	mg/L	.004	0.0034	85	35-150	
Phenanthrene	mg/L	.004	0.0040	99	35-150	
Pyrene	mg/L	.004	0.0038	94	35-150	
2-Fluorobiphenyl (S)	%			97	25-150	
Terphenyl-d14 (S)	%			127	25-150	

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## QUALIFIERS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039244

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The Nelac Institute

### LABORATORIES

PASI-N Pace Analytical Services - New Orleans

### BATCH QUALIFIERS

Batch: 58419

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 58569

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 58641

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039244

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2039244001	EB-070616	EPA 3535	58589	EPA 8015B Modified	58641
2039244003	13A	EPA 3535	58589	EPA 8015B Modified	58641
2039244004	13B2	EPA 3535	58589	EPA 8015B Modified	58641
2039244005	84B2	EPA 3535	58589	EPA 8015B Modified	58641
2039244006	48B	EPA 3535	58589	EPA 8015B Modified	58641
2039244007	DUP 4	EPA 3535	58589	EPA 8015B Modified	58641
2039244008	DUP 5	EPA 3535	58589	EPA 8015B Modified	58641
2039244001	EB-070616	EPA 8015/8021	58419		
2039244002	TRIPBLANK	EPA 8015/8021	58419		
2039244003	13A	EPA 8015/8021	58419		
2039244004	13B2	EPA 8015/8021	58419		
2039244005	84B2	EPA 8015/8021	58419		
2039244006	48B	EPA 8015/8021	58419		
2039244007	DUP 4	EPA 8015/8021	58419		
2039244008	DUP 5	EPA 8015/8021	58419		
2039244009	FB-070616	EPA 8015/8021	58419		
2039244001	EB-070616	EPA 3010	58397	EPA 6020	58500
2039244003	13A	EPA 3010	58397	EPA 6020	58500
2039244004	13B2	EPA 3010	58397	EPA 6020	58500
2039244005	84B2	EPA 3010	58397	EPA 6020	58500
2039244006	48B	EPA 3010	58397	EPA 6020	58500
2039244007	DUP 4	EPA 3010	58397	EPA 6020	58500
2039244008	DUP 5	EPA 3010	58397	EPA 6020	58500
2039244001	EB-070616	EPA 7470	58392	EPA 7470	58460
2039244003	13A	EPA 7470	58392	EPA 7470	58460
2039244004	13B2	EPA 7470	58392	EPA 7470	58460
2039244005	84B2	EPA 7470	58392	EPA 7470	58460
2039244006	48B	EPA 7470	58392	EPA 7470	58460
2039244007	DUP 4	EPA 7470	58392	EPA 7470	58460
2039244008	DUP 5	EPA 7470	58392	EPA 7470	58460
2039244001	EB-070616	EPA 3510	58486	EPA 8270 by SIM	58569
2039244003	13A	EPA 3510	58486	EPA 8270 by SIM	58569
2039244004	13B2	EPA 3510	58486	EPA 8270 by SIM	58569
2039244005	84B2	EPA 3510	58486	EPA 8270 by SIM	58569
2039244006	48B	EPA 3510	58486	EPA 8270 by SIM	58569
2039244007	DUP 4	EPA 3510	58486	EPA 8270 by SIM	58569
2039244008	DUP 5	EPA 3510	58486	EPA 8270 by SIM	58569
2039244001	EB-070616	EPA 5030B/8260	58567		
2039244002	TRIPBLANK	EPA 5030B/8260	58567		
2039244003	13A	EPA 5030B/8260	58567		
2039244004	13B2	EPA 5030B/8260	58567		
2039244005	84B2	EPA 5030B/8260	58567		
2039244006	48B	EPA 5030B/8260	58567		
2039244007	DUP 4	EPA 5030B/8260	58567		
2039244008	DUP 5	EPA 5030B/8260	58567		
2039244009	FB-070616	EPA 5030B/8260	58567		

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Urb. Jardines de Guaynabo  
Calle Marginal B1q A-10  
Guaynabo, PR 00969

### Sample Condition Upon Receipt

# WO#: 2039244

PM: JAR1 Due Date: 07/20/16  
CLIENT: 98-ARCADISPR

Project:

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 4  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and initials of person examining contents: 4-6-16 *[Signature]*

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1	
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14	
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15	

#### Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



# Sample Condition Upon Receipt

1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

Project #: **20**

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 5  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 7-7-10 JMB

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

July 29, 2016

Efrain Calderon  
BBL Caribe Engineering P.S.C.  
48 City View Plaza1, Suite 401  
Road 16, Km. 1.2  
Guaynabo, PR 00968

RE: Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039513

Dear Efrain Calderon:

Enclosed are the analytical results for sample(s) received by the laboratory on July 12, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Juan Redondo  
juan.redondo@pacelabs.com  
Project Manager

Enclosures

cc: Sharon Colon  
Abner Hernandez  
Marianela Mercado-Burgos



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

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### New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:  
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):  
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):  
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):  
T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-  
00119

Commonwealth of Virginia (TNI): 480246

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2039513001	EB-071216	Water	07/12/16 08:15	07/12/16 12:36
2039513002	MW-9A	Water	07/12/16 09:30	07/12/16 12:36
2039513003	MW-109A	Water	07/12/16 11:10	07/12/16 12:36
2039513004	TRIPBLANK	Water	07/12/16 00:00	07/12/16 12:36
2039513005	FB-071216	Water	07/12/16 11:22	07/12/16 12:36

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2039513001	EB-071216	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2039513002	MW-9A	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2039513003	MW-109A	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2039513004	TRIPBLANK	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2039513005	FB-071216	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

---

**Method:** EPA 8015B Modified

**Description:** 8015M DRO/ORO Organics

**Client:** BBL Caribe / Arcadis PR

**Date:** July 29, 2016

**General Information:**

3 samples were analyzed for EPA 8015B Modified. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3535 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 58934

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

---

**Method:** EPA 8015/8021

**Description:** 8021 GCV BTEX, MTBE, GRO

**Client:** BBL Caribe / Arcadis PR

**Date:** July 29, 2016

### General Information:

5 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: 58976

S5: Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

- MS (Lab ID: 243672)
  - 4-Bromofluorobenzene (S)
- MSD (Lab ID: 243673)
  - 4-Bromofluorobenzene (S)

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 58976

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2039513002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 243672)
  - Gasoline Range Organics

### Additional Comments:

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

---

**Method:** EPA 6020

**Description:** 6020 MET ICPMS

**Client:** BBL Caribe / Arcadis PR

**Date:** July 29, 2016

**General Information:**

3 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

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**Method:** EPA 7470

**Description:** 7470 Mercury

**Client:** BBL Caribe / Arcadis PR

**Date:** July 29, 2016

**General Information:**

3 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

---

**Method:** EPA 8270 by SIM

**Description:** 8270 MSSV PAH by SIM SEP

**Client:** BBL Caribe / Arcadis PR

**Date:** July 29, 2016

**General Information:**

3 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 58986

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039513

---

**Method:** EPA 5030B/8260  
**Description:** 8260 MSV Low Level  
**Client:** BBL Caribe / Arcadis PR  
**Date:** July 29, 2016

**General Information:**

5 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

Sample: EB-071216	Lab ID: 2039513001	Collected: 07/12/16 08:15	Received: 07/12/16 12:36	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/15/16 06:57	07/28/16 07:25		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/15/16 06:57	07/28/16 07:25		
<b>Surrogates</b>								
n-Pentacosane (S)	60	%	16-137	1	07/15/16 06:57	07/28/16 07:25	629-99-2	
o-Terphenyl (S)	67	%	10-121	1	07/15/16 06:57	07/28/16 07:25	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		07/15/16 22:34		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	97	%	44-148	1		07/15/16 22:34	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	07/15/16 08:13	07/18/16 13:53	7440-38-2	
Chromium	ND	mg/L	0.0010	1	07/15/16 08:13	07/18/16 13:53	7440-47-3	
Lead	ND	mg/L	0.0010	1	07/15/16 08:13	07/18/16 13:53	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	07/15/16 08:13	07/18/16 13:53	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	07/15/16 08:19	07/15/16 14:33	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 16:49	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 16:49	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 16:49	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 16:49	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 16:49	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 16:49	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 16:49	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 16:49	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 16:49	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 16:49	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 16:49	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 16:49	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 16:49	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	85	%	25-150	1	07/15/16 10:35	07/19/16 16:49	321-60-8	
Terphenyl-d14 (S)	84	%	25-150	1	07/15/16 10:35	07/19/16 16:49	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	17.1	ug/L	4.0	1		07/18/16 15:28	67-64-1	
Benzene	ND	ug/L	0.50	1		07/18/16 15:28	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/18/16 15:28	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/18/16 15:28	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/18/16 15:28	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/18/16 15:28	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/18/16 15:28	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

Sample: EB-071216	Lab ID: 2039513001	Collected: 07/12/16 08:15	Received: 07/12/16 12:36	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		07/18/16 15:28	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/18/16 15:28	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/18/16 15:28	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/18/16 15:28	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/18/16 15:28	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/18/16 15:28	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/18/16 15:28	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/18/16 15:28	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/18/16 15:28	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/18/16 15:28	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/18/16 15:28	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/18/16 15:28	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/18/16 15:28	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/18/16 15:28	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/18/16 15:28	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/18/16 15:28	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 15:28	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 15:28	10061-02-6	
Ethanol	ND	ug/L	500	1		07/18/16 15:28	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/18/16 15:28	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/18/16 15:28	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/18/16 15:28	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/18/16 15:28	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/18/16 15:28	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/18/16 15:28	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/18/16 15:28	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/18/16 15:28	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/18/16 15:28	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/18/16 15:28	127-18-4	
Toluene	ND	ug/L	0.50	1		07/18/16 15:28	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/18/16 15:28	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/18/16 15:28	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/18/16 15:28	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/18/16 15:28	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/18/16 15:28	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/18/16 15:28	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/18/16 15:28	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	101	%	72-126	1		07/18/16 15:28	1868-53-7	
4-Bromofluorobenzene (S)	102	%	68-124	1		07/18/16 15:28	460-00-4	
Toluene-d8 (S)	107	%	79-119	1		07/18/16 15:28	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039513

Sample: MW-9A	Lab ID: 2039513002	Collected: 07/12/16 09:30	Received: 07/12/16 12:36	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	5.8	mg/L	0.50	1	07/15/16 06:57	07/28/16 07:53		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/15/16 06:57	07/28/16 07:53		
<b>Surrogates</b>								
n-Pentacosane (S)	59	%	16-137	1	07/15/16 06:57	07/28/16 07:53	629-99-2	
o-Terphenyl (S)	106	%	10-121	1	07/15/16 06:57	07/28/16 07:53	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	36200	ug/L	500	10		07/19/16 20:32		M1
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	112	%	44-148	10		07/19/16 20:32	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	0.0046	mg/L	0.0010	1	07/15/16 08:13	07/18/16 13:29	7440-38-2	
Chromium	ND	mg/L	0.0010	1	07/15/16 08:13	07/18/16 13:29	7440-47-3	
Lead	0.0015	mg/L	0.0010	1	07/15/16 08:13	07/18/16 13:29	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	07/15/16 08:13	07/18/16 13:29	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	0.34	ug/L	0.20	1	07/15/16 08:19	07/15/16 14:39	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	0.18	mg/L	0.0010	10	07/15/16 10:35	07/20/16 10:49	91-20-3	
Acenaphthene	0.0062	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:11	83-32-9	
Fluorene	0.0015	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:11	86-73-7	
Phenanthrene	0.00084	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:11	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:11	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:11	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:11	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:11	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:11	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:11	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:11	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:11	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:11	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	74	%	25-150	1	07/15/16 10:35	07/19/16 17:11	321-60-8	
2-Fluorobiphenyl (S)	75	%	25-150	10	07/15/16 10:35	07/20/16 10:49	321-60-8	
Terphenyl-d14 (S)	75	%	25-150	1	07/15/16 10:35	07/19/16 17:11	1718-51-0	
Terphenyl-d14 (S)	76	%	25-150	10	07/15/16 10:35	07/20/16 10:49	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	4.0	1		07/18/16 15:46	67-64-1	
Benzene	1940	ug/L	25.0	50		07/19/16 12:14	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/18/16 15:46	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/18/16 15:46	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/18/16 15:46	74-83-9	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

Sample: MW-9A	Lab ID: 2039513002	Collected: 07/12/16 09:30	Received: 07/12/16 12:36	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
2-Butanone (MEK)	ND	ug/L	2.0	1		07/18/16 15:46	78-93-3	
tert-Butyl Alcohol	<b>11700</b>	ug/L	10000	50		07/19/16 12:14	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		07/18/16 15:46	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/18/16 15:46	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/18/16 15:46	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/18/16 15:46	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/18/16 15:46	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/18/16 15:46	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/18/16 15:46	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/18/16 15:46	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/18/16 15:46	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/18/16 15:46	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/18/16 15:46	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/18/16 15:46	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/18/16 15:46	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/18/16 15:46	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/18/16 15:46	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/18/16 15:46	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 15:46	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 15:46	10061-02-6	
Ethanol	ND	ug/L	500	1		07/18/16 15:46	64-17-5	
Ethylbenzene	<b>1020</b>	ug/L	25.0	50		07/19/16 12:14	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/18/16 15:46	591-78-6	
Isopropylbenzene (Cumene)	<b>28.7</b>	ug/L	1.0	1		07/18/16 15:46	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/18/16 15:46	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/18/16 15:46	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/18/16 15:46	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/18/16 15:46	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/18/16 15:46	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/18/16 15:46	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/18/16 15:46	127-18-4	
Toluene	<b>4.9</b>	ug/L	0.50	1		07/18/16 15:46	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/18/16 15:46	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/18/16 15:46	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/18/16 15:46	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/18/16 15:46	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/18/16 15:46	75-01-4	
m&p-Xylene	<b>114</b>	ug/L	2.0	1		07/18/16 15:46	179601-23-1	
o-Xylene	<b>38.9</b>	ug/L	1.0	1		07/18/16 15:46	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	102	%	72-126	50		07/19/16 12:14	1868-53-7	
Dibromofluoromethane (S)	104	%	72-126	1		07/18/16 15:46	1868-53-7	
4-Bromofluorobenzene (S)	96	%	68-124	1		07/18/16 15:46	460-00-4	
4-Bromofluorobenzene (S)	101	%	68-124	50		07/19/16 12:14	460-00-4	
Toluene-d8 (S)	105	%	79-119	50		07/19/16 12:14	2037-26-5	
Toluene-d8 (S)	114	%	79-119	1		07/18/16 15:46	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

Sample: MW-109A	Lab ID: 2039513003	Collected: 07/12/16 11:10	Received: 07/12/16 12:36	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/15/16 06:57	07/28/16 08:21		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/15/16 06:57	07/28/16 08:21		
<b>Surrogates</b>								
n-Pentacosane (S)	61	%	16-137	1	07/15/16 06:57	07/28/16 08:21	629-99-2	
o-Terphenyl (S)	71	%	10-121	1	07/15/16 06:57	07/28/16 08:21	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		07/19/16 18:18		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	96	%	44-148	1		07/19/16 18:18	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	07/15/16 08:13	07/18/16 13:57	7440-38-2	
Chromium	ND	mg/L	0.0010	1	07/15/16 08:13	07/18/16 13:57	7440-47-3	
Lead	ND	mg/L	0.0010	1	07/15/16 08:13	07/18/16 13:57	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	07/15/16 08:13	07/18/16 13:57	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	07/15/16 08:19	07/15/16 14:41	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	<b>0.00014</b>	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:32	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:32	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:32	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:32	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:32	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:32	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:32	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:32	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:32	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:32	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:32	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:32	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/15/16 10:35	07/19/16 17:32	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	78	%	25-150	1	07/15/16 10:35	07/19/16 17:32	321-60-8	
Terphenyl-d14 (S)	74	%	25-150	1	07/15/16 10:35	07/19/16 17:32	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	<b>14.1</b>	ug/L	4.0	1		07/18/16 15:10	67-64-1	
Benzene	ND	ug/L	0.50	1		07/18/16 15:10	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/18/16 15:10	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/18/16 15:10	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/18/16 15:10	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/18/16 15:10	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/18/16 15:10	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

Sample: MW-109A	Lab ID: 2039513003	Collected: 07/12/16 11:10	Received: 07/12/16 12:36	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>	Analytical Method: EPA 5030B/8260							
Carbon disulfide	ND	ug/L	1.0	1		07/18/16 15:10	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/18/16 15:10	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/18/16 15:10	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/18/16 15:10	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/18/16 15:10	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/18/16 15:10	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/18/16 15:10	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/18/16 15:10	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/18/16 15:10	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/18/16 15:10	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/18/16 15:10	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/18/16 15:10	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/18/16 15:10	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/18/16 15:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/18/16 15:10	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/18/16 15:10	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 15:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 15:10	10061-02-6	
Ethanol	ND	ug/L	500	1		07/18/16 15:10	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/18/16 15:10	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/18/16 15:10	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/18/16 15:10	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/18/16 15:10	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/18/16 15:10	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/18/16 15:10	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/18/16 15:10	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/18/16 15:10	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/18/16 15:10	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/18/16 15:10	127-18-4	
Toluene	ND	ug/L	0.50	1		07/18/16 15:10	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/18/16 15:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/18/16 15:10	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/18/16 15:10	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/18/16 15:10	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/18/16 15:10	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/18/16 15:10	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/18/16 15:10	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	101	%	72-126	1		07/18/16 15:10	1868-53-7	
4-Bromofluorobenzene (S)	102	%	68-124	1		07/18/16 15:10	460-00-4	
Toluene-d8 (S)	107	%	79-119	1		07/18/16 15:10	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

Sample: TRIPBLANK	Lab ID: 2039513004	Collected: 07/12/16 00:00	Received: 07/12/16 12:36	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>	Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		07/19/16 18:44		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	99	%.	44-148	1		07/19/16 18:44	460-00-4	
<b>8260 MSV Low Level</b>	Analytical Method: EPA 5030B/8260							
Acetone	<b>52.4</b>	ug/L	4.0	1		07/19/16 12:32	67-64-1	
Benzene	ND	ug/L	0.50	1		07/19/16 12:32	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/19/16 12:32	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/19/16 12:32	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/19/16 12:32	74-83-9	
2-Butanone (MEK)	<b>2.1</b>	ug/L	2.0	1		07/19/16 12:32	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/19/16 12:32	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		07/19/16 12:32	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/19/16 12:32	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/19/16 12:32	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/19/16 12:32	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/19/16 12:32	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/19/16 12:32	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/19/16 12:32	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/19/16 12:32	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/19/16 12:32	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/19/16 12:32	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/19/16 12:32	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/19/16 12:32	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/19/16 12:32	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/19/16 12:32	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/19/16 12:32	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/19/16 12:32	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/19/16 12:32	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/19/16 12:32	10061-02-6	
Ethanol	ND	ug/L	500	1		07/19/16 12:32	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/19/16 12:32	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/19/16 12:32	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/19/16 12:32	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/19/16 12:32	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/19/16 12:32	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/19/16 12:32	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/19/16 12:32	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/19/16 12:32	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/19/16 12:32	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/19/16 12:32	127-18-4	
Toluene	ND	ug/L	0.50	1		07/19/16 12:32	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/19/16 12:32	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/19/16 12:32	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/19/16 12:32	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/19/16 12:32	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/19/16 12:32	75-01-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

Sample: TRIPBLANK		Lab ID: 2039513004	Collected: 07/12/16 00:00	Received: 07/12/16 12:36	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
m&p-Xylene	ND	ug/L	2.0	1		07/19/16 12:32	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/19/16 12:32	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	102	%	72-126	1		07/19/16 12:32	1868-53-7	
4-Bromofluorobenzene (S)	101	%	68-124	1		07/19/16 12:32	460-00-4	
Toluene-d8 (S)	104	%	79-119	1		07/19/16 12:32	2037-26-5	

Sample: FB-071216		Lab ID: 2039513005	Collected: 07/12/16 11:22	Received: 07/12/16 12:36	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		07/19/16 19:11		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	98	%	44-148	1		07/19/16 19:11	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	17.0	ug/L	4.0	1		07/18/16 16:22	67-64-1	
Benzene	ND	ug/L	0.50	1		07/18/16 16:22	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/18/16 16:22	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/18/16 16:22	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/18/16 16:22	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/18/16 16:22	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/18/16 16:22	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		07/18/16 16:22	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/18/16 16:22	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/18/16 16:22	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/18/16 16:22	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/18/16 16:22	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/18/16 16:22	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/18/16 16:22	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/18/16 16:22	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/18/16 16:22	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/18/16 16:22	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/18/16 16:22	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/18/16 16:22	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/18/16 16:22	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/18/16 16:22	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/18/16 16:22	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/18/16 16:22	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 16:22	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 16:22	10061-02-6	
Ethanol	ND	ug/L	500	1		07/18/16 16:22	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/18/16 16:22	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/18/16 16:22	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/18/16 16:22	98-82-8	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

Sample: <b>FB-071216</b>	Lab ID: <b>2039513005</b>	Collected: 07/12/16 11:22	Received: 07/12/16 12:36	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Methyl acetate	ND	ug/L	2.0	1		07/18/16 16:22	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/18/16 16:22	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/18/16 16:22	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/18/16 16:22	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/18/16 16:22	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/18/16 16:22	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/18/16 16:22	127-18-4	
Toluene	ND	ug/L	0.50	1		07/18/16 16:22	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/18/16 16:22	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/18/16 16:22	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/18/16 16:22	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/18/16 16:22	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/18/16 16:22	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/18/16 16:22	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/18/16 16:22	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	101	%.	72-126	1		07/18/16 16:22	1868-53-7	
4-Bromofluorobenzene (S)	102	%.	68-124	1		07/18/16 16:22	460-00-4	
Toluene-d8 (S)	107	%.	79-119	1		07/18/16 16:22	2037-26-5	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

QC Batch: 58976

Analysis Method: EPA 8015/8021

QC Batch Method: EPA 8015/8021

Analysis Description: 8021 W GCV BTEX, MTBE, GRO

Associated Lab Samples: 2039513001, 2039513002, 2039513003, 2039513004, 2039513005

METHOD BLANK: 243584

Matrix: Water

Associated Lab Samples: 2039513001, 2039513002, 2039513003, 2039513004, 2039513005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	07/15/16 21:14	
4-Bromofluorobenzene (S)	%.	96	44-148	07/15/16 21:14	

METHOD BLANK: 244460

Matrix: Water

Associated Lab Samples: 2039513001, 2039513002, 2039513003, 2039513004, 2039513005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	07/19/16 14:18	
4-Bromofluorobenzene (S)	%.	96	44-148	07/19/16 14:18	

LABORATORY CONTROL SAMPLE: 243585

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	467	93	61-136	
4-Bromofluorobenzene (S)	%.			97	44-148	

LABORATORY CONTROL SAMPLE: 244461

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	494	99	61-136	
4-Bromofluorobenzene (S)	%.			99	44-148	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 243672

243673

Parameter	Units	2039513002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Gasoline Range Organics	ug/L	36200	500	500	37600	36500	267	59	15-147	3	20	M1
4-Bromofluorobenzene (S)	%.						156	157	44-148			S5

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039513

QC Batch: 58941 Analysis Method: EPA 7470  
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
Associated Lab Samples: 2039513001, 2039513002, 2039513003

METHOD BLANK: 243414 Matrix: Water  
Associated Lab Samples: 2039513001, 2039513002, 2039513003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	07/15/16 14:20	

LABORATORY CONTROL SAMPLE: 243415

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	0.97	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 243416 243417

Parameter	Units	2039655001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	1	1	0.94	0.95	94	95	75-125	1	20	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

QC Batch: 58936 Analysis Method: EPA 6020  
QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
Associated Lab Samples: 2039513001, 2039513002, 2039513003

METHOD BLANK: 243394 Matrix: Water

Associated Lab Samples: 2039513001, 2039513002, 2039513003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	07/18/16 12:20	
Chromium	mg/L	ND	0.0010	07/18/16 12:20	
Lead	mg/L	ND	0.0010	07/18/16 12:20	
Vanadium	mg/L	ND	0.0050	07/18/16 12:20	

LABORATORY CONTROL SAMPLE: 243395

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.02	0.021	103	83-115	
Chromium	mg/L	.02	0.020	101	85-115	
Lead	mg/L	.02	0.020	98	84-115	
Vanadium	mg/L	.02	0.020	100	81-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 243396 243397

Parameter	Units	2039513002 Result	MS Spike Conc.	MSD Spike Conc.	243396		243397		% Rec Limits	RPD	Max RPD	Qual
					MS Result	MSD Result	MS % Rec	MSD % Rec				
Arsenic	mg/L	0.0046	.02	.02	0.025	0.024	104	97	80-120	5	20	
Chromium	mg/L	ND	.02	.02	0.021	0.020	100	96	80-120	5	20	
Lead	mg/L	0.0015	.02	.02	0.023	0.021	106	99	80-120	6	20	
Vanadium	mg/L	ND	.02	.02	0.022	0.020	103	97	80-120	6	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 244159 244160

Parameter	Units	2039603002 Result	MS Spike Conc.	MSD Spike Conc.	244159		244160		% Rec Limits	RPD	Max RPD	Qual
					MS Result	MSD Result	MS % Rec	MSD % Rec				
Arsenic	mg/L	ND	.02	.02	0.021	0.020	101	100	80-120	2	20	
Chromium	mg/L	ND	.02	.02	0.020	0.019	98	97	80-120	1	20	
Lead	mg/L	ND	.02	.02	0.021	0.020	102	101	80-120	2	20	
Vanadium	mg/L	10.8 ug/L	.02	.02	0.031	0.030	101	98	80-120	2	20	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

QC Batch: 59049 Analysis Method: EPA 5030B/8260  
 QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Low Level  
 Associated Lab Samples: 2039513001, 2039513002, 2039513003, 2039513004, 2039513005

METHOD BLANK: 243930 Matrix: Water  
 Associated Lab Samples: 2039513001, 2039513002, 2039513003, 2039513004, 2039513005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	07/18/16 13:41	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	07/18/16 13:41	
1,1,2-Trichloroethane	ug/L	ND	0.50	07/18/16 13:41	
1,1-Dichloroethane	ug/L	ND	0.50	07/18/16 13:41	
1,1-Dichloroethene	ug/L	ND	0.50	07/18/16 13:41	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	07/18/16 13:41	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	07/18/16 13:41	
1,2-Dichloroethane	ug/L	ND	0.50	07/18/16 13:41	
1,2-Dichloropropane	ug/L	ND	0.50	07/18/16 13:41	
2-Butanone (MEK)	ug/L	ND	2.0	07/18/16 13:41	
2-Hexanone	ug/L	ND	1.0	07/18/16 13:41	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	07/18/16 13:41	
Acetone	ug/L	ND	4.0	07/18/16 13:41	
Benzene	ug/L	ND	0.50	07/18/16 13:41	
Bromodichloromethane	ug/L	ND	0.50	07/18/16 13:41	
Bromoform	ug/L	ND	0.50	07/18/16 13:41	
Bromomethane	ug/L	ND	0.50	07/18/16 13:41	
Carbon disulfide	ug/L	ND	1.0	07/18/16 13:41	
Carbon tetrachloride	ug/L	ND	0.50	07/18/16 13:41	
Chlorobenzene	ug/L	ND	0.50	07/18/16 13:41	
Chloroethane	ug/L	ND	0.50	07/18/16 13:41	
Chloroform	ug/L	ND	0.50	07/18/16 13:41	
Chloromethane	ug/L	ND	0.50	07/18/16 13:41	
cis-1,2-Dichloroethene	ug/L	ND	1.0	07/18/16 13:41	
cis-1,3-Dichloropropene	ug/L	ND	0.50	07/18/16 13:41	
Dibromochloromethane	ug/L	ND	0.50	07/18/16 13:41	
Dichlorodifluoromethane	ug/L	ND	1.0	07/18/16 13:41	
Ethanol	ug/L	ND	500	07/18/16 13:41	
Ethylbenzene	ug/L	ND	0.50	07/18/16 13:41	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	07/18/16 13:41	
m&p-Xylene	ug/L	ND	2.0	07/18/16 13:41	
Methyl acetate	ug/L	ND	2.0	07/18/16 13:41	
Methyl-tert-butyl ether	ug/L	ND	0.50	07/18/16 13:41	
Methylene Chloride	ug/L	ND	0.50	07/18/16 13:41	
o-Xylene	ug/L	ND	1.0	07/18/16 13:41	
Styrene	ug/L	ND	1.0	07/18/16 13:41	
tert-Butyl Alcohol	ug/L	ND	200	07/18/16 13:41	
Tetrachloroethene	ug/L	ND	0.50	07/18/16 13:41	
Toluene	ug/L	ND	0.50	07/18/16 13:41	
trans-1,2-Dichloroethene	ug/L	ND	0.50	07/18/16 13:41	
trans-1,3-Dichloropropene	ug/L	ND	0.50	07/18/16 13:41	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

METHOD BLANK: 243930

Matrix: Water

Associated Lab Samples: 2039513001, 2039513002, 2039513003, 2039513004, 2039513005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	0.50	07/18/16 13:41	
Trichlorofluoromethane	ug/L	ND	0.50	07/18/16 13:41	
Vinyl chloride	ug/L	ND	0.50	07/18/16 13:41	
4-Bromofluorobenzene (S)	%	102	68-124	07/18/16 13:41	
Dibromofluoromethane (S)	%	102	72-126	07/18/16 13:41	
Toluene-d8 (S)	%	106	79-119	07/18/16 13:41	

METHOD BLANK: 244421

Matrix: Water

Associated Lab Samples: 2039513001, 2039513002, 2039513003, 2039513004, 2039513005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	07/19/16 10:28	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	07/19/16 10:28	
1,1,2-Trichloroethane	ug/L	ND	0.50	07/19/16 10:28	
1,1-Dichloroethane	ug/L	ND	0.50	07/19/16 10:28	
1,1-Dichloroethene	ug/L	ND	0.50	07/19/16 10:28	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	07/19/16 10:28	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	07/19/16 10:28	
1,2-Dichloroethane	ug/L	ND	0.50	07/19/16 10:28	
1,2-Dichloropropane	ug/L	ND	0.50	07/19/16 10:28	
2-Butanone (MEK)	ug/L	ND	2.0	07/19/16 10:28	
2-Hexanone	ug/L	ND	1.0	07/19/16 10:28	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	07/19/16 10:28	
Acetone	ug/L	ND	4.0	07/19/16 10:28	
Benzene	ug/L	ND	0.50	07/19/16 10:28	
Bromodichloromethane	ug/L	ND	0.50	07/19/16 10:28	
Bromoform	ug/L	ND	0.50	07/19/16 10:28	
Bromomethane	ug/L	ND	0.50	07/19/16 10:28	
Carbon disulfide	ug/L	ND	1.0	07/19/16 10:28	
Carbon tetrachloride	ug/L	ND	0.50	07/19/16 10:28	
Chlorobenzene	ug/L	ND	0.50	07/19/16 10:28	
Chloroethane	ug/L	ND	0.50	07/19/16 10:28	
Chloroform	ug/L	ND	0.50	07/19/16 10:28	
Chloromethane	ug/L	ND	0.50	07/19/16 10:28	
cis-1,2-Dichloroethene	ug/L	ND	1.0	07/19/16 10:28	
cis-1,3-Dichloropropene	ug/L	ND	0.50	07/19/16 10:28	
Dibromochloromethane	ug/L	ND	0.50	07/19/16 10:28	
Dichlorodifluoromethane	ug/L	ND	1.0	07/19/16 10:28	
Ethanol	ug/L	ND	500	07/19/16 10:28	
Ethylbenzene	ug/L	ND	0.50	07/19/16 10:28	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	07/19/16 10:28	
m&p-Xylene	ug/L	ND	2.0	07/19/16 10:28	
Methyl acetate	ug/L	ND	2.0	07/19/16 10:28	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

METHOD BLANK: 244421

Matrix: Water

Associated Lab Samples: 2039513001, 2039513002, 2039513003, 2039513004, 2039513005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Methyl-tert-butyl ether	ug/L	ND	0.50	07/19/16 10:28	
Methylene Chloride	ug/L	ND	0.50	07/19/16 10:28	
o-Xylene	ug/L	ND	1.0	07/19/16 10:28	
Styrene	ug/L	ND	1.0	07/19/16 10:28	
tert-Butyl Alcohol	ug/L	ND	200	07/19/16 10:28	
Tetrachloroethene	ug/L	ND	0.50	07/19/16 10:28	
Toluene	ug/L	ND	0.50	07/19/16 10:28	
trans-1,2-Dichloroethene	ug/L	ND	0.50	07/19/16 10:28	
trans-1,3-Dichloropropene	ug/L	ND	0.50	07/19/16 10:28	
Trichloroethene	ug/L	ND	0.50	07/19/16 10:28	
Trichlorofluoromethane	ug/L	ND	0.50	07/19/16 10:28	
Vinyl chloride	ug/L	ND	0.50	07/19/16 10:28	
4-Bromofluorobenzene (S)	%	101	68-124	07/19/16 10:28	
Dibromofluoromethane (S)	%	103	72-126	07/19/16 10:28	
Toluene-d8 (S)	%	105	79-119	07/19/16 10:28	

LABORATORY CONTROL SAMPLE: 243931

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	52.4	105	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	52.7	105	15-179	
1,1,2-Trichloroethane	ug/L	50	51.5	103	58-144	
1,1-Dichloroethane	ug/L	50	48.6	97	63-129	
1,1-Dichloroethene	ug/L	50	43.3	87	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	55.4	111	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	56.2	112	52-161	
1,2-Dichloroethane	ug/L	50	52.4	105	57-148	
1,2-Dichloropropane	ug/L	50	52.6	105	66-128	
2-Butanone (MEK)	ug/L	50	53.6	107	32-183	
2-Hexanone	ug/L	50	58.3	117	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	56.4	113	26-171	
Acetone	ug/L	50	54.0	108	22-165	
Benzene	ug/L	50	49.9	100	62-131	
Bromodichloromethane	ug/L	50	51.2	102	69-132	
Bromoform	ug/L	50	46.4	93	35-166	
Bromomethane	ug/L	50	54.3	109	34-158	
Carbon disulfide	ug/L	50	43.3	87	31-128	
Carbon tetrachloride	ug/L	50	46.4	93	54-144	
Chlorobenzene	ug/L	50	53.3	107	70-127	
Chloroethane	ug/L	50	47.6	95	17-195	
Chloroform	ug/L	50	46.5	93	73-134	
Chloromethane	ug/L	50	58.0	116	17-153	
cis-1,2-Dichloroethene	ug/L	50	50.7	101	68-129	
cis-1,3-Dichloropropene	ug/L	50	46.9	94	72-138	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

LABORATORY CONTROL SAMPLE: 243931

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	50	50.9	102	49-146	
Dichlorodifluoromethane	ug/L	50	44.0	88	10-179	
Ethylbenzene	ug/L	50	55.2	110	66-126	
Isopropylbenzene (Cumene)	ug/L	50	57.2	114	51-138	
m&p-Xylene	ug/L	100	108	108	65-129	
Methyl acetate	ug/L	50	47.1	94	20-142	
Methyl-tert-butyl ether	ug/L	50	45.7	91	37-166	
Methylene Chloride	ug/L	50	45.8	92	46-168	
o-Xylene	ug/L	50	54.4	109	65-124	
Styrene	ug/L	50	57.5	115	72-133	
Tetrachloroethene	ug/L	50	53.2	106	46-157	
Toluene	ug/L	50	54.1	108	69-126	
trans-1,2-Dichloroethene	ug/L	50	48.1	96	60-129	
trans-1,3-Dichloropropene	ug/L	50	52.9	106	59-149	
Trichloroethene	ug/L	50	49.5	99	67-132	
Trichlorofluoromethane	ug/L	50	60.5	121	39-171	
Vinyl chloride	ug/L	50	48.8	98	27-149	
4-Bromofluorobenzene (S)	%			100	68-124	
Dibromofluoromethane (S)	%			103	72-126	
Toluene-d8 (S)	%			103	79-119	

LABORATORY CONTROL SAMPLE: 244422

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	52.8	106	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	49.8	100	15-179	
1,1,2-Trichloroethane	ug/L	50	52.1	104	58-144	
1,1-Dichloroethane	ug/L	50	49.0	98	63-129	
1,1-Dichloroethene	ug/L	50	49.8	100	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	52.8	106	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	56.4	113	52-161	
1,2-Dichloroethane	ug/L	50	52.9	106	57-148	
1,2-Dichloropropane	ug/L	50	50.2	100	66-128	
2-Butanone (MEK)	ug/L	50	52.7	105	32-183	
2-Hexanone	ug/L	50	57.5	115	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	57.3	115	26-171	
Acetone	ug/L	50	52.5	105	22-165	
Benzene	ug/L	50	48.9	98	62-131	
Bromodichloromethane	ug/L	50	49.9	100	69-132	
Bromoform	ug/L	50	47.9	96	35-166	
Bromomethane	ug/L	50	52.6	105	34-158	
Carbon disulfide	ug/L	50	51.7	103	31-128	
Carbon tetrachloride	ug/L	50	49.6	99	54-144	
Chlorobenzene	ug/L	50	54.3	109	70-127	
Chloroethane	ug/L	50	47.5	95	17-195	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039513

LABORATORY CONTROL SAMPLE: 244422

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloroform	ug/L	50	45.6	91	73-134	
Chloromethane	ug/L	50	55.3	111	17-153	
cis-1,2-Dichloroethene	ug/L	50	50.8	102	68-129	
cis-1,3-Dichloropropene	ug/L	50	45.7	91	72-138	
Dibromochloromethane	ug/L	50	52.0	104	49-146	
Dichlorodifluoromethane	ug/L	50	43.0	86	10-179	
Ethylbenzene	ug/L	50	55.0	110	66-126	
Isopropylbenzene (Cumene)	ug/L	50	55.4	111	51-138	
m&p-Xylene	ug/L	100	109	109	65-129	
Methyl acetate	ug/L	50	43.2	86	20-142	
Methyl-tert-butyl ether	ug/L	50	45.1	90	37-166	
Methylene Chloride	ug/L	50	46.1	92	46-168	
o-Xylene	ug/L	50	54.7	109	65-124	
Styrene	ug/L	50	57.7	115	72-133	
Tetrachloroethene	ug/L	50	56.2	112	46-157	
Toluene	ug/L	50	53.0	106	69-126	
trans-1,2-Dichloroethene	ug/L	50	50.0	100	60-129	
trans-1,3-Dichloropropene	ug/L	50	52.5	105	59-149	
Trichloroethene	ug/L	50	50.2	100	67-132	
Trichlorofluoromethane	ug/L	50	60.2	120	39-171	
Vinyl chloride	ug/L	50	46.4	93	27-149	
4-Bromofluorobenzene (S)	%			100	68-124	
Dibromofluoromethane (S)	%			104	72-126	
Toluene-d8 (S)	%			102	79-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 243932 243933

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2039513003 Result	Spike Conc.	Spike Conc.	Result								
1,1,1-Trichloroethane	ug/L	ND	50	50	60.5	57.1	121	114	54-137	6	20		
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	57.8	57.7	116	115	15-187	0	20		
1,1,2-Trichloroethane	ug/L	ND	50	50	56.0	55.8	112	112	59-148	0	20		
1,1-Dichloroethane	ug/L	ND	50	50	55.2	52.8	110	106	59-133	4	20		
1,1-Dichloroethene	ug/L	ND	50	50	50.8	48.4	102	97	44-146	5	20		
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	59.0	59.4	118	119	23-166	1	20		
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	60.6	60.2	121	120	55-166	1	20		
1,2-Dichloroethane	ug/L	ND	50	50	57.2	55.3	114	111	56-154	3	20		
1,2-Dichloropropane	ug/L	ND	50	50	57.1	55.5	114	111	62-135	3	20		
2-Butanone (MEK)	ug/L	ND	50	50	58.2	58.4	114	114	20-205	0	20		
2-Hexanone	ug/L	ND	50	50	61.2	64.5	122	129	25-189	5	20		
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	50	60.9	61.4	122	123	23-184	1	20		
Acetone	ug/L	14.1	50	50	73.1	76.1	118	124	11-217	4	20		
Benzene	ug/L	ND	50	50	56.4	54.0	113	108	52-141	4	20		
Bromodichloromethane	ug/L	ND	50	50	55.4	54.7	111	109	70-134	1	20		

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

Parameter	Units	2039513003		243932		243933		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Bromoform	ug/L	ND	50	50	49.7	49.6	99	99	37-171	0	20		
Bromomethane	ug/L	ND	50	50	59.7	56.3	119	113	34-155	6	20		
Carbon disulfide	ug/L	ND	50	50	53.9	49.6	108	99	28-130	8	20		
Carbon tetrachloride	ug/L	ND	50	50	55.0	54.0	110	108	48-146	2	20		
Chlorobenzene	ug/L	ND	50	50	59.5	56.6	119	113	67-129	5	20		
Chloroethane	ug/L	ND	50	50	54.1	51.8	108	104	12-192	4	20		
Chloroform	ug/L	ND	50	50	51.9	50.4	104	101	66-143	3	20		
Chloromethane	ug/L	ND	50	50	63.9	60.1	127	120	14-155	6	20		
cis-1,2-Dichloroethene	ug/L	ND	50	50	57.3	55.5	115	111	56-141	3	20		
cis-1,3-Dichloropropene	ug/L	ND	50	50	51.3	49.6	103	99	70-139	3	20		
Dibromochloromethane	ug/L	ND	50	50	54.9	54.6	110	109	50-150	0	20		
Dichlorodifluoromethane	ug/L	ND	50	50	50.1	46.1	100	92	10-173	8	20		
Ethylbenzene	ug/L	ND	50	50	62.9	60.0	126	120	57-135	5	20		
Isopropylbenzene (Cumene)	ug/L	ND	50	50	67.3	64.3	135	129	40-146	4	20		
m&p-Xylene	ug/L	ND	100	100	122	117	122	117	56-136	5	20		
Methyl acetate	ug/L	ND	50	50	45.8	45.5	92	91	10-142	1	20		
Methyl-tert-butyl ether	ug/L	ND	50	50	48.2	48.9	96	98	35-176	1	20		
Methylene Chloride	ug/L	ND	50	50	49.9	48.1	100	96	45-166	4	20		
o-Xylene	ug/L	ND	50	50	61.1	58.0	122	116	57-133	5	20		
Styrene	ug/L	ND	50	50	61.9	59.6	124	119	58-144	4	20		
Tetrachloroethene	ug/L	ND	50	50	61.7	58.4	123	117	48-143	6	20		
Toluene	ug/L	ND	50	50	61.5	58.9	123	118	59-136	4	20		
trans-1,2-Dichloroethene	ug/L	ND	50	50	56.1	53.2	112	106	57-132	5	20		
trans-1,3-Dichloropropene	ug/L	ND	50	50	57.9	56.6	116	113	59-154	2	20		
Trichloroethene	ug/L	ND	50	50	56.7	53.5	113	107	58-140	6	20		
Trichlorofluoromethane	ug/L	ND	50	50	69.6	65.9	139	132	24-175	6	20		
Vinyl chloride	ug/L	ND	50	50	57.8	54.5	116	109	21-150	6	20		
4-Bromofluorobenzene (S)	%						102	102	68-124				
Dibromofluoromethane (S)	%						102	103	72-126				
Toluene-d8 (S)	%						103	104	79-119				

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

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QC Batch: 58934 Analysis Method: EPA 8015B Modified  
 QC Batch Method: EPA 3535 Analysis Description: EPA 8015 ORO  
 Associated Lab Samples: 2039513001, 2039513002, 2039513003

---

METHOD BLANK: 243392 Matrix: Water

Associated Lab Samples: 2039513001, 2039513002, 2039513003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	ND	0.25	07/28/16 06:28	
Oil Range Organics (>C28-C40)	mg/L	ND	0.50	07/28/16 06:28	
n-Pentacosane (S)	%	41	16-137	07/28/16 06:28	
o-Terphenyl (S)	%	43	10-121	07/28/16 06:28	

LABORATORY CONTROL SAMPLE: 243393

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	.4	.14J	35	10-115	
Oil Range Organics (>C28-C40)	mg/L		ND			
n-Pentacosane (S)	%			56	16-137	
o-Terphenyl (S)	%			64	10-121	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

QC Batch: 58986 Analysis Method: EPA 8270 by SIM  
 QC Batch Method: EPA 3510 Analysis Description: 8270 Water by SIM MSSV  
 Associated Lab Samples: 2039513001, 2039513002, 2039513003

METHOD BLANK: 243598 Matrix: Water

Associated Lab Samples: 2039513001, 2039513002, 2039513003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	07/19/16 10:46	
Anthracene	mg/L	ND	0.00010	07/19/16 10:46	
Benzo(a)anthracene	mg/L	ND	0.00010	07/19/16 10:46	
Benzo(a)pyrene	mg/L	ND	0.00010	07/19/16 10:46	
Benzo(b)fluoranthene	mg/L	ND	0.00010	07/19/16 10:46	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	07/19/16 10:46	
Benzo(k)fluoranthene	mg/L	ND	0.00010	07/19/16 10:46	
Chrysene	mg/L	ND	0.00010	07/19/16 10:46	
Fluoranthene	mg/L	ND	0.00010	07/19/16 10:46	
Fluorene	mg/L	ND	0.00010	07/19/16 10:46	
Naphthalene	mg/L	ND	0.00010	07/19/16 10:46	
Phenanthrene	mg/L	ND	0.00010	07/19/16 10:46	
Pyrene	mg/L	ND	0.00010	07/19/16 10:46	
2-Fluorobiphenyl (S)	%	68	25-150	07/19/16 10:46	
Terphenyl-d14 (S)	%	73	25-150	07/19/16 10:46	

LABORATORY CONTROL SAMPLE: 243599

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0024	60	35-150	
Anthracene	mg/L	.004	0.0027	66	35-150	
Benzo(a)anthracene	mg/L	.004	0.0025	63	35-150	
Benzo(a)pyrene	mg/L	.004	0.0025	61	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0025	63	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0024	60	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0025	61	35-150	
Chrysene	mg/L	.004	0.0024	60	35-150	
Fluoranthene	mg/L	.004	0.0026	65	35-150	
Fluorene	mg/L	.004	0.0024	61	35-150	
Naphthalene	mg/L	.004	0.0023	58	35-150	
Phenanthrene	mg/L	.004	0.0025	63	35-150	
Pyrene	mg/L	.004	0.0026	65	35-150	
2-Fluorobiphenyl (S)	%			83	25-150	
Terphenyl-d14 (S)	%			91	25-150	

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## QUALIFIERS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039513

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.  
ND - Not Detected at or above adjusted reporting limit.  
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.  
MDL - Adjusted Method Detection Limit.  
PQL - Practical Quantitation Limit.  
RL - Reporting Limit.  
S - Surrogate  
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.  
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.  
LCS(D) - Laboratory Control Sample (Duplicate)  
MS(D) - Matrix Spike (Duplicate)  
DUP - Sample Duplicate  
RPD - Relative Percent Difference  
NC - Not Calculable.  
SG - Silica Gel - Clean-Up  
U - Indicates the compound was analyzed for, but not detected.  
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.  
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.  
TNI - The Nelac Institute

### LABORATORIES

PASI-N Pace Analytical Services - New Orleans

### BATCH QUALIFIERS

Batch: 59204  
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.  
Batch: 59805  
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.  
S5 Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039513

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2039513001	EB-071216	EPA 3535	58934	EPA 8015B Modified	59805
2039513002	MW-9A	EPA 3535	58934	EPA 8015B Modified	59805
2039513003	MW-109A	EPA 3535	58934	EPA 8015B Modified	59805
2039513001	EB-071216	EPA 8015/8021	58976		
2039513002	MW-9A	EPA 8015/8021	58976		
2039513003	MW-109A	EPA 8015/8021	58976		
2039513004	TRIPBLANK	EPA 8015/8021	58976		
2039513005	FB-071216	EPA 8015/8021	58976		
2039513001	EB-071216	EPA 3010	58936	EPA 6020	58995
2039513002	MW-9A	EPA 3010	58936	EPA 6020	58995
2039513003	MW-109A	EPA 3010	58936	EPA 6020	58995
2039513001	EB-071216	EPA 7470	58941	EPA 7470	58990
2039513002	MW-9A	EPA 7470	58941	EPA 7470	58990
2039513003	MW-109A	EPA 7470	58941	EPA 7470	58990
2039513001	EB-071216	EPA 3510	58986	EPA 8270 by SIM	59204
2039513002	MW-9A	EPA 3510	58986	EPA 8270 by SIM	59204
2039513003	MW-109A	EPA 3510	58986	EPA 8270 by SIM	59204
2039513001	EB-071216	EPA 5030B/8260	59049		
2039513002	MW-9A	EPA 5030B/8260	59049		
2039513003	MW-109A	EPA 5030B/8260	59049		
2039513004	TRIPBLANK	EPA 5030B/8260	59049		
2039513005	FB-071216	EPA 5030B/8260	59049		

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WO#: 2039513

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



Section A

Required Client Info:

2039513

Section C

Invoice Information:

Page: 1 of 1

2030777

Company: Arcadis / BBL Caribe		Report To: E Fraim Calderon		Attention:	
Address: City View Plaza 3 stz 401		Copy To:		Company Name:	
Guaynabo, PR 00968				REGULATORY AGENCY	
Email To: E.Fraim.Calderon@arcadis.com		Purchase Order No.:		<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER _____	
Phone: (909) 444-4000 Fax:		Project Name: Puma Terminal MW sampling		Site Location	
Requested Due Date/TAT:		Project Number: B0063569		STATE: PR	
				Pace Quote Reference: J Restrepo	
				Pace Project Manager: J Restrepo	
				Pace Profile #: 72SL	

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↓ Y/N	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.						
					COMPOSITE START	COMPOSITE END/GRAB	DATE	TIME			DATE	TIME	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH				Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other			
1	EB-01216		WT G	G			01/12/16	0815	9	4		1	4						X	X	X	X	X			
2	Trip blank		WT G	G			01/12/16	0800	4				4						X	X	X	X	X			
3	MW-91A		WT G	G			01/12/16	0930	9	4		1	4						X	X	X	X	X			
4	MW-109A		WT G	G			01/12/16	1110	9	4		1	4						X	X	X	X	X			
5	EB-01216		WT G	G			01/12/16	1122	4				4						X	X	X	X	X			

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS							
Level IV	Andrés Colon / Arcadis	01/12/16	1236	[Signature]	7-14-16	1236								
	[Signature] / Pace	7-12-16	7:00	Fred Esp										
	Fred Esp	7-14-16	1015	[Signature]	7-14-16	1015	4.4	Y	Y	Y				

ORIGINAL

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER: Andrés Colon					
SIGNATURE of SAMPLER: [Signature]					
DATE Signed (MM/DD/YY): 01/12/16					



Sample Condition Upon Rece

WO#: 2039513

PM: JAR1 Due Date: 07/26/16

CLIENT: 98-ARCADISPR

Urb. Jardines de Guaynabo
Calle Mrginal Blq A-10
Guaynabo, PR 00969

Project

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 4 Therm Fisher IR 6 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 7-22-16 [Signature]

Temp must be measured from Temperature blank when present Comments:

Table with 15 rows and 3 columns: Question, Yes/No/N/A checkboxes, and Number. Includes items like 'Temperature Blank Present?', 'Chain of Custody Present', etc.

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_





### Sample Condition Upon Receipt

1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

Project #: **20**

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:

- Therm Fisher IR 5
- Therm Fisher IR 6
- Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 7-14-16 JMB

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	1	
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14	
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15	

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

July 29, 2016

Efrain Calderon  
BBL Caribe Engineering P.S.C.  
48 City View Plaza1, Suite 401  
Road 16, Km. 1.2  
Guaynabo, PR 00968

RE: Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039601

Dear Efrain Calderon:

Enclosed are the analytical results for sample(s) received by the laboratory on July 13, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Juan Redondo  
juan.redondo@pacelabs.com  
Project Manager

Enclosures

cc: Sharon Colon  
Abner Hernandez  
Marianela Mercado-Burgos



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

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### New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:  
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):  
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):  
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):  
T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-  
00119

Commonwealth of Virginia (TNI): 480246

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2039601001	EB-071316	Water	07/13/16 08:38	07/13/16 14:28
2039601002	MW-75B	Water	07/13/16 08:58	07/13/16 14:28
2039601003	MW-37A	Water	07/13/16 11:20	07/13/16 14:28
2039601004	MW-63A	Water	07/13/16 12:14	07/13/16 14:28
2039601005	TRIPBLANK	Water	07/13/16 00:00	07/13/16 14:28
2039601006	FB-071316	Water	07/13/16 12:20	07/13/16 14:28

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2039601001	EB-071316	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2039601002	MW-75B	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2039601003	MW-37A	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2039601004	MW-63A	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2039601005	TRIPBLANK	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2039601006	FB-071316	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039601

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**Method:** EPA 8015B Modified  
**Description:** 8015M DRO/ORO Organics  
**Client:** BBL Caribe / Arcadis PR  
**Date:** July 29, 2016

**General Information:**

4 samples were analyzed for EPA 8015B Modified. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3535 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 58934

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

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**Method:** EPA 8015/8021

**Description:** 8021 GCV BTEX, MTBE, GRO

**Client:** BBL Caribe / Arcadis PR

**Date:** July 29, 2016

### General Information:

6 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: 58976

S5: Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

- MS (Lab ID: 243672)
  - 4-Bromofluorobenzene (S)
- MSD (Lab ID: 243673)
  - 4-Bromofluorobenzene (S)

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 58976

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2039513002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 243672)
  - Gasoline Range Organics

### Additional Comments:

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039601

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**Method:** EPA 6020  
**Description:** 6020 MET ICPMS  
**Client:** BBL Caribe / Arcadis PR  
**Date:** July 29, 2016

**General Information:**

4 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

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**Method:** EPA 7470

**Description:** 7470 Mercury

**Client:** BBL Caribe / Arcadis PR

**Date:** July 29, 2016

**General Information:**

4 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039601

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**Method:** EPA 8270 by SIM  
**Description:** 8270 MSSV PAH by SIM SEP  
**Client:** BBL Caribe / Arcadis PR  
**Date:** July 29, 2016

### General Information:

4 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: 59060

S4: Surrogate recovery not evaluated against control limits due to sample dilution.

- MW-37A (Lab ID: 2039601003)
- 2-Fluorobiphenyl (S)
- Terphenyl-d14 (S)

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 59060

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

### Additional Comments:

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

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**Method:** EPA 5030B/8260

**Description:** 8260 MSV Low Level

**Client:** BBL Caribe / Arcadis PR

**Date:** July 29, 2016

**General Information:**

6 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

Sample: EB-071316	Lab ID: 2039601001	Collected: 07/13/16 08:38	Received: 07/13/16 14:28	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/15/16 06:57	07/28/16 08:49		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/15/16 06:57	07/28/16 08:49		
<b>Surrogates</b>								
n-Pentacosane (S)	42	%	16-137	1	07/15/16 06:57	07/28/16 08:49	629-99-2	
o-Terphenyl (S)	47	%	10-121	1	07/15/16 06:57	07/28/16 08:49	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		07/16/16 03:30		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	96	%	44-148	1		07/16/16 03:30	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	07/15/16 08:13	07/18/16 14:00	7440-38-2	
Chromium	ND	mg/L	0.0010	1	07/15/16 08:13	07/18/16 14:00	7440-47-3	
Lead	ND	mg/L	0.0010	1	07/15/16 08:13	07/18/16 14:00	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	07/15/16 08:13	07/18/16 14:00	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	07/15/16 08:19	07/15/16 14:45	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:24	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:24	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:24	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:24	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:24	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:24	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:24	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:24	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:24	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:24	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:24	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:24	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:24	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	68	%	25-150	1	07/16/16 15:19	07/21/16 13:24	321-60-8	
Terphenyl-d14 (S)	66	%	25-150	1	07/16/16 15:19	07/21/16 13:24	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	11.9	ug/L	4.0	1		07/18/16 16:40	67-64-1	
Benzene	ND	ug/L	0.50	1		07/18/16 16:40	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/18/16 16:40	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/18/16 16:40	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/18/16 16:40	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/18/16 16:40	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/18/16 16:40	75-65-0	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

Sample: EB-071316	Lab ID: 2039601001	Collected: 07/13/16 08:38	Received: 07/13/16 14:28	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>	Analytical Method: EPA 5030B/8260							
Carbon disulfide	ND	ug/L	1.0	1		07/18/16 16:40	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/18/16 16:40	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/18/16 16:40	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/18/16 16:40	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/18/16 16:40	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/18/16 16:40	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/18/16 16:40	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/18/16 16:40	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/18/16 16:40	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/18/16 16:40	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/18/16 16:40	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/18/16 16:40	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/18/16 16:40	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/18/16 16:40	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/18/16 16:40	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/18/16 16:40	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 16:40	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 16:40	10061-02-6	
Ethanol	ND	ug/L	500	1		07/18/16 16:40	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/18/16 16:40	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/18/16 16:40	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/18/16 16:40	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/18/16 16:40	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/18/16 16:40	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/18/16 16:40	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/18/16 16:40	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/18/16 16:40	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/18/16 16:40	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/18/16 16:40	127-18-4	
Toluene	ND	ug/L	0.50	1		07/18/16 16:40	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/18/16 16:40	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/18/16 16:40	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/18/16 16:40	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/18/16 16:40	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/18/16 16:40	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/18/16 16:40	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/18/16 16:40	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	101	%	72-126	1		07/18/16 16:40	1868-53-7	
4-Bromofluorobenzene (S)	103	%	68-124	1		07/18/16 16:40	460-00-4	
Toluene-d8 (S)	106	%	79-119	1		07/18/16 16:40	2037-26-5	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039601

Sample: MW-75B	Lab ID: 2039601002	Collected: 07/13/16 08:58	Received: 07/13/16 14:28	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/15/16 06:57	07/28/16 09:41		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/15/16 06:57	07/28/16 09:41		
<b>Surrogates</b>								
n-Pentacosane (S)	40	%	16-137	1	07/15/16 06:57	07/28/16 09:41	629-99-2	
o-Terphenyl (S)	45	%	10-121	1	07/15/16 06:57	07/28/16 09:41	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		07/16/16 03:56		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	96	%	44-148	1		07/16/16 03:56	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	07/15/16 08:13	07/18/16 14:04	7440-38-2	
Chromium	0.14	mg/L	0.0010	1	07/15/16 08:13	07/18/16 14:04	7440-47-3	
Lead	ND	mg/L	0.0010	1	07/15/16 08:13	07/18/16 14:04	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	07/15/16 08:13	07/18/16 14:04	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	1.3	ug/L	0.20	1	07/15/16 08:19	07/15/16 14:47	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:46	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:46	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:46	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:46	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:46	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:46	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:46	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:46	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:46	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:46	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:46	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:46	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 13:46	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	81	%	25-150	1	07/16/16 15:19	07/21/16 13:46	321-60-8	
Terphenyl-d14 (S)	69	%	25-150	1	07/16/16 15:19	07/21/16 13:46	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	17.5	ug/L	4.0	1		07/18/16 16:58	67-64-1	
Benzene	ND	ug/L	0.50	1		07/18/16 16:58	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/18/16 16:58	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/18/16 16:58	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/18/16 16:58	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/18/16 16:58	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/18/16 16:58	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

Sample: MW-75B	Lab ID: 2039601002	Collected: 07/13/16 08:58	Received: 07/13/16 14:28	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		07/18/16 16:58	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/18/16 16:58	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/18/16 16:58	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/18/16 16:58	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/18/16 16:58	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/18/16 16:58	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/18/16 16:58	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/18/16 16:58	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/18/16 16:58	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/18/16 16:58	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/18/16 16:58	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/18/16 16:58	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/18/16 16:58	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/18/16 16:58	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/18/16 16:58	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/18/16 16:58	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 16:58	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 16:58	10061-02-6	
Ethanol	ND	ug/L	500	1		07/18/16 16:58	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/18/16 16:58	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/18/16 16:58	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/18/16 16:58	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/18/16 16:58	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/18/16 16:58	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/18/16 16:58	108-10-1	
Methyl-tert-butyl ether	3.4	ug/L	0.50	1		07/18/16 16:58	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/18/16 16:58	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/18/16 16:58	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/18/16 16:58	127-18-4	
Toluene	ND	ug/L	0.50	1		07/18/16 16:58	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/18/16 16:58	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/18/16 16:58	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/18/16 16:58	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/18/16 16:58	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/18/16 16:58	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/18/16 16:58	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/18/16 16:58	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	100	%	72-126	1		07/18/16 16:58	1868-53-7	
4-Bromofluorobenzene (S)	103	%	68-124	1		07/18/16 16:58	460-00-4	
Toluene-d8 (S)	107	%	79-119	1		07/18/16 16:58	2037-26-5	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

Sample: MW-37A	Lab ID: 2039601003	Collected: 07/13/16 11:20	Received: 07/13/16 14:28	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	1.7	mg/L	0.50	1	07/15/16 06:57	07/28/16 10:09		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/15/16 06:57	07/28/16 10:09		
<b>Surrogates</b>								
n-Pentacosane (S)	44	%	16-137	1	07/15/16 06:57	07/28/16 10:09	629-99-2	
o-Terphenyl (S)	53	%	10-121	1	07/15/16 06:57	07/28/16 10:09	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	6720	ug/L	250	5		07/19/16 20:05		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	106	%	44-148	5		07/19/16 20:05	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	0.0018	mg/L	0.0010	1	07/15/16 08:13	07/18/16 14:08	7440-38-2	
Chromium	ND	mg/L	0.0010	1	07/15/16 08:13	07/18/16 14:08	7440-47-3	
Lead	0.0013	mg/L	0.0010	1	07/15/16 08:13	07/18/16 14:08	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	07/15/16 08:13	07/18/16 14:08	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	0.26	ug/L	0.20	1	07/15/16 08:19	07/15/16 14:49	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	0.14	mg/L	0.0020	20	07/16/16 15:19	07/21/16 18:25	91-20-3	
Acenaphthene	0.0013	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:07	83-32-9	
Fluorene	0.00089	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:07	86-73-7	
Phenanthrene	0.00031	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:07	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:07	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:07	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:07	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:07	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:07	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:07	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:07	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:07	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:07	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	0	%	25-150	20	07/16/16 15:19	07/21/16 18:25	321-60-8	S4
2-Fluorobiphenyl (S)	80	%	25-150	1	07/16/16 15:19	07/21/16 14:07	321-60-8	
Terphenyl-d14 (S)	0	%	25-150	20	07/16/16 15:19	07/21/16 18:25	1718-51-0	S4
Terphenyl-d14 (S)	78	%	25-150	1	07/16/16 15:19	07/21/16 14:07	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	8.0	2		07/19/16 12:50	67-64-1	
Benzene	67.4	ug/L	1.0	2		07/19/16 12:50	71-43-2	
Bromodichloromethane	ND	ug/L	1.0	2		07/19/16 12:50	75-27-4	
Bromoform	ND	ug/L	1.0	2		07/19/16 12:50	75-25-2	
Bromomethane	ND	ug/L	1.0	2		07/19/16 12:50	74-83-9	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

Sample: MW-37A	Lab ID: 2039601003	Collected: 07/13/16 11:20	Received: 07/13/16 14:28	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
2-Butanone (MEK)	ND	ug/L	4.0	2		07/19/16 12:50	78-93-3	
tert-Butyl Alcohol	861	ug/L	400	2		07/19/16 12:50	75-65-0	
Carbon disulfide	ND	ug/L	2.0	2		07/19/16 12:50	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	2		07/19/16 12:50	56-23-5	
Chlorobenzene	ND	ug/L	1.0	2		07/19/16 12:50	108-90-7	
Chloroethane	ND	ug/L	1.0	2		07/19/16 12:50	75-00-3	
Chloroform	ND	ug/L	1.0	2		07/19/16 12:50	67-66-3	
Chloromethane	ND	ug/L	1.0	2		07/19/16 12:50	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	4.0	2		07/19/16 12:50	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	2		07/19/16 12:50	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	2.0	2		07/19/16 12:50	106-93-4	
Dichlorodifluoromethane	ND	ug/L	2.0	2		07/19/16 12:50	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	2		07/19/16 12:50	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	2		07/19/16 12:50	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	2		07/19/16 12:50	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	2.0	2		07/19/16 12:50	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	2		07/19/16 12:50	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	2		07/19/16 12:50	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	2		07/19/16 12:50	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	2		07/19/16 12:50	10061-02-6	
Ethanol	ND	ug/L	1000	2		07/19/16 12:50	64-17-5	
Ethylbenzene	52.4	ug/L	1.0	2		07/19/16 12:50	100-41-4	
2-Hexanone	ND	ug/L	2.0	2		07/19/16 12:50	591-78-6	
Isopropylbenzene (Cumene)	13.1	ug/L	2.0	2		07/19/16 12:50	98-82-8	
Methyl acetate	ND	ug/L	4.0	2		07/19/16 12:50	79-20-9	
Methylene Chloride	1.1	ug/L	1.0	2		07/19/16 12:50	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	2.0	2		07/19/16 12:50	108-10-1	
Methyl-tert-butyl ether	6.6	ug/L	1.0	2		07/19/16 12:50	1634-04-4	
Styrene	ND	ug/L	2.0	2		07/19/16 12:50	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	2		07/19/16 12:50	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	2		07/19/16 12:50	127-18-4	
Toluene	1.7	ug/L	1.0	2		07/19/16 12:50	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	2		07/19/16 12:50	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	2		07/19/16 12:50	79-00-5	
Trichloroethene	ND	ug/L	1.0	2		07/19/16 12:50	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	2		07/19/16 12:50	75-69-4	
Vinyl chloride	ND	ug/L	1.0	2		07/19/16 12:50	75-01-4	
m&p-Xylene	465	ug/L	4.0	2		07/19/16 12:50	179601-23-1	
o-Xylene	9.4	ug/L	2.0	2		07/19/16 12:50	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	101	%	72-126	2		07/19/16 12:50	1868-53-7	
4-Bromofluorobenzene (S)	96	%	68-124	2		07/19/16 12:50	460-00-4	
Toluene-d8 (S)	106	%	79-119	2		07/19/16 12:50	2037-26-5	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

Sample: MW-63A	Lab ID: 2039601004	Collected: 07/13/16 12:14	Received: 07/13/16 14:28	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/15/16 06:57	07/28/16 10:38		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/15/16 06:57	07/28/16 10:38		
<b>Surrogates</b>								
n-Pentacosane (S)	60	%.	16-137	1	07/15/16 06:57	07/28/16 10:38	629-99-2	
o-Terphenyl (S)	62	%.	10-121	1	07/15/16 06:57	07/28/16 10:38	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		07/19/16 19:38		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	97	%.	44-148	1		07/19/16 19:38	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	07/15/16 08:13	07/18/16 14:12	7440-38-2	
Chromium	ND	mg/L	0.0010	1	07/15/16 08:13	07/18/16 14:12	7440-47-3	
Lead	ND	mg/L	0.0010	1	07/15/16 08:13	07/18/16 14:12	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	07/15/16 08:13	07/18/16 14:12	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	07/15/16 08:19	07/15/16 14:51	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:29	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:29	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:29	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:29	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:29	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:29	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:29	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:29	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:29	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:29	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:29	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:29	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/16/16 15:19	07/21/16 14:29	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	66	%.	25-150	1	07/16/16 15:19	07/21/16 14:29	321-60-8	
Terphenyl-d14 (S)	70	%.	25-150	1	07/16/16 15:19	07/21/16 14:29	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	12.3	ug/L	4.0	1		07/18/16 17:16	67-64-1	
Benzene	ND	ug/L	0.50	1		07/18/16 17:16	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/18/16 17:16	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/18/16 17:16	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/18/16 17:16	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/18/16 17:16	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/18/16 17:16	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

Sample: MW-63A	Lab ID: 2039601004	Collected: 07/13/16 12:14	Received: 07/13/16 14:28	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		07/18/16 17:16	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/18/16 17:16	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/18/16 17:16	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/18/16 17:16	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/18/16 17:16	67-66-3	
Chloromethane	<b>0.93</b>	ug/L	0.50	1		07/18/16 17:16	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/18/16 17:16	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/18/16 17:16	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/18/16 17:16	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/18/16 17:16	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/18/16 17:16	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/18/16 17:16	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/18/16 17:16	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/18/16 17:16	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/18/16 17:16	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/18/16 17:16	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 17:16	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 17:16	10061-02-6	
Ethanol	ND	ug/L	500	1		07/18/16 17:16	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/18/16 17:16	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/18/16 17:16	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/18/16 17:16	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/18/16 17:16	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/18/16 17:16	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/18/16 17:16	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/18/16 17:16	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/18/16 17:16	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/18/16 17:16	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/18/16 17:16	127-18-4	
Toluene	ND	ug/L	0.50	1		07/18/16 17:16	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/18/16 17:16	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/18/16 17:16	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/18/16 17:16	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/18/16 17:16	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/18/16 17:16	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/18/16 17:16	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/18/16 17:16	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	100	%	72-126	1		07/18/16 17:16	1868-53-7	
4-Bromofluorobenzene (S)	103	%	68-124	1		07/18/16 17:16	460-00-4	
Toluene-d8 (S)	107	%	79-119	1		07/18/16 17:16	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

Sample: TRIPBLANK	Lab ID: 2039601005	Collected: 07/13/16 00:00	Received: 07/13/16 14:28	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>	Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		07/16/16 05:17		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	99	%.	44-148	1		07/16/16 05:17	460-00-4	
<b>8260 MSV Low Level</b>	Analytical Method: EPA 5030B/8260							
Acetone	<b>70.8</b>	ug/L	4.0	1		07/18/16 17:34	67-64-1	
Benzene	ND	ug/L	0.50	1		07/18/16 17:34	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/18/16 17:34	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/18/16 17:34	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/18/16 17:34	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/18/16 17:34	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/18/16 17:34	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		07/18/16 17:34	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/18/16 17:34	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/18/16 17:34	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/18/16 17:34	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/18/16 17:34	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/18/16 17:34	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/18/16 17:34	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/18/16 17:34	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/18/16 17:34	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/18/16 17:34	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/18/16 17:34	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/18/16 17:34	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/18/16 17:34	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/18/16 17:34	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/18/16 17:34	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/18/16 17:34	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 17:34	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 17:34	10061-02-6	
Ethanol	ND	ug/L	500	1		07/18/16 17:34	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/18/16 17:34	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/18/16 17:34	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/18/16 17:34	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/18/16 17:34	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/18/16 17:34	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/18/16 17:34	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/18/16 17:34	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/18/16 17:34	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/18/16 17:34	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/18/16 17:34	127-18-4	
Toluene	ND	ug/L	0.50	1		07/18/16 17:34	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/18/16 17:34	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/18/16 17:34	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/18/16 17:34	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/18/16 17:34	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/18/16 17:34	75-01-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

Sample: TRIPBLANK		Lab ID: 2039601005	Collected: 07/13/16 00:00	Received: 07/13/16 14:28	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
m&p-Xylene	ND	ug/L	2.0	1		07/18/16 17:34	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/18/16 17:34	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	100	%	72-126	1		07/18/16 17:34	1868-53-7	
4-Bromofluorobenzene (S)	103	%	68-124	1		07/18/16 17:34	460-00-4	
Toluene-d8 (S)	106	%	79-119	1		07/18/16 17:34	2037-26-5	

Sample: FB-071316		Lab ID: 2039601006	Collected: 07/13/16 12:20	Received: 07/13/16 14:28	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		07/16/16 05:44		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	98	%	44-148	1		07/16/16 05:44	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	28.8	ug/L	4.0	1		07/18/16 17:52	67-64-1	
Benzene	ND	ug/L	0.50	1		07/18/16 17:52	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/18/16 17:52	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/18/16 17:52	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/18/16 17:52	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/18/16 17:52	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/18/16 17:52	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		07/18/16 17:52	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/18/16 17:52	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/18/16 17:52	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/18/16 17:52	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/18/16 17:52	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/18/16 17:52	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/18/16 17:52	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/18/16 17:52	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/18/16 17:52	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/18/16 17:52	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/18/16 17:52	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/18/16 17:52	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/18/16 17:52	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/18/16 17:52	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/18/16 17:52	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/18/16 17:52	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 17:52	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 17:52	10061-02-6	
Ethanol	ND	ug/L	500	1		07/18/16 17:52	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/18/16 17:52	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/18/16 17:52	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/18/16 17:52	98-82-8	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039601

Sample: <b>FB-071316</b>	Lab ID: <b>2039601006</b>	Collected: 07/13/16 12:20	Received: 07/13/16 14:28	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Methyl acetate	ND	ug/L	2.0	1		07/18/16 17:52	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/18/16 17:52	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/18/16 17:52	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/18/16 17:52	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/18/16 17:52	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/18/16 17:52	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/18/16 17:52	127-18-4	
Toluene	ND	ug/L	0.50	1		07/18/16 17:52	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/18/16 17:52	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/18/16 17:52	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/18/16 17:52	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/18/16 17:52	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/18/16 17:52	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/18/16 17:52	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/18/16 17:52	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	101	%.	72-126	1		07/18/16 17:52	1868-53-7	
4-Bromofluorobenzene (S)	102	%.	68-124	1		07/18/16 17:52	460-00-4	
Toluene-d8 (S)	106	%.	79-119	1		07/18/16 17:52	2037-26-5	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039601

QC Batch: 58976 Analysis Method: EPA 8015/8021  
QC Batch Method: EPA 8015/8021 Analysis Description: 8021 W GCV BTEX, MTBE, GRO  
Associated Lab Samples: 2039601001, 2039601002, 2039601003, 2039601004, 2039601005, 2039601006

METHOD BLANK: 243584 Matrix: Water  
Associated Lab Samples: 2039601001, 2039601002, 2039601003, 2039601004, 2039601005, 2039601006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	07/15/16 21:14	
4-Bromofluorobenzene (S)	%.	96	44-148	07/15/16 21:14	

METHOD BLANK: 244460 Matrix: Water  
Associated Lab Samples: 2039601001, 2039601002, 2039601003, 2039601004, 2039601005, 2039601006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	07/19/16 14:18	
4-Bromofluorobenzene (S)	%.	96	44-148	07/19/16 14:18	

LABORATORY CONTROL SAMPLE: 243585

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	467	93	61-136	
4-Bromofluorobenzene (S)	%.			97	44-148	

LABORATORY CONTROL SAMPLE: 244461

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	494	99	61-136	
4-Bromofluorobenzene (S)	%.			99	44-148	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 243672 243673

Parameter	Units	2039513002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Gasoline Range Organics	ug/L	36200	500	500	37600	36500	267	59	15-147	3	20	M1
4-Bromofluorobenzene (S)	%.						156	157	44-148			S5

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

QC Batch: 58941 Analysis Method: EPA 7470  
 QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
 Associated Lab Samples: 2039601001, 2039601002, 2039601003, 2039601004

METHOD BLANK: 243414 Matrix: Water  
 Associated Lab Samples: 2039601001, 2039601002, 2039601003, 2039601004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	07/15/16 14:20	

LABORATORY CONTROL SAMPLE: 243415

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	0.97	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 243416 243417

Parameter	Units	2039655001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	1	1	0.94	0.95	94	95	75-125	1	20	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039601

QC Batch: 58936 Analysis Method: EPA 6020  
QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
Associated Lab Samples: 2039601001, 2039601002, 2039601003, 2039601004

METHOD BLANK: 243394 Matrix: Water  
Associated Lab Samples: 2039601001, 2039601002, 2039601003, 2039601004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	07/18/16 12:20	
Chromium	mg/L	ND	0.0010	07/18/16 12:20	
Lead	mg/L	ND	0.0010	07/18/16 12:20	
Vanadium	mg/L	ND	0.0050	07/18/16 12:20	

LABORATORY CONTROL SAMPLE: 243395

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.02	0.021	103	83-115	
Chromium	mg/L	.02	0.020	101	85-115	
Lead	mg/L	.02	0.020	98	84-115	
Vanadium	mg/L	.02	0.020	100	81-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 243396 243397

Parameter	Units	2039513002 Result	MS Spike Conc.	MSD Spike Conc.	243396		243397		% Rec Limits	RPD	Max RPD	Qual
					MS Result	MSD Result	MS % Rec	MSD % Rec				
Arsenic	mg/L	0.0046	.02	.02	0.025	0.024	104	97	80-120	5	20	
Chromium	mg/L	ND	.02	.02	0.021	0.020	100	96	80-120	5	20	
Lead	mg/L	0.0015	.02	.02	0.023	0.021	106	99	80-120	6	20	
Vanadium	mg/L	ND	.02	.02	0.022	0.020	103	97	80-120	6	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 244159 244160

Parameter	Units	2039603002 Result	MS Spike Conc.	MSD Spike Conc.	244159		244160		% Rec Limits	RPD	Max RPD	Qual
					MS Result	MSD Result	MS % Rec	MSD % Rec				
Arsenic	mg/L	ND	.02	.02	0.021	0.020	101	100	80-120	2	20	
Chromium	mg/L	ND	.02	.02	0.020	0.019	98	97	80-120	1	20	
Lead	mg/L	ND	.02	.02	0.021	0.020	102	101	80-120	2	20	
Vanadium	mg/L	10.8 ug/L	.02	.02	0.031	0.030	101	98	80-120	2	20	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

QC Batch: 59049 Analysis Method: EPA 5030B/8260  
 QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Low Level  
 Associated Lab Samples: 2039601001, 2039601002, 2039601003, 2039601004, 2039601005, 2039601006

METHOD BLANK: 243930 Matrix: Water  
 Associated Lab Samples: 2039601001, 2039601002, 2039601003, 2039601004, 2039601005, 2039601006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	07/18/16 13:41	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	07/18/16 13:41	
1,1,2-Trichloroethane	ug/L	ND	0.50	07/18/16 13:41	
1,1-Dichloroethane	ug/L	ND	0.50	07/18/16 13:41	
1,1-Dichloroethene	ug/L	ND	0.50	07/18/16 13:41	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	07/18/16 13:41	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	07/18/16 13:41	
1,2-Dichloroethane	ug/L	ND	0.50	07/18/16 13:41	
1,2-Dichloropropane	ug/L	ND	0.50	07/18/16 13:41	
2-Butanone (MEK)	ug/L	ND	2.0	07/18/16 13:41	
2-Hexanone	ug/L	ND	1.0	07/18/16 13:41	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	07/18/16 13:41	
Acetone	ug/L	ND	4.0	07/18/16 13:41	
Benzene	ug/L	ND	0.50	07/18/16 13:41	
Bromodichloromethane	ug/L	ND	0.50	07/18/16 13:41	
Bromoform	ug/L	ND	0.50	07/18/16 13:41	
Bromomethane	ug/L	ND	0.50	07/18/16 13:41	
Carbon disulfide	ug/L	ND	1.0	07/18/16 13:41	
Carbon tetrachloride	ug/L	ND	0.50	07/18/16 13:41	
Chlorobenzene	ug/L	ND	0.50	07/18/16 13:41	
Chloroethane	ug/L	ND	0.50	07/18/16 13:41	
Chloroform	ug/L	ND	0.50	07/18/16 13:41	
Chloromethane	ug/L	ND	0.50	07/18/16 13:41	
cis-1,2-Dichloroethene	ug/L	ND	1.0	07/18/16 13:41	
cis-1,3-Dichloropropene	ug/L	ND	0.50	07/18/16 13:41	
Dibromochloromethane	ug/L	ND	0.50	07/18/16 13:41	
Dichlorodifluoromethane	ug/L	ND	1.0	07/18/16 13:41	
Ethanol	ug/L	ND	500	07/18/16 13:41	
Ethylbenzene	ug/L	ND	0.50	07/18/16 13:41	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	07/18/16 13:41	
m&p-Xylene	ug/L	ND	2.0	07/18/16 13:41	
Methyl acetate	ug/L	ND	2.0	07/18/16 13:41	
Methyl-tert-butyl ether	ug/L	ND	0.50	07/18/16 13:41	
Methylene Chloride	ug/L	ND	0.50	07/18/16 13:41	
o-Xylene	ug/L	ND	1.0	07/18/16 13:41	
Styrene	ug/L	ND	1.0	07/18/16 13:41	
tert-Butyl Alcohol	ug/L	ND	200	07/18/16 13:41	
Tetrachloroethene	ug/L	ND	0.50	07/18/16 13:41	
Toluene	ug/L	ND	0.50	07/18/16 13:41	
trans-1,2-Dichloroethene	ug/L	ND	0.50	07/18/16 13:41	
trans-1,3-Dichloropropene	ug/L	ND	0.50	07/18/16 13:41	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

METHOD BLANK: 243930

Matrix: Water

Associated Lab Samples: 2039601001, 2039601002, 2039601003, 2039601004, 2039601005, 2039601006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	0.50	07/18/16 13:41	
Trichlorofluoromethane	ug/L	ND	0.50	07/18/16 13:41	
Vinyl chloride	ug/L	ND	0.50	07/18/16 13:41	
4-Bromofluorobenzene (S)	%	102	68-124	07/18/16 13:41	
Dibromofluoromethane (S)	%	102	72-126	07/18/16 13:41	
Toluene-d8 (S)	%	106	79-119	07/18/16 13:41	

METHOD BLANK: 244421

Matrix: Water

Associated Lab Samples: 2039601001, 2039601002, 2039601003, 2039601004, 2039601005, 2039601006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	07/19/16 10:28	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	07/19/16 10:28	
1,1,2-Trichloroethane	ug/L	ND	0.50	07/19/16 10:28	
1,1-Dichloroethane	ug/L	ND	0.50	07/19/16 10:28	
1,1-Dichloroethene	ug/L	ND	0.50	07/19/16 10:28	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	07/19/16 10:28	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	07/19/16 10:28	
1,2-Dichloroethane	ug/L	ND	0.50	07/19/16 10:28	
1,2-Dichloropropane	ug/L	ND	0.50	07/19/16 10:28	
2-Butanone (MEK)	ug/L	ND	2.0	07/19/16 10:28	
2-Hexanone	ug/L	ND	1.0	07/19/16 10:28	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	07/19/16 10:28	
Acetone	ug/L	ND	4.0	07/19/16 10:28	
Benzene	ug/L	ND	0.50	07/19/16 10:28	
Bromodichloromethane	ug/L	ND	0.50	07/19/16 10:28	
Bromoform	ug/L	ND	0.50	07/19/16 10:28	
Bromomethane	ug/L	ND	0.50	07/19/16 10:28	
Carbon disulfide	ug/L	ND	1.0	07/19/16 10:28	
Carbon tetrachloride	ug/L	ND	0.50	07/19/16 10:28	
Chlorobenzene	ug/L	ND	0.50	07/19/16 10:28	
Chloroethane	ug/L	ND	0.50	07/19/16 10:28	
Chloroform	ug/L	ND	0.50	07/19/16 10:28	
Chloromethane	ug/L	ND	0.50	07/19/16 10:28	
cis-1,2-Dichloroethene	ug/L	ND	1.0	07/19/16 10:28	
cis-1,3-Dichloropropene	ug/L	ND	0.50	07/19/16 10:28	
Dibromochloromethane	ug/L	ND	0.50	07/19/16 10:28	
Dichlorodifluoromethane	ug/L	ND	1.0	07/19/16 10:28	
Ethanol	ug/L	ND	500	07/19/16 10:28	
Ethylbenzene	ug/L	ND	0.50	07/19/16 10:28	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	07/19/16 10:28	
m&p-Xylene	ug/L	ND	2.0	07/19/16 10:28	
Methyl acetate	ug/L	ND	2.0	07/19/16 10:28	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

METHOD BLANK: 244421

Matrix: Water

Associated Lab Samples: 2039601001, 2039601002, 2039601003, 2039601004, 2039601005, 2039601006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Methyl-tert-butyl ether	ug/L	ND	0.50	07/19/16 10:28	
Methylene Chloride	ug/L	ND	0.50	07/19/16 10:28	
o-Xylene	ug/L	ND	1.0	07/19/16 10:28	
Styrene	ug/L	ND	1.0	07/19/16 10:28	
tert-Butyl Alcohol	ug/L	ND	200	07/19/16 10:28	
Tetrachloroethene	ug/L	ND	0.50	07/19/16 10:28	
Toluene	ug/L	ND	0.50	07/19/16 10:28	
trans-1,2-Dichloroethene	ug/L	ND	0.50	07/19/16 10:28	
trans-1,3-Dichloropropene	ug/L	ND	0.50	07/19/16 10:28	
Trichloroethene	ug/L	ND	0.50	07/19/16 10:28	
Trichlorofluoromethane	ug/L	ND	0.50	07/19/16 10:28	
Vinyl chloride	ug/L	ND	0.50	07/19/16 10:28	
4-Bromofluorobenzene (S)	%	101	68-124	07/19/16 10:28	
Dibromofluoromethane (S)	%	103	72-126	07/19/16 10:28	
Toluene-d8 (S)	%	105	79-119	07/19/16 10:28	

LABORATORY CONTROL SAMPLE: 243931

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	52.4	105	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	52.7	105	15-179	
1,1,2-Trichloroethane	ug/L	50	51.5	103	58-144	
1,1-Dichloroethane	ug/L	50	48.6	97	63-129	
1,1-Dichloroethene	ug/L	50	43.3	87	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	55.4	111	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	56.2	112	52-161	
1,2-Dichloroethane	ug/L	50	52.4	105	57-148	
1,2-Dichloropropane	ug/L	50	52.6	105	66-128	
2-Butanone (MEK)	ug/L	50	53.6	107	32-183	
2-Hexanone	ug/L	50	58.3	117	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	56.4	113	26-171	
Acetone	ug/L	50	54.0	108	22-165	
Benzene	ug/L	50	49.9	100	62-131	
Bromodichloromethane	ug/L	50	51.2	102	69-132	
Bromoform	ug/L	50	46.4	93	35-166	
Bromomethane	ug/L	50	54.3	109	34-158	
Carbon disulfide	ug/L	50	43.3	87	31-128	
Carbon tetrachloride	ug/L	50	46.4	93	54-144	
Chlorobenzene	ug/L	50	53.3	107	70-127	
Chloroethane	ug/L	50	47.6	95	17-195	
Chloroform	ug/L	50	46.5	93	73-134	
Chloromethane	ug/L	50	58.0	116	17-153	
cis-1,2-Dichloroethene	ug/L	50	50.7	101	68-129	
cis-1,3-Dichloropropene	ug/L	50	46.9	94	72-138	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

LABORATORY CONTROL SAMPLE: 243931

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	50	50.9	102	49-146	
Dichlorodifluoromethane	ug/L	50	44.0	88	10-179	
Ethylbenzene	ug/L	50	55.2	110	66-126	
Isopropylbenzene (Cumene)	ug/L	50	57.2	114	51-138	
m&p-Xylene	ug/L	100	108	108	65-129	
Methyl acetate	ug/L	50	47.1	94	20-142	
Methyl-tert-butyl ether	ug/L	50	45.7	91	37-166	
Methylene Chloride	ug/L	50	45.8	92	46-168	
o-Xylene	ug/L	50	54.4	109	65-124	
Styrene	ug/L	50	57.5	115	72-133	
Tetrachloroethene	ug/L	50	53.2	106	46-157	
Toluene	ug/L	50	54.1	108	69-126	
trans-1,2-Dichloroethene	ug/L	50	48.1	96	60-129	
trans-1,3-Dichloropropene	ug/L	50	52.9	106	59-149	
Trichloroethene	ug/L	50	49.5	99	67-132	
Trichlorofluoromethane	ug/L	50	60.5	121	39-171	
Vinyl chloride	ug/L	50	48.8	98	27-149	
4-Bromofluorobenzene (S)	%			100	68-124	
Dibromofluoromethane (S)	%			103	72-126	
Toluene-d8 (S)	%			103	79-119	

LABORATORY CONTROL SAMPLE: 244422

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	52.8	106	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	49.8	100	15-179	
1,1,2-Trichloroethane	ug/L	50	52.1	104	58-144	
1,1-Dichloroethane	ug/L	50	49.0	98	63-129	
1,1-Dichloroethene	ug/L	50	49.8	100	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	52.8	106	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	56.4	113	52-161	
1,2-Dichloroethane	ug/L	50	52.9	106	57-148	
1,2-Dichloropropane	ug/L	50	50.2	100	66-128	
2-Butanone (MEK)	ug/L	50	52.7	105	32-183	
2-Hexanone	ug/L	50	57.5	115	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	57.3	115	26-171	
Acetone	ug/L	50	52.5	105	22-165	
Benzene	ug/L	50	48.9	98	62-131	
Bromodichloromethane	ug/L	50	49.9	100	69-132	
Bromoform	ug/L	50	47.9	96	35-166	
Bromomethane	ug/L	50	52.6	105	34-158	
Carbon disulfide	ug/L	50	51.7	103	31-128	
Carbon tetrachloride	ug/L	50	49.6	99	54-144	
Chlorobenzene	ug/L	50	54.3	109	70-127	
Chloroethane	ug/L	50	47.5	95	17-195	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

LABORATORY CONTROL SAMPLE: 244422

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloroform	ug/L	50	45.6	91	73-134	
Chloromethane	ug/L	50	55.3	111	17-153	
cis-1,2-Dichloroethene	ug/L	50	50.8	102	68-129	
cis-1,3-Dichloropropene	ug/L	50	45.7	91	72-138	
Dibromochloromethane	ug/L	50	52.0	104	49-146	
Dichlorodifluoromethane	ug/L	50	43.0	86	10-179	
Ethylbenzene	ug/L	50	55.0	110	66-126	
Isopropylbenzene (Cumene)	ug/L	50	55.4	111	51-138	
m&p-Xylene	ug/L	100	109	109	65-129	
Methyl acetate	ug/L	50	43.2	86	20-142	
Methyl-tert-butyl ether	ug/L	50	45.1	90	37-166	
Methylene Chloride	ug/L	50	46.1	92	46-168	
o-Xylene	ug/L	50	54.7	109	65-124	
Styrene	ug/L	50	57.7	115	72-133	
Tetrachloroethene	ug/L	50	56.2	112	46-157	
Toluene	ug/L	50	53.0	106	69-126	
trans-1,2-Dichloroethene	ug/L	50	50.0	100	60-129	
trans-1,3-Dichloropropene	ug/L	50	52.5	105	59-149	
Trichloroethene	ug/L	50	50.2	100	67-132	
Trichlorofluoromethane	ug/L	50	60.2	120	39-171	
Vinyl chloride	ug/L	50	46.4	93	27-149	
4-Bromofluorobenzene (S)	%			100	68-124	
Dibromofluoromethane (S)	%			104	72-126	
Toluene-d8 (S)	%			102	79-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 243932

243933

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2039513003 Result	Spike Conc.	MSD Spike Conc.	MS Result								
1,1,1-Trichloroethane	ug/L	ND	50	50	60.5	57.1	121	114	54-137	6	20		
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	57.8	57.7	116	115	15-187	0	20		
1,1,2-Trichloroethane	ug/L	ND	50	50	56.0	55.8	112	112	59-148	0	20		
1,1-Dichloroethane	ug/L	ND	50	50	55.2	52.8	110	106	59-133	4	20		
1,1-Dichloroethene	ug/L	ND	50	50	50.8	48.4	102	97	44-146	5	20		
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	59.0	59.4	118	119	23-166	1	20		
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	60.6	60.2	121	120	55-166	1	20		
1,2-Dichloroethane	ug/L	ND	50	50	57.2	55.3	114	111	56-154	3	20		
1,2-Dichloropropane	ug/L	ND	50	50	57.1	55.5	114	111	62-135	3	20		
2-Butanone (MEK)	ug/L	ND	50	50	58.2	58.4	114	114	20-205	0	20		
2-Hexanone	ug/L	ND	50	50	61.2	64.5	122	129	25-189	5	20		
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	50	60.9	61.4	122	123	23-184	1	20		
Acetone	ug/L	14.1	50	50	73.1	76.1	118	124	11-217	4	20		
Benzene	ug/L	ND	50	50	56.4	54.0	113	108	52-141	4	20		
Bromodichloromethane	ug/L	ND	50	50	55.4	54.7	111	109	70-134	1	20		

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

Parameter	Units	2039513003		243932		243933		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec						
Bromoform	ug/L	ND	50	50	49.7	49.6	99	99	37-171	0	20		
Bromomethane	ug/L	ND	50	50	59.7	56.3	119	113	34-155	6	20		
Carbon disulfide	ug/L	ND	50	50	53.9	49.6	108	99	28-130	8	20		
Carbon tetrachloride	ug/L	ND	50	50	55.0	54.0	110	108	48-146	2	20		
Chlorobenzene	ug/L	ND	50	50	59.5	56.6	119	113	67-129	5	20		
Chloroethane	ug/L	ND	50	50	54.1	51.8	108	104	12-192	4	20		
Chloroform	ug/L	ND	50	50	51.9	50.4	104	101	66-143	3	20		
Chloromethane	ug/L	ND	50	50	63.9	60.1	127	120	14-155	6	20		
cis-1,2-Dichloroethene	ug/L	ND	50	50	57.3	55.5	115	111	56-141	3	20		
cis-1,3-Dichloropropene	ug/L	ND	50	50	51.3	49.6	103	99	70-139	3	20		
Dibromochloromethane	ug/L	ND	50	50	54.9	54.6	110	109	50-150	0	20		
Dichlorodifluoromethane	ug/L	ND	50	50	50.1	46.1	100	92	10-173	8	20		
Ethylbenzene	ug/L	ND	50	50	62.9	60.0	126	120	57-135	5	20		
Isopropylbenzene (Cumene)	ug/L	ND	50	50	67.3	64.3	135	129	40-146	4	20		
m&p-Xylene	ug/L	ND	100	100	122	117	122	117	56-136	5	20		
Methyl acetate	ug/L	ND	50	50	45.8	45.5	92	91	10-142	1	20		
Methyl-tert-butyl ether	ug/L	ND	50	50	48.2	48.9	96	98	35-176	1	20		
Methylene Chloride	ug/L	ND	50	50	49.9	48.1	100	96	45-166	4	20		
o-Xylene	ug/L	ND	50	50	61.1	58.0	122	116	57-133	5	20		
Styrene	ug/L	ND	50	50	61.9	59.6	124	119	58-144	4	20		
Tetrachloroethene	ug/L	ND	50	50	61.7	58.4	123	117	48-143	6	20		
Toluene	ug/L	ND	50	50	61.5	58.9	123	118	59-136	4	20		
trans-1,2-Dichloroethene	ug/L	ND	50	50	56.1	53.2	112	106	57-132	5	20		
trans-1,3-Dichloropropene	ug/L	ND	50	50	57.9	56.6	116	113	59-154	2	20		
Trichloroethene	ug/L	ND	50	50	56.7	53.5	113	107	58-140	6	20		
Trichlorofluoromethane	ug/L	ND	50	50	69.6	65.9	139	132	24-175	6	20		
Vinyl chloride	ug/L	ND	50	50	57.8	54.5	116	109	21-150	6	20		
4-Bromofluorobenzene (S)	%						102	102	68-124				
Dibromofluoromethane (S)	%						102	103	72-126				
Toluene-d8 (S)	%						103	104	79-119				

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

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QC Batch: 58934 Analysis Method: EPA 8015B Modified  
 QC Batch Method: EPA 3535 Analysis Description: EPA 8015 ORO  
 Associated Lab Samples: 2039601001, 2039601002, 2039601003, 2039601004

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METHOD BLANK: 243392 Matrix: Water  
 Associated Lab Samples: 2039601001, 2039601002, 2039601003, 2039601004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	ND	0.25	07/28/16 06:28	
Oil Range Organics (>C28-C40)	mg/L	ND	0.50	07/28/16 06:28	
n-Pentacosane (S)	%	41	16-137	07/28/16 06:28	
o-Terphenyl (S)	%	43	10-121	07/28/16 06:28	

LABORATORY CONTROL SAMPLE: 243393

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	.4	.14J	35	10-115	
Oil Range Organics (>C28-C40)	mg/L		ND			
n-Pentacosane (S)	%			56	16-137	
o-Terphenyl (S)	%			64	10-121	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

QC Batch: 59060 Analysis Method: EPA 8270 by SIM  
 QC Batch Method: EPA 3510 Analysis Description: 8270 Water by SIM MSSV  
 Associated Lab Samples: 2039601001, 2039601002, 2039601003, 2039601004

METHOD BLANK: 243992 Matrix: Water  
 Associated Lab Samples: 2039601001, 2039601002, 2039601003, 2039601004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	07/20/16 11:11	
Anthracene	mg/L	ND	0.00010	07/20/16 11:11	
Benzo(a)anthracene	mg/L	ND	0.00010	07/20/16 11:11	
Benzo(a)pyrene	mg/L	ND	0.00010	07/20/16 11:11	
Benzo(b)fluoranthene	mg/L	ND	0.00010	07/20/16 11:11	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	07/20/16 11:11	
Benzo(k)fluoranthene	mg/L	ND	0.00010	07/20/16 11:11	
Chrysene	mg/L	ND	0.00010	07/20/16 11:11	
Fluoranthene	mg/L	ND	0.00010	07/20/16 11:11	
Fluorene	mg/L	ND	0.00010	07/20/16 11:11	
Naphthalene	mg/L	ND	0.00010	07/20/16 11:11	
Phenanthrene	mg/L	ND	0.00010	07/20/16 11:11	
Pyrene	mg/L	ND	0.00010	07/20/16 11:11	
2-Fluorobiphenyl (S)	%	71	25-150	07/20/16 11:11	
Terphenyl-d14 (S)	%	72	25-150	07/20/16 11:11	

LABORATORY CONTROL SAMPLE: 243993

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0025	62	35-150	
Anthracene	mg/L	.004	0.0030	74	35-150	
Benzo(a)anthracene	mg/L	.004	0.0029	72	35-150	
Benzo(a)pyrene	mg/L	.004	0.0027	67	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0028	69	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0024	61	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0027	66	35-150	
Chrysene	mg/L	.004	0.0026	65	35-150	
Fluoranthene	mg/L	.004	0.0029	72	35-150	
Fluorene	mg/L	.004	0.0027	68	35-150	
Naphthalene	mg/L	.004	0.0024	60	35-150	
Phenanthrene	mg/L	.004	0.0028	71	35-150	
Pyrene	mg/L	.004	0.0028	71	35-150	
2-Fluorobiphenyl (S)	%			80	25-150	
Terphenyl-d14 (S)	%			89	25-150	

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## QUALIFIERS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039601

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.  
ND - Not Detected at or above adjusted reporting limit.  
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.  
MDL - Adjusted Method Detection Limit.  
PQL - Practical Quantitation Limit.  
RL - Reporting Limit.  
S - Surrogate  
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.  
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.  
LCS(D) - Laboratory Control Sample (Duplicate)  
MS(D) - Matrix Spike (Duplicate)  
DUP - Sample Duplicate  
RPD - Relative Percent Difference  
NC - Not Calculable.  
SG - Silica Gel - Clean-Up  
U - Indicates the compound was analyzed for, but not detected.  
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.  
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.  
TNI - The Nelac Institute

### LABORATORIES

PASI-N Pace Analytical Services - New Orleans

### BATCH QUALIFIERS

Batch: 59317  
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.  
Batch: 59805  
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.  
S4 Surrogate recovery not evaluated against control limits due to sample dilution.  
S5 Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039601

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2039601001	EB-071316	EPA 3535	58934	EPA 8015B Modified	59805
2039601002	MW-75B	EPA 3535	58934	EPA 8015B Modified	59805
2039601003	MW-37A	EPA 3535	58934	EPA 8015B Modified	59805
2039601004	MW-63A	EPA 3535	58934	EPA 8015B Modified	59805
2039601001	EB-071316	EPA 8015/8021	58976		
2039601002	MW-75B	EPA 8015/8021	58976		
2039601003	MW-37A	EPA 8015/8021	58976		
2039601004	MW-63A	EPA 8015/8021	58976		
2039601005	TRIPBLANK	EPA 8015/8021	58976		
2039601006	FB-071316	EPA 8015/8021	58976		
2039601001	EB-071316	EPA 3010	58936	EPA 6020	58995
2039601002	MW-75B	EPA 3010	58936	EPA 6020	58995
2039601003	MW-37A	EPA 3010	58936	EPA 6020	58995
2039601004	MW-63A	EPA 3010	58936	EPA 6020	58995
2039601001	EB-071316	EPA 7470	58941	EPA 7470	58990
2039601002	MW-75B	EPA 7470	58941	EPA 7470	58990
2039601003	MW-37A	EPA 7470	58941	EPA 7470	58990
2039601004	MW-63A	EPA 7470	58941	EPA 7470	58990
2039601001	EB-071316	EPA 3510	59060	EPA 8270 by SIM	59317
2039601002	MW-75B	EPA 3510	59060	EPA 8270 by SIM	59317
2039601003	MW-37A	EPA 3510	59060	EPA 8270 by SIM	59317
2039601004	MW-63A	EPA 3510	59060	EPA 8270 by SIM	59317
2039601001	EB-071316	EPA 5030B/8260	59049		
2039601002	MW-75B	EPA 5030B/8260	59049		
2039601003	MW-37A	EPA 5030B/8260	59049		
2039601004	MW-63A	EPA 5030B/8260	59049		
2039601005	TRIPBLANK	EPA 5030B/8260	59049		
2039601006	FB-071316	EPA 5030B/8260	59049		

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WO#: 2039601

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



Section A  
Required Client

2039601

Section C

Invoice Information:

Page:

of

2030776

Company: <b>Arcadis / PDL Caribe</b>	Report ID: <b>EFrain Calderon</b>	Attention:
Address: <b>City View Plaza 1401</b>	Copy To:	Company Name:
<b>Guayama P.R. 00968</b>		Address:
Email To: <b>Efrain Calderon @ arcadis.com</b>	Purchase Order No.:	Pace Quote Reference:
Phone: <b>787-311-4000</b>	Project Name: <b>Puma Terminal MW Sampling</b>	Pace Project Manager: <b>J Robando</b>
Requested Due Date/TAT:	Project Number: <b>B0063167</b>	Pace Profile #: <b>7252</b>

REGULATORY AGENCY

NPDES  GROUND WATER  DRINKING WATER

UST  RCRA  OTHER

Site Location: **P.R.**

STATE: **P.R.**

ITEM #	SAMPLE ID (A-Z, 0-9 / -)	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Analysis Test ↓	Residual Chlorine (Y/N)
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other				
					DATE	TIME	DATE	TIME														
1	FB-071316	Drinking Water	DW	G			01/13/16	0838	9	4									X	VOA-5 (4260)		
2	Triplank	Water	WT	G			01/13/16	LAB	4										X	PAHs (4290)		
3	MW-25B	Waste Water	WW	G			01/13/16	0858	9	4									X	Metals (6020)		
4	MW-37A	Product	P	G			01/13/16	1120	9	4									X	6-PA (4015)		
5	<del>MW-63A</del> MW-63A	Soil/Solid	SL	G			01/13/16	1214	9	4									X	DRD / DRD		
6	FB-071316	Oil	OL	G			01/13/16	1220	4										X			

2039601  
Pace Project No./ Lab I.D.

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Level IV	Andri Colon / Arcadis	01/13/16	1428	[Signature]	7-13-16	14:28	
	[Signature] / Pace	7-13-16	17:00	Fred Esp	7-14-16	10:15	0.8
	Fred Esp	7-14-16	10:15	[Signature] - Pace	7-14-16	10:15	0.8

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: **Andri Colon**

SIGNATURE of SAMPLER: **[Signature]**

DATE Signed (MM/DD/YY): **07/13/16**

Temp in °C

Received on ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples Intact (Y/N)

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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Sample Condition Upon Receipt

WO#: 2039601

Urb. Jardines de Guaynabo
Calle Mrginal Blq A-10
Guaynabo, PR 00969

PM: JAR1 Due Date: 07/27/16

CLIENT: 98-ARCADISPR

Project #:

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 4 Therm Fisher IR 6 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 7-13-16 [Signature]

Temp must be measured from Temperature blank when present Comments:

Table with 15 rows and 3 columns: Question, Yes/No/N/A checkboxes, and Number. Includes items like 'Temperature Blank Present?', 'Chain of Custody Present', 'Chain of Custody Complete', etc.

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_



Sample Condition Upon Receipt

1000 Riverbend Blvd., Suite F
St. Rose, LA 70087

Project #: 20

Courier: Pace Courier Hired Courier Fed X UPS DHL USPS Customer Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact: Yes No

Thermometer Used: Therm Fisher IR 5 Therm Fisher IR 6 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 2-14-16 HRS

Temp must be measured from Temperature blank when present

Comments:

Table with 5 columns: Question, Yes/No/N/A checkboxes, and Numbered comments (1-15). Rows include: Temperature Blank Present, Chain of Custody Present, Chain of Custody Complete, Chain of Custody Relinquished, Sampler Name & Signature on COC, Samples Arrived within Hold Time, Sufficient Volume, Correct Containers Used, Filtered vol. Rec. for Diss. tests, Sample Labels match COC, All containers received within manufacture's precautionary and/or expiration dates, All containers needing chemical preservation have been checked, All containers preservation checked found to be in compliance with EPA recommendation, Headspace in VOA Vials (>6mm), Trip Blank Present.

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

July 29, 2016

Efrain Calderon  
BBL Caribe Engineering P.S.C.  
48 City View Plaza1, Suite 401  
Road 16, Km. 1.2  
Guaynabo, PR 00968

RE: Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039675

Dear Efrain Calderon:

Enclosed are the analytical results for sample(s) received by the laboratory on July 14, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Juan Redondo  
juan.redondo@pacelabs.com  
Project Manager

Enclosures

cc: Sharon Colon  
Abner Hernandez  
Marianela Mercado-Burgos



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

---

### New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:  
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):  
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):  
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):  
T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-  
00119

Commonwealth of Virginia (TNI): 480246

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### SAMPLE SUMMARY

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2039675001	EB-071416	Water	07/14/16 07:40	07/14/16 13:20
2039675002	MW-38A	Water	07/14/16 08:26	07/14/16 13:20
2039675003	MW-84A	Water	07/14/16 08:59	07/14/16 13:20
2039675004	MW-21B	Water	07/14/16 11:30	07/14/16 13:20
2039675005	DUP-6	Water	07/14/16 00:00	07/14/16 13:20
2039675006	TRIPBLANK	Water	07/14/16 00:00	07/14/16 13:20
2039675007	FB-071416	Water	07/14/16 11:36	07/14/16 13:20

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039675

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2039675001	EB-071416	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2039675002	MW-38A	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2039675003	MW-84A	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2039675004	MW-21B	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2039675005	DUP-6	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2039675006	TRIPBLANK	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
2039675007	FB-071416	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

---

**Method:** EPA 8015B Modified

**Description:** 8015M DRO/ORO Organics

**Client:** BBL Caribe / Arcadis PR

**Date:** July 29, 2016

**General Information:**

5 samples were analyzed for EPA 8015B Modified. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3535 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 59071

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039675

---

**Method:** EPA 8015/8021  
**Description:** 8021 GCV BTEX, MTBE, GRO  
**Client:** BBL Caribe / Arcadis PR  
**Date:** July 29, 2016

### General Information:

7 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: 58976

S5: Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

- MS (Lab ID: 243672)
  - 4-Bromofluorobenzene (S)
- MSD (Lab ID: 243673)
  - 4-Bromofluorobenzene (S)

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 58976

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2039513002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 243672)
  - Gasoline Range Organics

### Additional Comments:

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039675

---

**Method:** EPA 6020  
**Description:** 6020 MET ICPMS  
**Client:** BBL Caribe / Arcadis PR  
**Date:** July 29, 2016

**General Information:**

5 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

---

**Method:** EPA 7470

**Description:** 7470 Mercury

**Client:** BBL Caribe / Arcadis PR

**Date:** July 29, 2016

**General Information:**

5 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

---

**Method:** EPA 8270 by SIM

**Description:** 8270 MSSV PAH by SIM SEP

**Client:** BBL Caribe / Arcadis PR

**Date:** July 29, 2016

**General Information:**

5 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 59202

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039675

---

**Method:** EPA 5030B/8260  
**Description:** 8260 MSV Low Level  
**Client:** BBL Caribe / Arcadis PR  
**Date:** July 29, 2016

**General Information:**

7 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

Sample: EB-071416	Lab ID: 2039675001	Collected: 07/14/16 07:40	Received: 07/14/16 13:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/18/16 12:07	07/26/16 18:36		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/18/16 12:07	07/26/16 18:36		
<b>Surrogates</b>								
n-Pentacosane (S)	67	%	16-137	1	07/18/16 12:07	07/26/16 18:36	629-99-2	
o-Terphenyl (S)	66	%	10-121	1	07/18/16 12:07	07/26/16 18:36	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		07/16/16 06:11		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	99	%	44-148	1		07/16/16 06:11	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	07/18/16 09:48	07/19/16 21:49	7440-38-2	
Chromium	ND	mg/L	0.0010	1	07/18/16 09:48	07/19/16 21:49	7440-47-3	
Lead	ND	mg/L	0.0010	1	07/18/16 09:48	07/19/16 21:49	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	07/18/16 09:48	07/19/16 21:49	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	07/18/16 08:26	07/19/16 11:01	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 15:55	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 15:55	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 15:55	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 15:55	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 15:55	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 15:55	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 15:55	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 15:55	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 15:55	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 15:55	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 15:55	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 15:55	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 15:55	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	72	%	25-150	1	07/19/16 11:11	07/21/16 15:55	321-60-8	
Terphenyl-d14 (S)	67	%	25-150	1	07/19/16 11:11	07/21/16 15:55	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	12.0	ug/L	4.0	1		07/18/16 18:10	67-64-1	
Benzene	ND	ug/L	0.50	1		07/18/16 18:10	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/18/16 18:10	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/18/16 18:10	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/18/16 18:10	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/18/16 18:10	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/18/16 18:10	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

Sample: EB-071416	Lab ID: 2039675001	Collected: 07/14/16 07:40	Received: 07/14/16 13:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		07/18/16 18:10	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/18/16 18:10	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/18/16 18:10	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/18/16 18:10	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/18/16 18:10	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/18/16 18:10	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/18/16 18:10	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/18/16 18:10	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/18/16 18:10	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/18/16 18:10	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/18/16 18:10	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/18/16 18:10	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/18/16 18:10	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/18/16 18:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/18/16 18:10	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/18/16 18:10	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 18:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 18:10	10061-02-6	
Ethanol	ND	ug/L	500	1		07/18/16 18:10	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/18/16 18:10	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/18/16 18:10	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/18/16 18:10	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/18/16 18:10	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/18/16 18:10	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/18/16 18:10	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/18/16 18:10	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/18/16 18:10	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/18/16 18:10	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/18/16 18:10	127-18-4	
Toluene	ND	ug/L	0.50	1		07/18/16 18:10	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/18/16 18:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/18/16 18:10	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/18/16 18:10	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/18/16 18:10	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/18/16 18:10	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/18/16 18:10	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/18/16 18:10	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	101	%	72-126	1		07/18/16 18:10	1868-53-7	
4-Bromofluorobenzene (S)	102	%	68-124	1		07/18/16 18:10	460-00-4	
Toluene-d8 (S)	106	%	79-119	1		07/18/16 18:10	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

Sample: MW-38A	Lab ID: 2039675002	Collected: 07/14/16 08:26	Received: 07/14/16 13:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/18/16 12:07	07/26/16 19:04		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/18/16 12:07	07/26/16 19:04		
<b>Surrogates</b>								
n-Pentacosane (S)	71	%	16-137	1	07/18/16 12:07	07/26/16 19:04	629-99-2	
o-Terphenyl (S)	71	%	10-121	1	07/18/16 12:07	07/26/16 19:04	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		07/16/16 06:38		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	99	%	44-148	1		07/16/16 06:38	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	07/18/16 09:48	07/19/16 21:53	7440-38-2	
Chromium	ND	mg/L	0.0010	1	07/18/16 09:48	07/19/16 21:53	7440-47-3	
Lead	<b>0.0016</b>	mg/L	0.0010	1	07/18/16 09:48	07/19/16 21:53	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	07/18/16 09:48	07/19/16 21:53	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	07/18/16 08:26	07/19/16 11:04	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 16:16	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 16:16	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 16:16	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 16:16	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 16:16	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 16:16	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 16:16	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 16:16	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 16:16	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 16:16	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 16:16	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 16:16	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 16:16	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	73	%	25-150	1	07/19/16 11:11	07/21/16 16:16	321-60-8	
Terphenyl-d14 (S)	70	%	25-150	1	07/19/16 11:11	07/21/16 16:16	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	<b>8.3</b>	ug/L	4.0	1		07/18/16 18:28	67-64-1	
Benzene	ND	ug/L	0.50	1		07/18/16 18:28	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/18/16 18:28	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/18/16 18:28	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/18/16 18:28	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/18/16 18:28	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/18/16 18:28	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

Sample: MW-38A	Lab ID: 2039675002	Collected: 07/14/16 08:26	Received: 07/14/16 13:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		07/18/16 18:28	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/18/16 18:28	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/18/16 18:28	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/18/16 18:28	75-00-3	
Chloroform	1.2	ug/L	0.50	1		07/18/16 18:28	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/18/16 18:28	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/18/16 18:28	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/18/16 18:28	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/18/16 18:28	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/18/16 18:28	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/18/16 18:28	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/18/16 18:28	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/18/16 18:28	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/18/16 18:28	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/18/16 18:28	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/18/16 18:28	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 18:28	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 18:28	10061-02-6	
Ethanol	ND	ug/L	500	1		07/18/16 18:28	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/18/16 18:28	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/18/16 18:28	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/18/16 18:28	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/18/16 18:28	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/18/16 18:28	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/18/16 18:28	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/18/16 18:28	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/18/16 18:28	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/18/16 18:28	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/18/16 18:28	127-18-4	
Toluene	ND	ug/L	0.50	1		07/18/16 18:28	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/18/16 18:28	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/18/16 18:28	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/18/16 18:28	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/18/16 18:28	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/18/16 18:28	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/18/16 18:28	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/18/16 18:28	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	101	%	72-126	1		07/18/16 18:28	1868-53-7	
4-Bromofluorobenzene (S)	102	%	68-124	1		07/18/16 18:28	460-00-4	
Toluene-d8 (S)	106	%	79-119	1		07/18/16 18:28	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

Sample: MW-84A	Lab ID: 2039675003	Collected: 07/14/16 08:59	Received: 07/14/16 13:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	2.1	mg/L	0.50	1	07/18/16 12:07	07/26/16 19:32		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/18/16 12:07	07/26/16 19:32		
<b>Surrogates</b>								
n-Pentacosane (S)	43	%	16-137	1	07/18/16 12:07	07/26/16 19:32	629-99-2	
o-Terphenyl (S)	56	%	10-121	1	07/18/16 12:07	07/26/16 19:32	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		07/16/16 07:05		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	98	%	44-148	1		07/16/16 07:05	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	0.011	mg/L	0.0010	1	07/18/16 09:48	07/19/16 21:57	7440-38-2	
Chromium	ND	mg/L	0.0010	1	07/18/16 09:48	07/19/16 21:57	7440-47-3	
Lead	ND	mg/L	0.0010	1	07/18/16 09:48	07/19/16 21:57	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	07/18/16 09:48	07/19/16 21:57	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	07/18/16 08:26	07/19/16 11:06	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 18:47	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 18:47	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 18:47	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 18:47	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 18:47	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 18:47	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 18:47	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 18:47	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 18:47	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 18:47	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 18:47	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 18:47	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 18:47	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	85	%	25-150	1	07/19/16 11:11	07/21/16 18:47	321-60-8	
Terphenyl-d14 (S)	61	%	25-150	1	07/19/16 11:11	07/21/16 18:47	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	5.8	ug/L	4.0	1		07/18/16 18:46	67-64-1	
Benzene	ND	ug/L	0.50	1		07/18/16 18:46	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/18/16 18:46	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/18/16 18:46	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/18/16 18:46	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/18/16 18:46	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/18/16 18:46	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

Sample: MW-84A	Lab ID: 2039675003	Collected: 07/14/16 08:59	Received: 07/14/16 13:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		07/18/16 18:46	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/18/16 18:46	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/18/16 18:46	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/18/16 18:46	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/18/16 18:46	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/18/16 18:46	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/18/16 18:46	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/18/16 18:46	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/18/16 18:46	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/18/16 18:46	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/18/16 18:46	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/18/16 18:46	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/18/16 18:46	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/18/16 18:46	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/18/16 18:46	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/18/16 18:46	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 18:46	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 18:46	10061-02-6	
Ethanol	ND	ug/L	500	1		07/18/16 18:46	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/18/16 18:46	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/18/16 18:46	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/18/16 18:46	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/18/16 18:46	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/18/16 18:46	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/18/16 18:46	108-10-1	
Methyl-tert-butyl ether	3.2	ug/L	0.50	1		07/18/16 18:46	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/18/16 18:46	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/18/16 18:46	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/18/16 18:46	127-18-4	
Toluene	ND	ug/L	0.50	1		07/18/16 18:46	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/18/16 18:46	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/18/16 18:46	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/18/16 18:46	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/18/16 18:46	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/18/16 18:46	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/18/16 18:46	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/18/16 18:46	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	100	%	72-126	1		07/18/16 18:46	1868-53-7	
4-Bromofluorobenzene (S)	102	%	68-124	1		07/18/16 18:46	460-00-4	
Toluene-d8 (S)	107	%	79-119	1		07/18/16 18:46	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039675

Sample: MW-21B	Lab ID: 2039675004	Collected: 07/14/16 11:30	Received: 07/14/16 13:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/18/16 12:07	07/26/16 20:00		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/18/16 12:07	07/26/16 20:00		
<b>Surrogates</b>								
n-Pentacosane (S)	58	%	16-137	1	07/18/16 12:07	07/26/16 20:00	629-99-2	
o-Terphenyl (S)	54	%	10-121	1	07/18/16 12:07	07/26/16 20:00	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		07/16/16 07:31		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	98	%	44-148	1		07/16/16 07:31	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	07/18/16 09:48	07/19/16 22:00	7440-38-2	
Chromium	<b>0.0028</b>	mg/L	0.0010	1	07/18/16 09:48	07/19/16 22:00	7440-47-3	
Lead	<b>0.0039</b>	mg/L	0.0010	1	07/18/16 09:48	07/19/16 22:00	7439-92-1	
Vanadium	<b>0.013</b>	mg/L	0.0050	1	07/18/16 09:48	07/19/16 22:00	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	07/18/16 08:26	07/19/16 11:08	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:09	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:09	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:09	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:09	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:09	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:09	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:09	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:09	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:09	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:09	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:09	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:09	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:09	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	86	%	25-150	1	07/19/16 11:11	07/21/16 19:09	321-60-8	
Terphenyl-d14 (S)	78	%	25-150	1	07/19/16 11:11	07/21/16 19:09	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	<b>8.8</b>	ug/L	4.0	1		07/18/16 19:04	67-64-1	
Benzene	ND	ug/L	0.50	1		07/18/16 19:04	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/18/16 19:04	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/18/16 19:04	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/18/16 19:04	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/18/16 19:04	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/18/16 19:04	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

Sample: MW-21B	Lab ID: 2039675004	Collected: 07/14/16 11:30	Received: 07/14/16 13:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>	Analytical Method: EPA 5030B/8260							
Carbon disulfide	ND	ug/L	1.0	1		07/18/16 19:04	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/18/16 19:04	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/18/16 19:04	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/18/16 19:04	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/18/16 19:04	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/18/16 19:04	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/18/16 19:04	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/18/16 19:04	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/18/16 19:04	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/18/16 19:04	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/18/16 19:04	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/18/16 19:04	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/18/16 19:04	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/18/16 19:04	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/18/16 19:04	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/18/16 19:04	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 19:04	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 19:04	10061-02-6	
Ethanol	ND	ug/L	500	1		07/18/16 19:04	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/18/16 19:04	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/18/16 19:04	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/18/16 19:04	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/18/16 19:04	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/18/16 19:04	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/18/16 19:04	108-10-1	
Methyl-tert-butyl ether	3.5	ug/L	0.50	1		07/18/16 19:04	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/18/16 19:04	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/18/16 19:04	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/18/16 19:04	127-18-4	
Toluene	ND	ug/L	0.50	1		07/18/16 19:04	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/18/16 19:04	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/18/16 19:04	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/18/16 19:04	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/18/16 19:04	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/18/16 19:04	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/18/16 19:04	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/18/16 19:04	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	100	%	72-126	1		07/18/16 19:04	1868-53-7	
4-Bromofluorobenzene (S)	102	%	68-124	1		07/18/16 19:04	460-00-4	
Toluene-d8 (S)	105	%	79-119	1		07/18/16 19:04	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

Sample: DUP-6	Lab ID: 2039675005	Collected: 07/14/16 00:00	Received: 07/14/16 13:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	1.1	mg/L	0.50	1	07/18/16 12:07	07/26/16 20:28		
Oil Range Organics (>C28-C40)	6.9	mg/L	1.0	1	07/18/16 12:07	07/26/16 20:28		
<b>Surrogates</b>								
n-Pentacosane (S)	126	%	16-137	1	07/18/16 12:07	07/26/16 20:28	629-99-2	
o-Terphenyl (S)	74	%	10-121	1	07/18/16 12:07	07/26/16 20:28	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		07/16/16 07:58		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	98	%	44-148	1		07/16/16 07:58	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	07/18/16 09:48	07/19/16 22:04	7440-38-2	
Chromium	0.0078	mg/L	0.0010	1	07/18/16 09:48	07/19/16 22:04	7440-47-3	
Lead	0.0036	mg/L	0.0010	1	07/18/16 09:48	07/19/16 22:04	7439-92-1	
Vanadium	0.013	mg/L	0.0050	1	07/18/16 09:48	07/19/16 22:04	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	07/18/16 08:26	07/19/16 11:10	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:30	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:30	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:30	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:30	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:30	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:30	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:30	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:30	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:30	218-01-9	
Benzo(b)fluoranthene	0.00018	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:30	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:30	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:30	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/19/16 11:11	07/21/16 19:30	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	81	%	25-150	1	07/19/16 11:11	07/21/16 19:30	321-60-8	
Terphenyl-d14 (S)	86	%	25-150	1	07/19/16 11:11	07/21/16 19:30	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	9.0	ug/L	4.0	1		07/18/16 19:22	67-64-1	
Benzene	ND	ug/L	0.50	1		07/18/16 19:22	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/18/16 19:22	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/18/16 19:22	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/18/16 19:22	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/18/16 19:22	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/18/16 19:22	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

Sample: DUP-6	Lab ID: 2039675005	Collected: 07/14/16 00:00	Received: 07/14/16 13:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		07/18/16 19:22	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/18/16 19:22	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/18/16 19:22	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/18/16 19:22	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/18/16 19:22	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/18/16 19:22	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/18/16 19:22	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/18/16 19:22	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/18/16 19:22	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/18/16 19:22	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/18/16 19:22	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/18/16 19:22	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/18/16 19:22	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/18/16 19:22	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/18/16 19:22	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/18/16 19:22	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 19:22	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 19:22	10061-02-6	
Ethanol	ND	ug/L	500	1		07/18/16 19:22	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/18/16 19:22	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/18/16 19:22	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/18/16 19:22	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/18/16 19:22	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/18/16 19:22	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/18/16 19:22	108-10-1	
Methyl-tert-butyl ether	3.4	ug/L	0.50	1		07/18/16 19:22	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/18/16 19:22	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/18/16 19:22	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/18/16 19:22	127-18-4	
Toluene	ND	ug/L	0.50	1		07/18/16 19:22	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/18/16 19:22	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/18/16 19:22	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/18/16 19:22	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/18/16 19:22	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/18/16 19:22	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/18/16 19:22	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/18/16 19:22	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	100	%	72-126	1		07/18/16 19:22	1868-53-7	
4-Bromofluorobenzene (S)	102	%	68-124	1		07/18/16 19:22	460-00-4	
Toluene-d8 (S)	105	%	79-119	1		07/18/16 19:22	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

Sample: TRIPBLANK	Lab ID: 2039675006	Collected: 07/14/16 00:00	Received: 07/14/16 13:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>	Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		07/16/16 08:25		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	100	%	44-148	1		07/16/16 08:25	460-00-4	
<b>8260 MSV Low Level</b>	Analytical Method: EPA 5030B/8260							
Acetone	<b>68.7</b>	ug/L	4.0	1		07/18/16 19:40	67-64-1	
Benzene	ND	ug/L	0.50	1		07/18/16 19:40	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/18/16 19:40	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/18/16 19:40	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/18/16 19:40	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/18/16 19:40	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/18/16 19:40	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		07/18/16 19:40	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/18/16 19:40	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/18/16 19:40	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/18/16 19:40	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/18/16 19:40	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/18/16 19:40	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/18/16 19:40	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/18/16 19:40	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/18/16 19:40	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/18/16 19:40	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/18/16 19:40	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/18/16 19:40	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/18/16 19:40	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/18/16 19:40	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/18/16 19:40	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/18/16 19:40	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 19:40	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 19:40	10061-02-6	
Ethanol	ND	ug/L	500	1		07/18/16 19:40	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/18/16 19:40	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/18/16 19:40	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/18/16 19:40	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/18/16 19:40	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/18/16 19:40	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/18/16 19:40	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/18/16 19:40	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/18/16 19:40	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/18/16 19:40	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/18/16 19:40	127-18-4	
Toluene	ND	ug/L	0.50	1		07/18/16 19:40	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/18/16 19:40	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/18/16 19:40	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/18/16 19:40	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/18/16 19:40	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/18/16 19:40	75-01-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

Sample: TRIPBLANK		Lab ID: 2039675006	Collected: 07/14/16 00:00	Received: 07/14/16 13:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
m&p-Xylene	ND	ug/L	2.0	1		07/18/16 19:40	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/18/16 19:40	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	101	%	72-126	1		07/18/16 19:40	1868-53-7	
4-Bromofluorobenzene (S)	101	%	68-124	1		07/18/16 19:40	460-00-4	
Toluene-d8 (S)	106	%	79-119	1		07/18/16 19:40	2037-26-5	

Sample: FB-071416		Lab ID: 2039675007	Collected: 07/14/16 11:36	Received: 07/14/16 13:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		07/16/16 08:52		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	101	%	44-148	1		07/16/16 08:52	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	22.9	ug/L	4.0	1		07/18/16 19:58	67-64-1	
Benzene	ND	ug/L	0.50	1		07/18/16 19:58	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/18/16 19:58	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/18/16 19:58	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/18/16 19:58	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/18/16 19:58	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/18/16 19:58	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		07/18/16 19:58	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/18/16 19:58	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/18/16 19:58	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/18/16 19:58	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/18/16 19:58	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/18/16 19:58	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/18/16 19:58	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/18/16 19:58	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/18/16 19:58	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/18/16 19:58	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/18/16 19:58	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/18/16 19:58	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/18/16 19:58	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/18/16 19:58	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/18/16 19:58	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/18/16 19:58	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 19:58	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/18/16 19:58	10061-02-6	
Ethanol	ND	ug/L	500	1		07/18/16 19:58	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/18/16 19:58	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/18/16 19:58	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/18/16 19:58	98-82-8	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039675

Sample: <b>FB-071416</b>	Lab ID: <b>2039675007</b>	Collected: 07/14/16 11:36	Received: 07/14/16 13:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>	Analytical Method: EPA 5030B/8260							
Methyl acetate	ND	ug/L	2.0	1		07/18/16 19:58	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/18/16 19:58	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/18/16 19:58	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/18/16 19:58	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/18/16 19:58	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/18/16 19:58	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/18/16 19:58	127-18-4	
Toluene	ND	ug/L	0.50	1		07/18/16 19:58	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/18/16 19:58	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/18/16 19:58	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/18/16 19:58	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/18/16 19:58	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/18/16 19:58	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/18/16 19:58	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/18/16 19:58	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	101	%.	72-126	1		07/18/16 19:58	1868-53-7	
4-Bromofluorobenzene (S)	101	%.	68-124	1		07/18/16 19:58	460-00-4	
Toluene-d8 (S)	105	%.	79-119	1		07/18/16 19:58	2037-26-5	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

QC Batch: 58976 Analysis Method: EPA 8015/8021  
 QC Batch Method: EPA 8015/8021 Analysis Description: 8021 W GCV BTEX, MTBE, GRO  
 Associated Lab Samples: 2039675001, 2039675002, 2039675003, 2039675004, 2039675005, 2039675006, 2039675007

METHOD BLANK: 243584 Matrix: Water  
 Associated Lab Samples: 2039675001, 2039675002, 2039675003, 2039675004, 2039675005, 2039675006, 2039675007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	07/15/16 21:14	
4-Bromofluorobenzene (S)	%.	96	44-148	07/15/16 21:14	

METHOD BLANK: 244460 Matrix: Water  
 Associated Lab Samples: 2039675001, 2039675002, 2039675003, 2039675004, 2039675005, 2039675006, 2039675007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	07/19/16 14:18	
4-Bromofluorobenzene (S)	%.	96	44-148	07/19/16 14:18	

LABORATORY CONTROL SAMPLE: 243585

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	467	93	61-136	
4-Bromofluorobenzene (S)	%.			97	44-148	

LABORATORY CONTROL SAMPLE: 244461

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	494	99	61-136	
4-Bromofluorobenzene (S)	%.			99	44-148	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 243672 243673

Parameter	Units	2039513002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
Gasoline Range Organics	ug/L	36200	500	500	37600	36500	267	59	15-147	3	20	M1
4-Bromofluorobenzene (S)	%.						156	157	44-148			S5

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039675

QC Batch: 59075 Analysis Method: EPA 7470  
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
Associated Lab Samples: 2039675001, 2039675002, 2039675003, 2039675004, 2039675005

METHOD BLANK: 244047 Matrix: Water  
Associated Lab Samples: 2039675001, 2039675002, 2039675003, 2039675004, 2039675005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	07/19/16 10:45	

LABORATORY CONTROL SAMPLE: 244048

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	1.0	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 244049 244050

Parameter	Units	2039761022 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	1	1	1.0	1.1	105	106	75-125	1	20	

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039675

QC Batch: 59097 Analysis Method: EPA 6020  
QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
Associated Lab Samples: 2039675001, 2039675002, 2039675003, 2039675004, 2039675005

METHOD BLANK: 244119 Matrix: Water  
Associated Lab Samples: 2039675001, 2039675002, 2039675003, 2039675004, 2039675005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	07/19/16 21:06	
Chromium	mg/L	ND	0.0010	07/19/16 21:06	
Lead	mg/L	ND	0.0010	07/19/16 21:06	
Vanadium	mg/L	ND	0.0050	07/19/16 21:06	

LABORATORY CONTROL SAMPLE: 244120

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.02	0.020	98	83-115	
Chromium	mg/L	.02	0.020	99	85-115	
Lead	mg/L	.02	0.019	94	84-115	
Vanadium	mg/L	.02	0.019	97	81-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 244121 244122

Parameter	Units	2039709001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result					
Arsenic	mg/L	3.6 ug/L	.02	.02	0.022	0.022	93	93	80-120	0	20
Chromium	mg/L	ND	.02	.02	0.019	0.019	92	91	80-120	1	20
Lead	mg/L	ND	.02	.02	0.019	0.019	94	94	80-120	1	20
Vanadium	mg/L	ND	.02	.02	0.019	0.019	93	93	80-120	0	20

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039675

QC Batch: 59049 Analysis Method: EPA 5030B/8260  
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Low Level  
Associated Lab Samples: 2039675001, 2039675002, 2039675003, 2039675004, 2039675005, 2039675006, 2039675007

METHOD BLANK: 243930 Matrix: Water  
Associated Lab Samples: 2039675001, 2039675002, 2039675003, 2039675004, 2039675005, 2039675006, 2039675007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	07/18/16 13:41	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	07/18/16 13:41	
1,1,2-Trichloroethane	ug/L	ND	0.50	07/18/16 13:41	
1,1-Dichloroethane	ug/L	ND	0.50	07/18/16 13:41	
1,1-Dichloroethene	ug/L	ND	0.50	07/18/16 13:41	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	07/18/16 13:41	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	07/18/16 13:41	
1,2-Dichloroethane	ug/L	ND	0.50	07/18/16 13:41	
1,2-Dichloropropane	ug/L	ND	0.50	07/18/16 13:41	
2-Butanone (MEK)	ug/L	ND	2.0	07/18/16 13:41	
2-Hexanone	ug/L	ND	1.0	07/18/16 13:41	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	07/18/16 13:41	
Acetone	ug/L	ND	4.0	07/18/16 13:41	
Benzene	ug/L	ND	0.50	07/18/16 13:41	
Bromodichloromethane	ug/L	ND	0.50	07/18/16 13:41	
Bromoform	ug/L	ND	0.50	07/18/16 13:41	
Bromomethane	ug/L	ND	0.50	07/18/16 13:41	
Carbon disulfide	ug/L	ND	1.0	07/18/16 13:41	
Carbon tetrachloride	ug/L	ND	0.50	07/18/16 13:41	
Chlorobenzene	ug/L	ND	0.50	07/18/16 13:41	
Chloroethane	ug/L	ND	0.50	07/18/16 13:41	
Chloroform	ug/L	ND	0.50	07/18/16 13:41	
Chloromethane	ug/L	ND	0.50	07/18/16 13:41	
cis-1,2-Dichloroethene	ug/L	ND	1.0	07/18/16 13:41	
cis-1,3-Dichloropropene	ug/L	ND	0.50	07/18/16 13:41	
Dibromochloromethane	ug/L	ND	0.50	07/18/16 13:41	
Dichlorodifluoromethane	ug/L	ND	1.0	07/18/16 13:41	
Ethanol	ug/L	ND	500	07/18/16 13:41	
Ethylbenzene	ug/L	ND	0.50	07/18/16 13:41	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	07/18/16 13:41	
m&p-Xylene	ug/L	ND	2.0	07/18/16 13:41	
Methyl acetate	ug/L	ND	2.0	07/18/16 13:41	
Methyl-tert-butyl ether	ug/L	ND	0.50	07/18/16 13:41	
Methylene Chloride	ug/L	ND	0.50	07/18/16 13:41	
o-Xylene	ug/L	ND	1.0	07/18/16 13:41	
Styrene	ug/L	ND	1.0	07/18/16 13:41	
tert-Butyl Alcohol	ug/L	ND	200	07/18/16 13:41	
Tetrachloroethene	ug/L	ND	0.50	07/18/16 13:41	
Toluene	ug/L	ND	0.50	07/18/16 13:41	
trans-1,2-Dichloroethene	ug/L	ND	0.50	07/18/16 13:41	
trans-1,3-Dichloropropene	ug/L	ND	0.50	07/18/16 13:41	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING  
Project No.: 2039675

METHOD BLANK: 243930 Matrix: Water  
Associated Lab Samples: 2039675001, 2039675002, 2039675003, 2039675004, 2039675005, 2039675006, 2039675007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	0.50	07/18/16 13:41	
Trichlorofluoromethane	ug/L	ND	0.50	07/18/16 13:41	
Vinyl chloride	ug/L	ND	0.50	07/18/16 13:41	
4-Bromofluorobenzene (S)	%	102	68-124	07/18/16 13:41	
Dibromofluoromethane (S)	%	102	72-126	07/18/16 13:41	
Toluene-d8 (S)	%	106	79-119	07/18/16 13:41	

METHOD BLANK: 244421 Matrix: Water  
Associated Lab Samples: 2039675001, 2039675002, 2039675003, 2039675004, 2039675005, 2039675006, 2039675007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	07/19/16 10:28	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	07/19/16 10:28	
1,1,2-Trichloroethane	ug/L	ND	0.50	07/19/16 10:28	
1,1-Dichloroethane	ug/L	ND	0.50	07/19/16 10:28	
1,1-Dichloroethene	ug/L	ND	0.50	07/19/16 10:28	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	07/19/16 10:28	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	07/19/16 10:28	
1,2-Dichloroethane	ug/L	ND	0.50	07/19/16 10:28	
1,2-Dichloropropane	ug/L	ND	0.50	07/19/16 10:28	
2-Butanone (MEK)	ug/L	ND	2.0	07/19/16 10:28	
2-Hexanone	ug/L	ND	1.0	07/19/16 10:28	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	07/19/16 10:28	
Acetone	ug/L	ND	4.0	07/19/16 10:28	
Benzene	ug/L	ND	0.50	07/19/16 10:28	
Bromodichloromethane	ug/L	ND	0.50	07/19/16 10:28	
Bromoform	ug/L	ND	0.50	07/19/16 10:28	
Bromomethane	ug/L	ND	0.50	07/19/16 10:28	
Carbon disulfide	ug/L	ND	1.0	07/19/16 10:28	
Carbon tetrachloride	ug/L	ND	0.50	07/19/16 10:28	
Chlorobenzene	ug/L	ND	0.50	07/19/16 10:28	
Chloroethane	ug/L	ND	0.50	07/19/16 10:28	
Chloroform	ug/L	ND	0.50	07/19/16 10:28	
Chloromethane	ug/L	ND	0.50	07/19/16 10:28	
cis-1,2-Dichloroethene	ug/L	ND	1.0	07/19/16 10:28	
cis-1,3-Dichloropropene	ug/L	ND	0.50	07/19/16 10:28	
Dibromochloromethane	ug/L	ND	0.50	07/19/16 10:28	
Dichlorodifluoromethane	ug/L	ND	1.0	07/19/16 10:28	
Ethanol	ug/L	ND	500	07/19/16 10:28	
Ethylbenzene	ug/L	ND	0.50	07/19/16 10:28	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	07/19/16 10:28	
m&p-Xylene	ug/L	ND	2.0	07/19/16 10:28	
Methyl acetate	ug/L	ND	2.0	07/19/16 10:28	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

METHOD BLANK: 244421

Matrix: Water

Associated Lab Samples: 2039675001, 2039675002, 2039675003, 2039675004, 2039675005, 2039675006, 2039675007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Methyl-tert-butyl ether	ug/L	ND	0.50	07/19/16 10:28	
Methylene Chloride	ug/L	ND	0.50	07/19/16 10:28	
o-Xylene	ug/L	ND	1.0	07/19/16 10:28	
Styrene	ug/L	ND	1.0	07/19/16 10:28	
tert-Butyl Alcohol	ug/L	ND	200	07/19/16 10:28	
Tetrachloroethene	ug/L	ND	0.50	07/19/16 10:28	
Toluene	ug/L	ND	0.50	07/19/16 10:28	
trans-1,2-Dichloroethene	ug/L	ND	0.50	07/19/16 10:28	
trans-1,3-Dichloropropene	ug/L	ND	0.50	07/19/16 10:28	
Trichloroethene	ug/L	ND	0.50	07/19/16 10:28	
Trichlorofluoromethane	ug/L	ND	0.50	07/19/16 10:28	
Vinyl chloride	ug/L	ND	0.50	07/19/16 10:28	
4-Bromofluorobenzene (S)	%	101	68-124	07/19/16 10:28	
Dibromofluoromethane (S)	%	103	72-126	07/19/16 10:28	
Toluene-d8 (S)	%	105	79-119	07/19/16 10:28	

LABORATORY CONTROL SAMPLE: 243931

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	52.4	105	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	52.7	105	15-179	
1,1,2-Trichloroethane	ug/L	50	51.5	103	58-144	
1,1-Dichloroethane	ug/L	50	48.6	97	63-129	
1,1-Dichloroethene	ug/L	50	43.3	87	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	55.4	111	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	56.2	112	52-161	
1,2-Dichloroethane	ug/L	50	52.4	105	57-148	
1,2-Dichloropropane	ug/L	50	52.6	105	66-128	
2-Butanone (MEK)	ug/L	50	53.6	107	32-183	
2-Hexanone	ug/L	50	58.3	117	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	56.4	113	26-171	
Acetone	ug/L	50	54.0	108	22-165	
Benzene	ug/L	50	49.9	100	62-131	
Bromodichloromethane	ug/L	50	51.2	102	69-132	
Bromoform	ug/L	50	46.4	93	35-166	
Bromomethane	ug/L	50	54.3	109	34-158	
Carbon disulfide	ug/L	50	43.3	87	31-128	
Carbon tetrachloride	ug/L	50	46.4	93	54-144	
Chlorobenzene	ug/L	50	53.3	107	70-127	
Chloroethane	ug/L	50	47.6	95	17-195	
Chloroform	ug/L	50	46.5	93	73-134	
Chloromethane	ug/L	50	58.0	116	17-153	
cis-1,2-Dichloroethene	ug/L	50	50.7	101	68-129	
cis-1,3-Dichloropropene	ug/L	50	46.9	94	72-138	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

LABORATORY CONTROL SAMPLE: 243931

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	50	50.9	102	49-146	
Dichlorodifluoromethane	ug/L	50	44.0	88	10-179	
Ethylbenzene	ug/L	50	55.2	110	66-126	
Isopropylbenzene (Cumene)	ug/L	50	57.2	114	51-138	
m&p-Xylene	ug/L	100	108	108	65-129	
Methyl acetate	ug/L	50	47.1	94	20-142	
Methyl-tert-butyl ether	ug/L	50	45.7	91	37-166	
Methylene Chloride	ug/L	50	45.8	92	46-168	
o-Xylene	ug/L	50	54.4	109	65-124	
Styrene	ug/L	50	57.5	115	72-133	
Tetrachloroethene	ug/L	50	53.2	106	46-157	
Toluene	ug/L	50	54.1	108	69-126	
trans-1,2-Dichloroethene	ug/L	50	48.1	96	60-129	
trans-1,3-Dichloropropene	ug/L	50	52.9	106	59-149	
Trichloroethene	ug/L	50	49.5	99	67-132	
Trichlorofluoromethane	ug/L	50	60.5	121	39-171	
Vinyl chloride	ug/L	50	48.8	98	27-149	
4-Bromofluorobenzene (S)	%			100	68-124	
Dibromofluoromethane (S)	%			103	72-126	
Toluene-d8 (S)	%			103	79-119	

LABORATORY CONTROL SAMPLE: 244422

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	52.8	106	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	49.8	100	15-179	
1,1,2-Trichloroethane	ug/L	50	52.1	104	58-144	
1,1-Dichloroethane	ug/L	50	49.0	98	63-129	
1,1-Dichloroethene	ug/L	50	49.8	100	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	52.8	106	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	56.4	113	52-161	
1,2-Dichloroethane	ug/L	50	52.9	106	57-148	
1,2-Dichloropropane	ug/L	50	50.2	100	66-128	
2-Butanone (MEK)	ug/L	50	52.7	105	32-183	
2-Hexanone	ug/L	50	57.5	115	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	57.3	115	26-171	
Acetone	ug/L	50	52.5	105	22-165	
Benzene	ug/L	50	48.9	98	62-131	
Bromodichloromethane	ug/L	50	49.9	100	69-132	
Bromoform	ug/L	50	47.9	96	35-166	
Bromomethane	ug/L	50	52.6	105	34-158	
Carbon disulfide	ug/L	50	51.7	103	31-128	
Carbon tetrachloride	ug/L	50	49.6	99	54-144	
Chlorobenzene	ug/L	50	54.3	109	70-127	
Chloroethane	ug/L	50	47.5	95	17-195	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

LABORATORY CONTROL SAMPLE: 244422

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloroform	ug/L	50	45.6	91	73-134	
Chloromethane	ug/L	50	55.3	111	17-153	
cis-1,2-Dichloroethene	ug/L	50	50.8	102	68-129	
cis-1,3-Dichloropropene	ug/L	50	45.7	91	72-138	
Dibromochloromethane	ug/L	50	52.0	104	49-146	
Dichlorodifluoromethane	ug/L	50	43.0	86	10-179	
Ethylbenzene	ug/L	50	55.0	110	66-126	
Isopropylbenzene (Cumene)	ug/L	50	55.4	111	51-138	
m&p-Xylene	ug/L	100	109	109	65-129	
Methyl acetate	ug/L	50	43.2	86	20-142	
Methyl-tert-butyl ether	ug/L	50	45.1	90	37-166	
Methylene Chloride	ug/L	50	46.1	92	46-168	
o-Xylene	ug/L	50	54.7	109	65-124	
Styrene	ug/L	50	57.7	115	72-133	
Tetrachloroethene	ug/L	50	56.2	112	46-157	
Toluene	ug/L	50	53.0	106	69-126	
trans-1,2-Dichloroethene	ug/L	50	50.0	100	60-129	
trans-1,3-Dichloropropene	ug/L	50	52.5	105	59-149	
Trichloroethene	ug/L	50	50.2	100	67-132	
Trichlorofluoromethane	ug/L	50	60.2	120	39-171	
Vinyl chloride	ug/L	50	46.4	93	27-149	
4-Bromofluorobenzene (S)	%			100	68-124	
Dibromofluoromethane (S)	%			104	72-126	
Toluene-d8 (S)	%			102	79-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 243932

243933

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2039513003 Result	Spike Conc.	MSD Spike Conc.	MS Result								
1,1,1-Trichloroethane	ug/L	ND	50	50	60.5	57.1	121	114	54-137	6	20		
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	57.8	57.7	116	115	15-187	0	20		
1,1,2-Trichloroethane	ug/L	ND	50	50	56.0	55.8	112	112	59-148	0	20		
1,1-Dichloroethane	ug/L	ND	50	50	55.2	52.8	110	106	59-133	4	20		
1,1-Dichloroethene	ug/L	ND	50	50	50.8	48.4	102	97	44-146	5	20		
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	59.0	59.4	118	119	23-166	1	20		
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	60.6	60.2	121	120	55-166	1	20		
1,2-Dichloroethane	ug/L	ND	50	50	57.2	55.3	114	111	56-154	3	20		
1,2-Dichloropropane	ug/L	ND	50	50	57.1	55.5	114	111	62-135	3	20		
2-Butanone (MEK)	ug/L	ND	50	50	58.2	58.4	114	114	20-205	0	20		
2-Hexanone	ug/L	ND	50	50	61.2	64.5	122	129	25-189	5	20		
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	50	60.9	61.4	122	123	23-184	1	20		
Acetone	ug/L	14.1	50	50	73.1	76.1	118	124	11-217	4	20		
Benzene	ug/L	ND	50	50	56.4	54.0	113	108	52-141	4	20		
Bromodichloromethane	ug/L	ND	50	50	55.4	54.7	111	109	70-134	1	20		

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

Parameter	Units	2039513003		243932		243933		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec						
Bromoform	ug/L	ND	50	50	49.7	49.6	99	99	37-171	0	20		
Bromomethane	ug/L	ND	50	50	59.7	56.3	119	113	34-155	6	20		
Carbon disulfide	ug/L	ND	50	50	53.9	49.6	108	99	28-130	8	20		
Carbon tetrachloride	ug/L	ND	50	50	55.0	54.0	110	108	48-146	2	20		
Chlorobenzene	ug/L	ND	50	50	59.5	56.6	119	113	67-129	5	20		
Chloroethane	ug/L	ND	50	50	54.1	51.8	108	104	12-192	4	20		
Chloroform	ug/L	ND	50	50	51.9	50.4	104	101	66-143	3	20		
Chloromethane	ug/L	ND	50	50	63.9	60.1	127	120	14-155	6	20		
cis-1,2-Dichloroethene	ug/L	ND	50	50	57.3	55.5	115	111	56-141	3	20		
cis-1,3-Dichloropropene	ug/L	ND	50	50	51.3	49.6	103	99	70-139	3	20		
Dibromochloromethane	ug/L	ND	50	50	54.9	54.6	110	109	50-150	0	20		
Dichlorodifluoromethane	ug/L	ND	50	50	50.1	46.1	100	92	10-173	8	20		
Ethylbenzene	ug/L	ND	50	50	62.9	60.0	126	120	57-135	5	20		
Isopropylbenzene (Cumene)	ug/L	ND	50	50	67.3	64.3	135	129	40-146	4	20		
m&p-Xylene	ug/L	ND	100	100	122	117	122	117	56-136	5	20		
Methyl acetate	ug/L	ND	50	50	45.8	45.5	92	91	10-142	1	20		
Methyl-tert-butyl ether	ug/L	ND	50	50	48.2	48.9	96	98	35-176	1	20		
Methylene Chloride	ug/L	ND	50	50	49.9	48.1	100	96	45-166	4	20		
o-Xylene	ug/L	ND	50	50	61.1	58.0	122	116	57-133	5	20		
Styrene	ug/L	ND	50	50	61.9	59.6	124	119	58-144	4	20		
Tetrachloroethene	ug/L	ND	50	50	61.7	58.4	123	117	48-143	6	20		
Toluene	ug/L	ND	50	50	61.5	58.9	123	118	59-136	4	20		
trans-1,2-Dichloroethene	ug/L	ND	50	50	56.1	53.2	112	106	57-132	5	20		
trans-1,3-Dichloropropene	ug/L	ND	50	50	57.9	56.6	116	113	59-154	2	20		
Trichloroethene	ug/L	ND	50	50	56.7	53.5	113	107	58-140	6	20		
Trichlorofluoromethane	ug/L	ND	50	50	69.6	65.9	139	132	24-175	6	20		
Vinyl chloride	ug/L	ND	50	50	57.8	54.5	116	109	21-150	6	20		
4-Bromofluorobenzene (S)	%						102	102	68-124				
Dibromofluoromethane (S)	%						102	103	72-126				
Toluene-d8 (S)	%						103	104	79-119				

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

QC Batch: 59071 Analysis Method: EPA 8015B Modified

QC Batch Method: EPA 3535 Analysis Description: EPA 8015 ORO

Associated Lab Samples: 2039675001, 2039675002, 2039675003, 2039675004, 2039675005

METHOD BLANK: 244036

Matrix: Water

Associated Lab Samples: 2039675001, 2039675002, 2039675003, 2039675004, 2039675005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	ND	0.25	07/26/16 15:47	
Oil Range Organics (>C28-C40)	mg/L	ND	0.50	07/26/16 15:47	
n-Pentacosane (S)	%	68	16-137	07/26/16 15:47	
o-Terphenyl (S)	%	69	10-121	07/26/16 15:47	

LABORATORY CONTROL SAMPLE: 244037

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	.4	.21J	53	10-115	
n-Pentacosane (S)	%			75	16-137	
o-Terphenyl (S)	%			85	10-121	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039675

QC Batch: 59202 Analysis Method: EPA 8270 by SIM  
 QC Batch Method: EPA 3510 Analysis Description: 8270 Water by SIM MSSV  
 Associated Lab Samples: 2039675001, 2039675002, 2039675003, 2039675004, 2039675005

METHOD BLANK: 244436 Matrix: Water  
 Associated Lab Samples: 2039675001, 2039675002, 2039675003, 2039675004, 2039675005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	07/21/16 12:20	
Anthracene	mg/L	ND	0.00010	07/21/16 12:20	
Benzo(a)anthracene	mg/L	ND	0.00010	07/21/16 12:20	
Benzo(a)pyrene	mg/L	ND	0.00010	07/21/16 12:20	
Benzo(b)fluoranthene	mg/L	ND	0.00010	07/21/16 12:20	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	07/21/16 12:20	
Benzo(k)fluoranthene	mg/L	ND	0.00010	07/21/16 12:20	
Chrysene	mg/L	ND	0.00010	07/21/16 12:20	
Fluoranthene	mg/L	ND	0.00010	07/21/16 12:20	
Fluorene	mg/L	ND	0.00010	07/21/16 12:20	
Naphthalene	mg/L	ND	0.00010	07/21/16 12:20	
Phenanthrene	mg/L	ND	0.00010	07/21/16 12:20	
Pyrene	mg/L	ND	0.00010	07/21/16 12:20	
2-Fluorobiphenyl (S)	%	58	25-150	07/21/16 12:20	
Terphenyl-d14 (S)	%	60	25-150	07/21/16 12:20	

LABORATORY CONTROL SAMPLE: 244437

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0028	69	35-150	
Anthracene	mg/L	.004	0.0033	81	35-150	
Benzo(a)anthracene	mg/L	.004	0.0031	76	35-150	
Benzo(a)pyrene	mg/L	.004	0.0029	72	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0029	73	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0024	61	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0028	71	35-150	
Chrysene	mg/L	.004	0.0027	68	35-150	
Fluoranthene	mg/L	.004	0.0029	74	35-150	
Fluorene	mg/L	.004	0.0029	72	35-150	
Naphthalene	mg/L	.004	0.0027	68	35-150	
Phenanthrene	mg/L	.004	0.0029	72	35-150	
Pyrene	mg/L	.004	0.0029	74	35-150	
2-Fluorobiphenyl (S)	%			85	25-150	
Terphenyl-d14 (S)	%			87	25-150	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039675

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.  
ND - Not Detected at or above adjusted reporting limit.  
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.  
MDL - Adjusted Method Detection Limit.  
PQL - Practical Quantitation Limit.  
RL - Reporting Limit.  
S - Surrogate  
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.  
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.  
LCS(D) - Laboratory Control Sample (Duplicate)  
MS(D) - Matrix Spike (Duplicate)  
DUP - Sample Duplicate  
RPD - Relative Percent Difference  
NC - Not Calculable.  
SG - Silica Gel - Clean-Up  
U - Indicates the compound was analyzed for, but not detected.  
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.  
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.  
TNI - The Nelac Institute

### LABORATORIES

PASI-N Pace Analytical Services - New Orleans

### BATCH QUALIFIERS

Batch: 59408  
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.  
Batch: 59445  
[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.  
S5 Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039675

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2039675001	EB-071416	EPA 3535	59071	EPA 8015B Modified	59445
2039675002	MW-38A	EPA 3535	59071	EPA 8015B Modified	59445
2039675003	MW-84A	EPA 3535	59071	EPA 8015B Modified	59445
2039675004	MW-21B	EPA 3535	59071	EPA 8015B Modified	59445
2039675005	DUP-6	EPA 3535	59071	EPA 8015B Modified	59445
2039675001	EB-071416	EPA 8015/8021	58976		
2039675002	MW-38A	EPA 8015/8021	58976		
2039675003	MW-84A	EPA 8015/8021	58976		
2039675004	MW-21B	EPA 8015/8021	58976		
2039675005	DUP-6	EPA 8015/8021	58976		
2039675006	TRIPBLANK	EPA 8015/8021	58976		
2039675007	FB-071416	EPA 8015/8021	58976		
2039675001	EB-071416	EPA 3010	59097	EPA 6020	59130
2039675002	MW-38A	EPA 3010	59097	EPA 6020	59130
2039675003	MW-84A	EPA 3010	59097	EPA 6020	59130
2039675004	MW-21B	EPA 3010	59097	EPA 6020	59130
2039675005	DUP-6	EPA 3010	59097	EPA 6020	59130
2039675001	EB-071416	EPA 7470	59075	EPA 7470	59121
2039675002	MW-38A	EPA 7470	59075	EPA 7470	59121
2039675003	MW-84A	EPA 7470	59075	EPA 7470	59121
2039675004	MW-21B	EPA 7470	59075	EPA 7470	59121
2039675005	DUP-6	EPA 7470	59075	EPA 7470	59121
2039675001	EB-071416	EPA 3510	59202	EPA 8270 by SIM	59408
2039675002	MW-38A	EPA 3510	59202	EPA 8270 by SIM	59408
2039675003	MW-84A	EPA 3510	59202	EPA 8270 by SIM	59408
2039675004	MW-21B	EPA 3510	59202	EPA 8270 by SIM	59408
2039675005	DUP-6	EPA 3510	59202	EPA 8270 by SIM	59408
2039675001	EB-071416	EPA 5030B/8260	59049		
2039675002	MW-38A	EPA 5030B/8260	59049		
2039675003	MW-84A	EPA 5030B/8260	59049		
2039675004	MW-21B	EPA 5030B/8260	59049		
2039675005	DUP-6	EPA 5030B/8260	59049		
2039675006	TRIPBLANK	EPA 5030B/8260	59049		
2039675007	FB-071416	EPA 5030B/8260	59049		

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WO#: 2039675

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



2039675

Page: 1 of 1  
2030775

Section A

Required Client Information:

Company: Arcadis / BBL Caribe  
Report To: E Fraiz Calderon  
Address: City View Plaza 1 ste 401  
Guaynabo, PR 00968  
Email To: Efraiz.Calderon@Arcadis.com  
Phone: 787-311-4000  
Requested Due Date/TAT:  
Purchase Order No.:  
Project Name: Run Terminal MW Sampling  
Project Number: B0063169

Section C

Invoice Information:

Attention:  
Company Name:  
Address:  
Pace Quote Reference:  
Pace Project Manager: J Redondo  
Pace Profile #.: 2252

REGULATORY AGENCY

NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER

Site Location

STATE: PR

Section D  
Required Client Information

Matrix Codes  
MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

SAMPLE ID

(A-Z, 0-9 / -)  
Sample IDs MUST BE UNIQUE

COLLECTED

COMPOSITE START

COMPOSITE END/GRAB

Preservatives

Unpreserved	
H <sub>2</sub> SO <sub>4</sub>	
HNO <sub>3</sub>	
HCl	
NaOH	
Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	
Methanol	
Other	

Requested Analysis Filtered (Y/N)

Analysis Test ↓	Y/N
VOAs (820)	
PAHs (820)	
Metals (6020)	
Pb (8015)	
DAO/ORO	

Residual Chlorine (Y/N)

Pace Project No./ Lab I.D.

2039675

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓	Y/N	Residual Chlorine (Y/N)							
				DATE	TIME	DATE	TIME			Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other										
1	EB-071416	WT	G			07/14/16	0740		9	4			1	4							X	X	X	X	X		
2	Trip blank	WT	G			07/14/16	0800		4					4								X	X	X	X	X	
3	MW-38A	WT	G			07/14/16	0826		9	4			1	4							X	X	X	X	X		
4	MW-84A	WT	G			07/14/16	0859		9	4			1	4							X	X	X	X	X		
5	MW-21B	WT	G			07/14/16	1130		9	4			1	4							X	X	X	X	X		
6	DUP-6	WT	G			07/14/16	/		9	4			1	4							X	X	X	X	X		
7	EB-071416	WT	G			07/14/16	1136		4					4							X		X				

ADDITIONAL COMMENTS

RELINQUISHED BY / AFFILIATION

DATE

TIME

ACCEPTED BY / AFFILIATION

DATE

TIME

SAMPLE CONDITIONS

Level IV	FERNANDEZ COLOM / ARCADIS	07-14-16	1320	J. Redondo	07-14-16	1320																								
	/ Pace	7-14-16	17:00	Fed Ey	7-15-16	0845	3.0	1.9	Y	Y	Y																			

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: FERNANDEZ COLOM

SIGNATURE of SAMPLER:

DATE Signed (MM/DD/YY): 7-14-16

Temp in °C

Received on ice (Y/N)

Custody Sealed Cooler (Y/N)

Samples Intact (Y/N)

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.



Urb. Jardines de Guaynabo  
Calle Marginal Blq A-10  
Guaynabo, PR 00989

**Sample Condition Upon Receipt**

**WO# : 2039675**

PM: JAR1 Due Date: 07/28/16

CLIENT: 98-ARCADISPR

Project #

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

**Thermometer Used:**

Therm Fisher IR 4  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 7-14-16

Temp must be measured from Temperature blank when present Comments:

Temperature Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	1
Chain of Custody Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



# Sample Condition Upon Receipt

1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

Project #: **20**

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 5  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 7-15-16 JNB

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	1	
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14	
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15	

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

August 02, 2016

Efrain Calderon  
BBL Caribe Engineering P.S.C.  
48 City View Plaza1, Suite 401  
Road 16, Km. 1.2  
Guaynabo, PR 00968

RE: Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039793

Dear Efrain Calderon:

Enclosed are the analytical results for sample(s) received by the laboratory on July 15, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Juan Redondo  
juan.redondo@pacelabs.com  
Project Manager

Enclosures

cc: Sharon Colon  
Abner Hernandez  
Marianela Mercado-Burgos



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

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### New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:  
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):  
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):  
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):  
T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-  
00119

Commonwealth of Virginia (TNI): 480246

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### SAMPLE SUMMARY

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2039793001	EB-071516	Water	07/15/16 09:28	07/15/16 12:11
2039793002	MW-77B	Water	07/15/16 10:10	07/15/16 12:11
2039793003	DUP-7	Water	07/15/16 00:00	07/15/16 12:11
2039793004	TRIPBLANK	Water	07/15/16 00:00	07/15/16 12:11
2039793005	FB-071516	Water	07/15/16 10:16	07/15/16 12:11

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2039793001	EB-071516	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2039793002	MW-77B	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2039793003	DUP-7	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2039793004	TRIPBLANK	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2039793005	FB-071516	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

---

**Method:** EPA 8015B Modified

**Description:** 8015M DRO/ORO Organics

**Client:** BBL Caribe / Arcadis PR

**Date:** August 02, 2016

**General Information:**

3 samples were analyzed for EPA 8015B Modified. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3535 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 59267

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

---

**Method:** EPA 8015/8021

**Description:** 8021 GCV BTEX, MTBE, GRO

**Client:** BBL Caribe / Arcadis PR

**Date:** August 02, 2016

**General Information:**

5 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

---

**Method:** EPA 6020

**Description:** 6020 MET ICPMS

**Client:** BBL Caribe / Arcadis PR

**Date:** August 02, 2016

**General Information:**

3 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

---

**Method:** EPA 7470

**Description:** 7470 Mercury

**Client:** BBL Caribe / Arcadis PR

**Date:** August 02, 2016

**General Information:**

3 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

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**Method:** EPA 8270 by SIM

**Description:** 8270 MSSV PAH by SIM SEP

**Client:** BBL Caribe / Arcadis PR

**Date:** August 02, 2016

**General Information:**

3 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 59312

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

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**Method:** EPA 5030B/8260

**Description:** 8260 MSV Low Level

**Client:** BBL Caribe / Arcadis PR

**Date:** August 02, 2016

### General Information:

5 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 59276

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2039880001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 244763)
  - 1,1,1-Trichloroethane
  - Carbon disulfide
  - Styrene
- MSD (Lab ID: 244764)
  - Carbon disulfide
  - Styrene

### Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

Sample: EB-071516	Lab ID: 2039793001	Collected: 07/15/16 09:28	Received: 07/15/16 12:11	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/20/16 08:16	07/28/16 11:05		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/20/16 08:16	07/28/16 11:05		
<b>Surrogates</b>								
n-Pentacosane (S)	57	%	16-137	1	07/20/16 08:16	07/28/16 11:05	629-99-2	
o-Terphenyl (S)	61	%	10-121	1	07/20/16 08:16	07/28/16 11:05	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		07/20/16 19:08		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	99	%	44-148	1		07/20/16 19:08	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	07/20/16 08:52	07/28/16 13:58	7440-38-2	
Chromium	ND	mg/L	0.0010	1	07/20/16 08:52	07/28/16 13:58	7440-47-3	
Lead	ND	mg/L	0.0010	1	07/20/16 08:52	07/28/16 13:58	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	07/20/16 08:52	07/28/16 13:58	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	07/20/16 09:07	07/21/16 10:51	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 11:32	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 11:32	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 11:32	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 11:32	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 11:32	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 11:32	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 11:32	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 11:32	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 11:32	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 11:32	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 11:32	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 11:32	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 11:32	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	81	%	25-150	1	07/20/16 11:32	07/23/16 11:32	321-60-8	
Terphenyl-d14 (S)	76	%	25-150	1	07/20/16 11:32	07/23/16 11:32	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	24.2	ug/L	4.0	1		07/20/16 13:24	67-64-1	
Benzene	ND	ug/L	0.50	1		07/20/16 13:24	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/20/16 13:24	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/20/16 13:24	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/20/16 13:24	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/20/16 13:24	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/20/16 13:24	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

Sample: EB-071516	Lab ID: 2039793001	Collected: 07/15/16 09:28	Received: 07/15/16 12:11	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		07/20/16 13:24	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/20/16 13:24	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/20/16 13:24	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/20/16 13:24	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/20/16 13:24	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/20/16 13:24	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/20/16 13:24	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/20/16 13:24	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/20/16 13:24	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/20/16 13:24	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/20/16 13:24	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/20/16 13:24	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/20/16 13:24	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/20/16 13:24	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/20/16 13:24	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/20/16 13:24	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/20/16 13:24	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/20/16 13:24	10061-02-6	
Ethanol	ND	ug/L	500	1		07/20/16 13:24	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/20/16 13:24	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/20/16 13:24	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/20/16 13:24	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/20/16 13:24	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/20/16 13:24	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/20/16 13:24	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/20/16 13:24	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/20/16 13:24	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/20/16 13:24	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/20/16 13:24	127-18-4	
Toluene	ND	ug/L	0.50	1		07/20/16 13:24	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/20/16 13:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/20/16 13:24	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/20/16 13:24	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/20/16 13:24	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/20/16 13:24	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/20/16 13:24	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/20/16 13:24	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	102	%	72-126	1		07/20/16 13:24	1868-53-7	
4-Bromofluorobenzene (S)	105	%	68-124	1		07/20/16 13:24	460-00-4	
Toluene-d8 (S)	103	%	79-119	1		07/20/16 13:24	2037-26-5	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

Sample: MW-77B	Lab ID: 2039793002	Collected: 07/15/16 10:10	Received: 07/15/16 12:11	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/20/16 08:16	07/28/16 11:34		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/20/16 08:16	07/28/16 11:34		
<b>Surrogates</b>								
n-Pentacosane (S)	35	%	16-137	1	07/20/16 08:16	07/28/16 11:34	629-99-2	
o-Terphenyl (S)	49	%	10-121	1	07/20/16 08:16	07/28/16 11:34	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		07/20/16 19:35		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	101	%	44-148	1		07/20/16 19:35	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	0.0011	mg/L	0.0010	1	07/20/16 08:52	07/28/16 14:01	7440-38-2	
Chromium	0.0044	mg/L	0.0010	1	07/20/16 08:52	07/28/16 14:01	7440-47-3	
Lead	0.0026	mg/L	0.0010	1	07/20/16 08:52	07/28/16 14:01	7439-92-1	
Vanadium	0.017	mg/L	0.0050	1	07/20/16 08:52	07/28/16 14:01	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	07/20/16 09:07	07/21/16 10:57	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:37	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:37	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:37	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:37	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:37	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:37	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:37	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:37	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:37	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:37	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:37	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:37	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:37	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	81	%	25-150	1	07/20/16 11:32	07/23/16 12:37	321-60-8	
Terphenyl-d14 (S)	64	%	25-150	1	07/20/16 11:32	07/23/16 12:37	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	23.8	ug/L	4.0	1		07/20/16 13:42	67-64-1	
Benzene	ND	ug/L	0.50	1		07/20/16 13:42	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/20/16 13:42	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/20/16 13:42	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/20/16 13:42	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/20/16 13:42	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/20/16 13:42	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

Sample: MW-77B	Lab ID: 2039793002	Collected: 07/15/16 10:10	Received: 07/15/16 12:11	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		07/20/16 13:42	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/20/16 13:42	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/20/16 13:42	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/20/16 13:42	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/20/16 13:42	67-66-3	
Chloromethane	<b>0.53</b>	ug/L	0.50	1		07/20/16 13:42	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/20/16 13:42	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/20/16 13:42	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/20/16 13:42	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/20/16 13:42	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/20/16 13:42	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/20/16 13:42	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/20/16 13:42	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/20/16 13:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/20/16 13:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/20/16 13:42	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/20/16 13:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/20/16 13:42	10061-02-6	
Ethanol	ND	ug/L	500	1		07/20/16 13:42	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/20/16 13:42	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/20/16 13:42	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/20/16 13:42	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/20/16 13:42	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/20/16 13:42	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/20/16 13:42	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/20/16 13:42	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/20/16 13:42	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/20/16 13:42	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/20/16 13:42	127-18-4	
Toluene	ND	ug/L	0.50	1		07/20/16 13:42	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/20/16 13:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/20/16 13:42	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/20/16 13:42	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/20/16 13:42	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/20/16 13:42	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/20/16 13:42	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/20/16 13:42	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	98	%	72-126	1		07/20/16 13:42	1868-53-7	
4-Bromofluorobenzene (S)	103	%	68-124	1		07/20/16 13:42	460-00-4	
Toluene-d8 (S)	101	%	79-119	1		07/20/16 13:42	2037-26-5	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

Sample: DUP-7	Lab ID: 2039793003	Collected: 07/15/16 00:00	Received: 07/15/16 12:11	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	07/20/16 08:16	07/28/16 12:02		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	07/20/16 08:16	07/28/16 12:02		
<b>Surrogates</b>								
n-Pentacosane (S)	30	%	16-137	1	07/20/16 08:16	07/28/16 12:02	629-99-2	
o-Terphenyl (S)	35	%	10-121	1	07/20/16 08:16	07/28/16 12:02	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		07/20/16 20:02		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	98	%	44-148	1		07/20/16 20:02	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	<b>0.0012</b>	mg/L	0.0010	1	07/20/16 08:52	07/28/16 14:05	7440-38-2	
Chromium	<b>0.0042</b>	mg/L	0.0010	1	07/20/16 08:52	07/28/16 14:05	7440-47-3	
Lead	<b>0.0028</b>	mg/L	0.0010	1	07/20/16 08:52	07/28/16 14:05	7439-92-1	
Vanadium	<b>0.018</b>	mg/L	0.0050	1	07/20/16 08:52	07/28/16 14:05	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	07/20/16 09:07	07/21/16 10:59	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:58	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:58	83-32-9	
Fluorene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:58	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:58	85-01-8	
Anthracene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:58	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:58	206-44-0	
Pyrene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:58	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:58	56-55-3	
Chrysene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:58	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:58	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:58	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:58	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	07/20/16 11:32	07/23/16 12:58	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	70	%	25-150	1	07/20/16 11:32	07/23/16 12:58	321-60-8	
Terphenyl-d14 (S)	57	%	25-150	1	07/20/16 11:32	07/23/16 12:58	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	<b>4.2</b>	ug/L	4.0	1		07/20/16 14:00	67-64-1	
Benzene	ND	ug/L	0.50	1		07/20/16 14:00	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/20/16 14:00	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/20/16 14:00	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/20/16 14:00	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/20/16 14:00	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/20/16 14:00	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

Sample: DUP-7	Lab ID: 2039793003	Collected: 07/15/16 00:00	Received: 07/15/16 12:11	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		07/20/16 14:00	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/20/16 14:00	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/20/16 14:00	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/20/16 14:00	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/20/16 14:00	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/20/16 14:00	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/20/16 14:00	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/20/16 14:00	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/20/16 14:00	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/20/16 14:00	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/20/16 14:00	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/20/16 14:00	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/20/16 14:00	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/20/16 14:00	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/20/16 14:00	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/20/16 14:00	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/20/16 14:00	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/20/16 14:00	10061-02-6	
Ethanol	ND	ug/L	500	1		07/20/16 14:00	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/20/16 14:00	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/20/16 14:00	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/20/16 14:00	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/20/16 14:00	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/20/16 14:00	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/20/16 14:00	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/20/16 14:00	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/20/16 14:00	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/20/16 14:00	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/20/16 14:00	127-18-4	
Toluene	ND	ug/L	0.50	1		07/20/16 14:00	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/20/16 14:00	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/20/16 14:00	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/20/16 14:00	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/20/16 14:00	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/20/16 14:00	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/20/16 14:00	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/20/16 14:00	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	99	%	72-126	1		07/20/16 14:00	1868-53-7	
4-Bromofluorobenzene (S)	102	%	68-124	1		07/20/16 14:00	460-00-4	
Toluene-d8 (S)	103	%	79-119	1		07/20/16 14:00	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

Sample: TRIPBLANK	Lab ID: 2039793004	Collected: 07/15/16 00:00	Received: 07/15/16 12:11	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>	Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		07/20/16 20:29		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	99	%	44-148	1		07/20/16 20:29	460-00-4	
<b>8260 MSV Low Level</b>	Analytical Method: EPA 5030B/8260							
Acetone	<b>43.8</b>	ug/L	4.0	1		07/20/16 14:18	67-64-1	
Benzene	ND	ug/L	0.50	1		07/20/16 14:18	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/20/16 14:18	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/20/16 14:18	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/20/16 14:18	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/20/16 14:18	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/20/16 14:18	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		07/20/16 14:18	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/20/16 14:18	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/20/16 14:18	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/20/16 14:18	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/20/16 14:18	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/20/16 14:18	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/20/16 14:18	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/20/16 14:18	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/20/16 14:18	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/20/16 14:18	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/20/16 14:18	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/20/16 14:18	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/20/16 14:18	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/20/16 14:18	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/20/16 14:18	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/20/16 14:18	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/20/16 14:18	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/20/16 14:18	10061-02-6	
Ethanol	ND	ug/L	500	1		07/20/16 14:18	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/20/16 14:18	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/20/16 14:18	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/20/16 14:18	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		07/20/16 14:18	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/20/16 14:18	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/20/16 14:18	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/20/16 14:18	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/20/16 14:18	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/20/16 14:18	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/20/16 14:18	127-18-4	
Toluene	ND	ug/L	0.50	1		07/20/16 14:18	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/20/16 14:18	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/20/16 14:18	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/20/16 14:18	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/20/16 14:18	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/20/16 14:18	75-01-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

Sample: TRIPBLANK		Lab ID: 2039793004	Collected: 07/15/16 00:00	Received: 07/15/16 12:11	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
m&p-Xylene	ND	ug/L	2.0	1		07/20/16 14:18	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/20/16 14:18	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	100	%	72-126	1		07/20/16 14:18	1868-53-7	
4-Bromofluorobenzene (S)	101	%	68-124	1		07/20/16 14:18	460-00-4	
Toluene-d8 (S)	102	%	79-119	1		07/20/16 14:18	2037-26-5	

Sample: FB-071516		Lab ID: 2039793005	Collected: 07/15/16 10:16	Received: 07/15/16 12:11	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		07/21/16 00:31		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	102	%	44-148	1		07/21/16 00:31	460-00-4	

<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Acetone	12.9	ug/L	4.0	1		07/20/16 14:35	67-64-1	
Benzene	ND	ug/L	0.50	1		07/20/16 14:35	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		07/20/16 14:35	75-27-4	
Bromoform	ND	ug/L	0.50	1		07/20/16 14:35	75-25-2	
Bromomethane	ND	ug/L	0.50	1		07/20/16 14:35	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		07/20/16 14:35	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		07/20/16 14:35	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		07/20/16 14:35	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		07/20/16 14:35	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		07/20/16 14:35	108-90-7	
Chloroethane	ND	ug/L	0.50	1		07/20/16 14:35	75-00-3	
Chloroform	ND	ug/L	0.50	1		07/20/16 14:35	67-66-3	
Chloromethane	ND	ug/L	0.50	1		07/20/16 14:35	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		07/20/16 14:35	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		07/20/16 14:35	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		07/20/16 14:35	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		07/20/16 14:35	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		07/20/16 14:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		07/20/16 14:35	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		07/20/16 14:35	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		07/20/16 14:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		07/20/16 14:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		07/20/16 14:35	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		07/20/16 14:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		07/20/16 14:35	10061-02-6	
Ethanol	ND	ug/L	500	1		07/20/16 14:35	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		07/20/16 14:35	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		07/20/16 14:35	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		07/20/16 14:35	98-82-8	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

Sample: <b>FB-071516</b>	Lab ID: <b>2039793005</b>	Collected: 07/15/16 10:16	Received: 07/15/16 12:11	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Methyl acetate	ND	ug/L	2.0	1		07/20/16 14:35	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		07/20/16 14:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		07/20/16 14:35	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		07/20/16 14:35	1634-04-4	
Styrene	ND	ug/L	1.0	1		07/20/16 14:35	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		07/20/16 14:35	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		07/20/16 14:35	127-18-4	
Toluene	ND	ug/L	0.50	1		07/20/16 14:35	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		07/20/16 14:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		07/20/16 14:35	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		07/20/16 14:35	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		07/20/16 14:35	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		07/20/16 14:35	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		07/20/16 14:35	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		07/20/16 14:35	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	96	%.	72-126	1		07/20/16 14:35	1868-53-7	
4-Bromofluorobenzene (S)	101	%.	68-124	1		07/20/16 14:35	460-00-4	
Toluene-d8 (S)	101	%.	79-119	1		07/20/16 14:35	2037-26-5	

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039793

QC Batch: 59310 Analysis Method: EPA 8015/8021  
QC Batch Method: EPA 8015/8021 Analysis Description: 8021 W GCV BTEX , MTBE, GRO  
Associated Lab Samples: 2039793001, 2039793002, 2039793003, 2039793004, 2039793005

METHOD BLANK: 244860 Matrix: Water  
Associated Lab Samples: 2039793001, 2039793002, 2039793003, 2039793004, 2039793005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	07/20/16 15:34	
4-Bromofluorobenzene (S)	%.	98	44-148	07/20/16 15:34	

METHOD BLANK: 245320 Matrix: Water  
Associated Lab Samples: 2039793001, 2039793002, 2039793003, 2039793004, 2039793005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	07/21/16 11:08	
4-Bromofluorobenzene (S)	%.	102	44-148	07/21/16 11:08	

LABORATORY CONTROL SAMPLE: 244861

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	494	99	61-136	
4-Bromofluorobenzene (S)	%.			103	44-148	
4-Bromofluorobenzene (S)	%.			101	44-148	

LABORATORY CONTROL SAMPLE: 245321

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	496	99	61-136	
4-Bromofluorobenzene (S)	%.			103	44-148	
4-Bromofluorobenzene (S)	%.			103	44-148	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 244984 244985

Parameter	Units	2039762003 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
Gasoline Range Organics	ug/L	ND	500	500	575	527	109	99	15-147	9	20	
4-Bromofluorobenzene (S)	%.						101	103	44-148			

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		244986		244987									
Parameter	Units	2039762003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
4-Bromofluorobenzene (S)	%.						102	104	44-148				

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

QC Batch: 59299 Analysis Method: EPA 7470  
 QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
 Associated Lab Samples: 2039793001, 2039793002, 2039793003

METHOD BLANK: 244827 Matrix: Water

Associated Lab Samples: 2039793001, 2039793002, 2039793003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	07/21/16 10:42	

LABORATORY CONTROL SAMPLE: 244828

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	1.0	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 244829 244830

Parameter	Units	2039793001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	1	1	1.0	1.0	102	103	75-125	1	20	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

QC Batch: 59273 Analysis Method: EPA 6020  
 QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
 Associated Lab Samples: 2039793001, 2039793002, 2039793003

METHOD BLANK: 244755 Matrix: Water

Associated Lab Samples: 2039793001, 2039793002, 2039793003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	07/28/16 12:17	
Chromium	mg/L	ND	0.0010	07/28/16 12:17	
Lead	mg/L	ND	0.0010	07/28/16 12:17	
Vanadium	mg/L	ND	0.0050	07/28/16 12:17	

LABORATORY CONTROL SAMPLE: 244756

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.02	0.021	103	83-115	
Chromium	mg/L	.02	0.023	113	85-115	
Lead	mg/L	.02	0.020	101	84-115	
Vanadium	mg/L	.02	0.021	103	81-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 244831 244832

Parameter	Units	2039880002		244832		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual	
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result						MSD Result
Arsenic	mg/L	0.0016	.02	.02	0.020	0.020	94	94	80-120	0	20
Chromium	mg/L	ND	.02	.02	0.020	0.020	97	97	80-120	1	20
Lead	mg/L	ND	.02	.02	0.021	0.021	104	104	80-120	0	20
Vanadium	mg/L	ND	.02	.02	0.021	0.021	99	100	80-120	0	20

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2039793

QC Batch: 59276 Analysis Method: EPA 5030B/8260  
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Low Level  
Associated Lab Samples: 2039793001, 2039793002, 2039793003, 2039793004, 2039793005

METHOD BLANK: 244761 Matrix: Water  
Associated Lab Samples: 2039793001, 2039793002, 2039793003, 2039793004, 2039793005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	07/20/16 11:20	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	07/20/16 11:20	
1,1,2-Trichloroethane	ug/L	ND	0.50	07/20/16 11:20	
1,1-Dichloroethane	ug/L	ND	0.50	07/20/16 11:20	
1,1-Dichloroethene	ug/L	ND	0.50	07/20/16 11:20	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	07/20/16 11:20	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	07/20/16 11:20	
1,2-Dichloroethane	ug/L	ND	0.50	07/20/16 11:20	
1,2-Dichloropropane	ug/L	ND	0.50	07/20/16 11:20	
2-Butanone (MEK)	ug/L	ND	2.0	07/20/16 11:20	
2-Hexanone	ug/L	ND	1.0	07/20/16 11:20	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	07/20/16 11:20	
Acetone	ug/L	ND	4.0	07/20/16 11:20	
Benzene	ug/L	ND	0.50	07/20/16 11:20	
Bromodichloromethane	ug/L	ND	0.50	07/20/16 11:20	
Bromoform	ug/L	ND	0.50	07/20/16 11:20	
Bromomethane	ug/L	ND	0.50	07/20/16 11:20	
Carbon disulfide	ug/L	ND	1.0	07/20/16 11:20	
Carbon tetrachloride	ug/L	ND	0.50	07/20/16 11:20	
Chlorobenzene	ug/L	ND	0.50	07/20/16 11:20	
Chloroethane	ug/L	ND	0.50	07/20/16 11:20	
Chloroform	ug/L	ND	0.50	07/20/16 11:20	
Chloromethane	ug/L	ND	0.50	07/20/16 11:20	
cis-1,2-Dichloroethene	ug/L	ND	1.0	07/20/16 11:20	
cis-1,3-Dichloropropene	ug/L	ND	0.50	07/20/16 11:20	
Dibromochloromethane	ug/L	ND	0.50	07/20/16 11:20	
Dichlorodifluoromethane	ug/L	ND	1.0	07/20/16 11:20	
Ethanol	ug/L	ND	500	07/20/16 11:20	
Ethylbenzene	ug/L	ND	0.50	07/20/16 11:20	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	07/20/16 11:20	
m&p-Xylene	ug/L	ND	2.0	07/20/16 11:20	
Methyl acetate	ug/L	ND	2.0	07/20/16 11:20	
Methyl-tert-butyl ether	ug/L	ND	0.50	07/20/16 11:20	
Methylene Chloride	ug/L	ND	0.50	07/20/16 11:20	
o-Xylene	ug/L	ND	1.0	07/20/16 11:20	
Styrene	ug/L	ND	1.0	07/20/16 11:20	
tert-Butyl Alcohol	ug/L	ND	200	07/20/16 11:20	
Tetrachloroethene	ug/L	ND	0.50	07/20/16 11:20	
Toluene	ug/L	ND	0.50	07/20/16 11:20	
trans-1,2-Dichloroethene	ug/L	ND	0.50	07/20/16 11:20	
trans-1,3-Dichloropropene	ug/L	ND	0.50	07/20/16 11:20	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

METHOD BLANK: 244761

Matrix: Water

Associated Lab Samples: 2039793001, 2039793002, 2039793003, 2039793004, 2039793005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	0.50	07/20/16 11:20	
Trichlorofluoromethane	ug/L	ND	0.50	07/20/16 11:20	
Vinyl chloride	ug/L	ND	0.50	07/20/16 11:20	
4-Bromofluorobenzene (S)	%	104	68-124	07/20/16 11:20	
Dibromofluoromethane (S)	%	102	72-126	07/20/16 11:20	
Toluene-d8 (S)	%	103	79-119	07/20/16 11:20	

LABORATORY CONTROL SAMPLE: 244762

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	54.8	110	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	54.7	109	15-179	
1,1,2-Trichloroethane	ug/L	50	54.7	109	58-144	
1,1-Dichloroethane	ug/L	50	57.9	116	63-129	
1,1-Dichloroethene	ug/L	50	54.8	110	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	55.5	111	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	54.5	109	52-161	
1,2-Dichloroethane	ug/L	50	50.9	102	57-148	
1,2-Dichloropropane	ug/L	50	60.6	121	66-128	
2-Butanone (MEK)	ug/L	50	64.9	130	32-183	
2-Hexanone	ug/L	50	59.6	119	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	59.1	118	26-171	
Acetone	ug/L	50	65.7	131	22-165	
Benzene	ug/L	50	60.7	121	62-131	
Bromodichloromethane	ug/L	50	51.7	103	69-132	
Bromoform	ug/L	50	39.6	79	35-166	
Bromomethane	ug/L	50	56.5	113	34-158	
Carbon disulfide	ug/L	50	62.5	125	31-128	
Carbon tetrachloride	ug/L	50	49.0	98	54-144	
Chlorobenzene	ug/L	50	43.9	88	70-127	
Chloroethane	ug/L	50	56.0	112	17-195	
Chloroform	ug/L	50	50.9	102	73-134	
Chloromethane	ug/L	50	61.1	122	17-153	
cis-1,2-Dichloroethene	ug/L	50	55.8	112	68-129	
cis-1,3-Dichloropropene	ug/L	50	57.8	116	72-138	
Dibromochloromethane	ug/L	50	39.2	78	49-146	
Dichlorodifluoromethane	ug/L	50	40.3	81	10-179	
Ethylbenzene	ug/L	50	47.7	95	66-126	
Isopropylbenzene (Cumene)	ug/L	50	49.1	98	51-138	
m&p-Xylene	ug/L	100	86.0	86	65-129	
Methyl acetate	ug/L	50	63.3	127	20-142	
Methyl-tert-butyl ether	ug/L	50	59.1	118	37-166	
Methylene Chloride	ug/L	50	59.2	118	46-168	
o-Xylene	ug/L	50	43.4	87	65-124	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

LABORATORY CONTROL SAMPLE: 244762

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Styrene	ug/L	50	44.5	89	72-133	
Tetrachloroethene	ug/L	50	40.4	81	46-157	
Toluene	ug/L	50	56.9	114	69-126	
trans-1,2-Dichloroethene	ug/L	50	55.1	110	60-129	
trans-1,3-Dichloropropene	ug/L	50	58.3	117	59-149	
Trichloroethene	ug/L	50	44.5	89	67-132	
Trichlorofluoromethane	ug/L	50	52.6	105	39-171	
Vinyl chloride	ug/L	50	53.4	107	27-149	
4-Bromofluorobenzene (S)	%			104	68-124	
Dibromofluoromethane (S)	%			105	72-126	
Toluene-d8 (S)	%			106	79-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 244763 244764

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2039880001 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
1,1,1-Trichloroethane	ug/L	ND	50	50	68.8	68.4	138	137	54-137	1	20	M1
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	50.9	50.9	102	102	15-187	0	20	
1,1,2-Trichloroethane	ug/L	ND	50	50	55.9	57.9	112	116	59-148	4	20	
1,1-Dichloroethane	ug/L	ND	50	50	64.0	64.5	128	129	59-133	1	20	
1,1-Dichloroethene	ug/L	ND	50	50	62.6	63.7	125	127	44-146	2	20	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	55.8	56.8	112	114	23-166	2	20	
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	56.5	57.0	113	114	55-166	1	20	
1,2-Dichloroethane	ug/L	ND	50	50	55.5	56.2	111	112	56-154	1	20	
1,2-Dichloropropane	ug/L	ND	50	50	59.6	59.7	119	119	62-135	0	20	
2-Butanone (MEK)	ug/L	ND	50	50	68.0	70.1	136	140	20-205	3	20	
2-Hexanone	ug/L	ND	50	50	61.5	59.3	123	119	25-189	4	20	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	50	58.8	59.3	118	119	23-184	1	20	
Acetone	ug/L	ND	50	50	70.7	74.4	136	143	11-217	5	20	
Benzene	ug/L	ND	50	50	62.4	62.1	125	124	52-141	0	20	
Bromodichloromethane	ug/L	ND	50	50	55.6	55.7	111	111	70-134	0	20	
Bromoform	ug/L	ND	50	50	48.5	51.6	97	103	37-171	6	20	
Bromomethane	ug/L	ND	50	50	61.9	59.6	124	119	34-155	4	20	
Carbon disulfide	ug/L	ND	50	50	76.7	73.7	153	147	28-130	4	20	M1
Carbon tetrachloride	ug/L	ND	50	50	57.7	57.5	115	115	48-146	0	20	
Chlorobenzene	ug/L	ND	50	50	49.2	51.5	98	103	67-129	5	20	
Chloroethane	ug/L	ND	50	50	59.5	60.0	119	120	12-192	1	20	
Chloroform	ug/L	ND	50	50	57.9	58.2	116	116	66-143	0	20	
Chloromethane	ug/L	ND	50	50	63.4	61.8	127	124	14-155	2	20	
cis-1,2-Dichloroethene	ug/L	ND	50	50	62.9	63.5	126	127	56-141	1	20	
cis-1,3-Dichloropropene	ug/L	ND	50	50	61.0	61.8	122	124	70-139	1	20	
Dibromochloromethane	ug/L	ND	50	50	44.1	47.2	88	94	50-150	7	20	
Dichlorodifluoromethane	ug/L	ND	50	50	43.7	45.2	87	90	10-173	3	20	
Ethylbenzene	ug/L	ND	50	50	52.8	54.0	106	108	57-135	2	20	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

Parameter	Units	244763		244764		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2039880001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Isopropylbenzene (Cumene)	ug/L	ND	50	50	52.0	54.2	104	108	40-146	4	20		
m&p-Xylene	ug/L	ND	100	100	97.2	102	97	102	56-136	5	20		
Methyl acetate	ug/L	ND	50	50	65.2	66.1	130	132	10-142	1	20		
Methyl-tert-butyl ether	ug/L	ND	50	50	66.1	68.2	132	136	35-176	3	20		
Methylene Chloride	ug/L	ND	50	50	62.1	64.9	124	130	45-166	4	20		
o-Xylene	ug/L	ND	50	50	49.4	51.0	99	102	57-133	3	20		
Styrene	ug/L	ND	50	50	12.5	11.3	25	23	58-144	10	20	M1	
Tetrachloroethene	ug/L	ND	50	50	49.0	51.6	98	103	48-143	5	20		
Toluene	ug/L	ND	50	50	60.9	61.3	122	123	59-136	1	20		
trans-1,2-Dichloroethene	ug/L	ND	50	50	64.3	65.0	129	130	57-132	1	20		
trans-1,3-Dichloropropene	ug/L	ND	50	50	63.3	63.5	127	127	59-154	0	20		
Trichloroethene	ug/L	ND	50	50	49.5	50.2	99	100	58-140	1	20		
Trichlorofluoromethane	ug/L	ND	50	50	64.3	64.2	129	128	24-175	0	20		
Vinyl chloride	ug/L	ND	50	50	56.6	56.6	113	113	21-150	0	20		
4-Bromofluorobenzene (S)	%.						105	106	68-124				
Dibromofluoromethane (S)	%.						114	115	72-126				
Toluene-d8 (S)	%.						104	104	79-119				

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

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QC Batch: 59267	Analysis Method: EPA 8015B Modified
QC Batch Method: EPA 3535	Analysis Description: EPA 8015 ORO
Associated Lab Samples: 2039793001, 2039793002, 2039793003	

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METHOD BLANK: 244746 Matrix: Water

Associated Lab Samples: 2039793001, 2039793002, 2039793003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	ND	0.25	07/27/16 20:10	
Oil Range Organics (>C28-C40)	mg/L	ND	0.50	07/27/16 20:10	
n-Pentacosane (S)	%	48	16-137	07/27/16 20:10	
o-Terphenyl (S)	%	52	10-121	07/27/16 20:10	

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LABORATORY CONTROL SAMPLE: 244747

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	.4	.17J	42	10-115	
n-Pentacosane (S)	%			62	16-137	
o-Terphenyl (S)	%			77	10-121	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

QC Batch: 59312 Analysis Method: EPA 8270 by SIM  
QC Batch Method: EPA 3510 Analysis Description: 8270 Water by SIM MSSV  
Associated Lab Samples: 2039793001, 2039793002, 2039793003

METHOD BLANK: 244864 Matrix: Water

Associated Lab Samples: 2039793001, 2039793002, 2039793003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	07/23/16 09:28	
Anthracene	mg/L	ND	0.00010	07/23/16 09:28	
Benzo(a)anthracene	mg/L	ND	0.00010	07/23/16 09:28	
Benzo(a)pyrene	mg/L	ND	0.00010	07/23/16 09:28	
Benzo(b)fluoranthene	mg/L	ND	0.00010	07/23/16 09:28	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	07/23/16 09:28	
Benzo(k)fluoranthene	mg/L	ND	0.00010	07/23/16 09:28	
Chrysene	mg/L	ND	0.00010	07/23/16 09:28	
Fluoranthene	mg/L	ND	0.00010	07/23/16 09:28	
Fluorene	mg/L	ND	0.00010	07/23/16 09:28	
Naphthalene	mg/L	ND	0.00010	07/23/16 09:28	
Phenanthrene	mg/L	ND	0.00010	07/23/16 09:28	
Pyrene	mg/L	ND	0.00010	07/23/16 09:28	
2-Fluorobiphenyl (S)	%	76	25-150	07/23/16 09:28	
Terphenyl-d14 (S)	%	70	25-150	07/23/16 09:28	

LABORATORY CONTROL SAMPLE: 244865

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0029	73	35-150	
Anthracene	mg/L	.004	0.0033	83	35-150	
Benzo(a)anthracene	mg/L	.004	0.0030	75	35-150	
Benzo(a)pyrene	mg/L	.004	0.0029	71	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0031	77	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0026	65	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0028	71	35-150	
Chrysene	mg/L	.004	0.0028	70	35-150	
Fluoranthene	mg/L	.004	0.0030	75	35-150	
Fluorene	mg/L	.004	0.0029	72	35-150	
Naphthalene	mg/L	.004	0.0030	74	35-150	
Phenanthrene	mg/L	.004	0.0031	77	35-150	
Pyrene	mg/L	.004	0.0030	74	35-150	
2-Fluorobiphenyl (S)	%			81	25-150	
Terphenyl-d14 (S)	%			75	25-150	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The Nelac Institute

### LABORATORIES

PASI-N Pace Analytical Services - New Orleans

### BATCH QUALIFIERS

Batch: 59532

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 59803

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2039793

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2039793001	EB-071516	EPA 3535	59267	EPA 8015B Modified	59803
2039793002	MW-77B	EPA 3535	59267	EPA 8015B Modified	59803
2039793003	DUP-7	EPA 3535	59267	EPA 8015B Modified	59803
2039793001	EB-071516	EPA 8015/8021	59310		
2039793002	MW-77B	EPA 8015/8021	59310		
2039793003	DUP-7	EPA 8015/8021	59310		
2039793004	TRIPBLANK	EPA 8015/8021	59310		
2039793005	FB-071516	EPA 8015/8021	59310		
2039793001	EB-071516	EPA 3010	59273	EPA 6020	59308
2039793002	MW-77B	EPA 3010	59273	EPA 6020	59308
2039793003	DUP-7	EPA 3010	59273	EPA 6020	59308
2039793001	EB-071516	EPA 7470	59299	EPA 7470	59309
2039793002	MW-77B	EPA 7470	59299	EPA 7470	59309
2039793003	DUP-7	EPA 7470	59299	EPA 7470	59309
2039793001	EB-071516	EPA 3510	59312	EPA 8270 by SIM	59532
2039793002	MW-77B	EPA 3510	59312	EPA 8270 by SIM	59532
2039793003	DUP-7	EPA 3510	59312	EPA 8270 by SIM	59532
2039793001	EB-071516	EPA 5030B/8260	59276		
2039793002	MW-77B	EPA 5030B/8260	59276		
2039793003	DUP-7	EPA 5030B/8260	59276		
2039793004	TRIPBLANK	EPA 5030B/8260	59276		
2039793005	FB-071516	EPA 5030B/8260	59276		

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Client Notification/ Resolution: \_\_\_\_\_  
 Person Contacted: \_\_\_\_\_  
 Comments/ Resolution: \_\_\_\_\_  
 Date/Time: \_\_\_\_\_

15	Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
14	Headspace in VOA Vials (>6mm):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
13	All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
12	All containers needing chemical preservation have been checked (except VOA, colliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
11	All containers received within manufacturer's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
10	Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
9	Filtered vol. Rec. for Diss. tests	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
8	Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
7	Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
6	Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
5	Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
4	Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
3	Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
2	Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
1	Temperature Blank Present?*	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

\*Temp must be measured from Temperature blank when present

Date and Initials of person examining: [Signature]  
 contents: \_\_\_\_\_

Cooler Temperature: [see COC] Temp should be above freezing to 6°C

Thermometer Used:  
 Therm Fisher IR 4  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

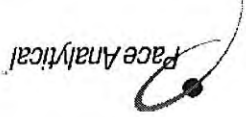
Custody Seal on Cooler/Box Present: [see COC]

Custody Seals Intact:  Yes  No

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Project # \_\_\_\_\_

Urb. Jardines de Guaynabo  
 Calle Marginal Bq A-10  
 Guaynabo, PR 00969



Sample Condition Upon Receipt

MO#: 2039793

PM: JARI Due Date: 07/29/16

CLIENT: 98-ARCADISPR



1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

### Sample Condition Upon Receipt

Project #: **20 39793**

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 5  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 07-17-16 JP

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

August 22, 2016

Efrain Calderon  
BBL Caribe Engineering P.S.C.  
48 City View Plaza1, Suite 401  
Road 16, Km. 1.2  
Guaynabo, PR 00968

RE: Project: PUMA TERMINAL SAMPLING  
Pace Project No.: 2041033

Dear Efrain Calderon:

Enclosed are the analytical results for sample(s) received by the laboratory on August 10, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Juan Redondo  
juan.redondo@pacelabs.com  
Project Manager

Enclosures

cc: Sharon Colon  
Abner Hernandez  
Marianela Mercado-Burgos



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

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### New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:  
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):  
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):  
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):  
T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-  
00119

Commonwealth of Virginia (TNI): 480246

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### SAMPLE SUMMARY

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2041033001	EB-081016	Water	08/10/16 10:35	08/10/16 16:00
2041033002	MW 20B	Water	08/10/16 14:16	08/10/16 16:00
2041033003	TRIP BLANK	Water	08/10/16 00:00	08/10/16 16:00
2041033004	FB-081016	Water	08/10/16 14:34	08/10/16 16:00

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL SAMPLING  
Pace Project No.: 2041033

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2041033001	EB-081016	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2041033002	MW 20B	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2041033003	TRIP BLANK	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2041033004	FB-081016	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

---

**Method:** EPA 8015B Modified

**Description:** 8015M DRO/ORO Organics

**Client:** BBL Caribe / Arcadis PR

**Date:** August 22, 2016

**General Information:**

2 samples were analyzed for EPA 8015B Modified. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3535 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 61006

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2041033002

R1: RPD value was outside control limits.

- MSD (Lab ID: 252041)
- Diesel Range Organic (C10-C28)

**Additional Comments:**

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## PROJECT NARRATIVE

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

---

**Method:** EPA 8015/8021

**Description:** 8021 GCV BTEX, MTBE, GRO

**Client:** BBL Caribe / Arcadis PR

**Date:** August 22, 2016

**General Information:**

4 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

---

**Method:** EPA 6020

**Description:** 6020 MET ICPMS

**Client:** BBL Caribe / Arcadis PR

**Date:** August 22, 2016

**General Information:**

2 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

---

**Method:** EPA 7470

**Description:** 7470 Mercury

**Client:** BBL Caribe / Arcadis PR

**Date:** August 22, 2016

**General Information:**

2 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

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## PROJECT NARRATIVE

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

---

**Method:** EPA 8270 by SIM

**Description:** 8270 MSSV PAH by SIM SEP

**Client:** BBL Caribe / Arcadis PR

**Date:** August 22, 2016

**General Information:**

2 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

---

**Method:** EPA 5030B/8260

**Description:** 8260 MSV Low Level

**Client:** BBL Caribe / Arcadis PR

**Date:** August 22, 2016

### General Information:

4 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 61013

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2041033002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 252061)

- Carbon disulfide

### Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

Sample: EB-081016	Lab ID: 2041033001	Collected: 08/10/16 10:35	Received: 08/10/16 16:00	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.25	1	08/15/16 10:22	08/16/16 18:05		
Oil Range Organics (>C28-C40)	ND	mg/L	0.50	1	08/15/16 10:22	08/16/16 18:05		
<b>Surrogates</b>								
n-Pentacosane (S)	57	%	16-137	1	08/15/16 10:22	08/16/16 18:05	629-99-2	
o-Terphenyl (S)	77	%	10-121	1	08/15/16 10:22	08/16/16 18:05	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		08/17/16 02:05		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	98	%	44-148	1		08/17/16 02:05	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	08/15/16 10:18	08/16/16 21:54	7440-38-2	
Chromium	ND	mg/L	0.0010	1	08/15/16 10:18	08/16/16 21:54	7440-47-3	
Lead	ND	mg/L	0.0010	1	08/15/16 10:18	08/16/16 21:54	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	08/15/16 10:18	08/16/16 21:54	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	08/15/16 09:31	08/15/16 14:59	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 12:41	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 12:41	83-32-9	
Fluorene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 12:41	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 12:41	85-01-8	
Anthracene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 12:41	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 12:41	206-44-0	
Pyrene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 12:41	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 12:41	56-55-3	
Chrysene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 12:41	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 12:41	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 12:41	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 12:41	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 12:41	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	73	%	25-150	1	08/16/16 09:46	08/17/16 12:41	321-60-8	
Terphenyl-d14 (S)	75	%	25-150	1	08/16/16 09:46	08/17/16 12:41	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	14.0	ug/L	4.0	1		08/15/16 16:23	67-64-1	
Benzene	ND	ug/L	0.50	1		08/15/16 16:23	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		08/15/16 16:23	75-27-4	
Bromoform	ND	ug/L	0.50	1		08/15/16 16:23	75-25-2	
Bromomethane	ND	ug/L	0.50	1		08/15/16 16:23	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		08/15/16 16:23	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		08/15/16 16:23	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

Sample: EB-081016		Lab ID: 2041033001		Collected: 08/10/16 10:35		Received: 08/10/16 16:00		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Carbon disulfide	ND	ug/L	1.0	1		08/15/16 16:23	75-15-0		
Carbon tetrachloride	ND	ug/L	0.50	1		08/15/16 16:23	56-23-5		
Chlorobenzene	ND	ug/L	0.50	1		08/15/16 16:23	108-90-7		
Chloroethane	ND	ug/L	0.50	1		08/15/16 16:23	75-00-3		
Chloroform	ND	ug/L	0.50	1		08/15/16 16:23	67-66-3		
Chloromethane	ND	ug/L	0.50	1		08/15/16 16:23	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		08/15/16 16:23	96-12-8		
Dibromochloromethane	ND	ug/L	0.50	1		08/15/16 16:23	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		08/15/16 16:23	106-93-4		
Dichlorodifluoromethane	ND	ug/L	1.0	1		08/15/16 16:23	75-71-8		
1,1-Dichloroethane	ND	ug/L	0.50	1		08/15/16 16:23	75-34-3		
1,2-Dichloroethane	ND	ug/L	0.50	1		08/15/16 16:23	107-06-2		
1,1-Dichloroethene	ND	ug/L	0.50	1		08/15/16 16:23	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		08/15/16 16:23	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		08/15/16 16:23	156-60-5		
1,2-Dichloropropane	ND	ug/L	0.50	1		08/15/16 16:23	78-87-5		
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		08/15/16 16:23	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		08/15/16 16:23	10061-02-6		
Ethanol	ND	ug/L	500	1		08/15/16 16:23	64-17-5		
Ethylbenzene	ND	ug/L	0.50	1		08/15/16 16:23	100-41-4		
2-Hexanone	ND	ug/L	1.0	1		08/15/16 16:23	591-78-6		
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		08/15/16 16:23	98-82-8		
Methyl acetate	ND	ug/L	2.0	1		08/15/16 16:23	79-20-9		
Methylene Chloride	ND	ug/L	0.50	1		08/15/16 16:23	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		08/15/16 16:23	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	0.50	1		08/15/16 16:23	1634-04-4		
Styrene	ND	ug/L	1.0	1		08/15/16 16:23	100-42-5		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		08/15/16 16:23	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		08/15/16 16:23	127-18-4		
Toluene	ND	ug/L	0.50	1		08/15/16 16:23	108-88-3		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		08/15/16 16:23	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		08/15/16 16:23	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		08/15/16 16:23	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		08/15/16 16:23	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		08/15/16 16:23	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		08/15/16 16:23	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		08/15/16 16:23	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	95	%	72-126	1		08/15/16 16:23	1868-53-7		
4-Bromofluorobenzene (S)	102	%	68-124	1		08/15/16 16:23	460-00-4		
Toluene-d8 (S)	102	%	79-119	1		08/15/16 16:23	2037-26-5		

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

Sample: MW 20B	Lab ID: 2041033002	Collected: 08/10/16 14:16	Received: 08/10/16 16:00	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	08/15/16 10:22	08/16/16 18:33		R1
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	08/15/16 10:22	08/16/16 18:33		
<b>Surrogates</b>								
n-Pentacosane (S)	38	%	16-137	1	08/15/16 10:22	08/16/16 18:33	629-99-2	
o-Terphenyl (S)	40	%	10-121	1	08/15/16 10:22	08/16/16 18:33	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		08/17/16 04:45		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	99	%	44-148	1		08/17/16 04:45	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	<b>0.0017</b>	mg/L	0.0010	1	08/15/16 10:18	08/16/16 21:39	7440-38-2	
Chromium	<b>0.011</b>	mg/L	0.0010	1	08/15/16 10:18	08/16/16 21:39	7440-47-3	
Lead	ND	mg/L	0.0010	1	08/15/16 10:18	08/16/16 21:39	7439-92-1	
Vanadium	<b>0.0073</b>	mg/L	0.0050	1	08/15/16 10:18	08/16/16 21:39	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	<b>1.2</b>	ug/L	0.20	1	08/15/16 09:31	08/15/16 14:36	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 13:02	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 13:02	83-32-9	
Fluorene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 13:02	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 13:02	85-01-8	
Anthracene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 13:02	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 13:02	206-44-0	
Pyrene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 13:02	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 13:02	56-55-3	
Chrysene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 13:02	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 13:02	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 13:02	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 13:02	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 13:02	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	94	%	25-150	1	08/16/16 09:46	08/17/16 13:02	321-60-8	
Terphenyl-d14 (S)	87	%	25-150	1	08/16/16 09:46	08/17/16 13:02	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	<b>14.8</b>	ug/L	4.0	1		08/15/16 16:05	67-64-1	
Benzene	ND	ug/L	0.50	1		08/15/16 16:05	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		08/15/16 16:05	75-27-4	
Bromoform	ND	ug/L	0.50	1		08/15/16 16:05	75-25-2	
Bromomethane	ND	ug/L	0.50	1		08/15/16 16:05	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		08/15/16 16:05	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		08/15/16 16:05	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

Sample: MW 20B	Lab ID: 2041033002	Collected: 08/10/16 14:16	Received: 08/10/16 16:00	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		08/15/16 16:05	75-15-0	M1
Carbon tetrachloride	ND	ug/L	0.50	1		08/15/16 16:05	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		08/15/16 16:05	108-90-7	
Chloroethane	ND	ug/L	0.50	1		08/15/16 16:05	75-00-3	
Chloroform	ND	ug/L	0.50	1		08/15/16 16:05	67-66-3	
Chloromethane	<b>0.66</b>	ug/L	0.50	1		08/15/16 16:05	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		08/15/16 16:05	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		08/15/16 16:05	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		08/15/16 16:05	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		08/15/16 16:05	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		08/15/16 16:05	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		08/15/16 16:05	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		08/15/16 16:05	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		08/15/16 16:05	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		08/15/16 16:05	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		08/15/16 16:05	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		08/15/16 16:05	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		08/15/16 16:05	10061-02-6	
Ethanol	ND	ug/L	500	1		08/15/16 16:05	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		08/15/16 16:05	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		08/15/16 16:05	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		08/15/16 16:05	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		08/15/16 16:05	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		08/15/16 16:05	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		08/15/16 16:05	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		08/15/16 16:05	1634-04-4	
Styrene	ND	ug/L	1.0	1		08/15/16 16:05	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		08/15/16 16:05	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		08/15/16 16:05	127-18-4	
Toluene	ND	ug/L	0.50	1		08/15/16 16:05	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		08/15/16 16:05	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		08/15/16 16:05	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		08/15/16 16:05	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		08/15/16 16:05	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		08/15/16 16:05	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		08/15/16 16:05	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		08/15/16 16:05	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	95	%	72-126	1		08/15/16 16:05	1868-53-7	
4-Bromofluorobenzene (S)	103	%	68-124	1		08/15/16 16:05	460-00-4	
Toluene-d8 (S)	102	%	79-119	1		08/15/16 16:05	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

Sample: TRIP BLANK	Lab ID: 2041033003	Collected: 08/10/16 00:00	Received: 08/10/16 16:00	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>	Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		08/17/16 07:00		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	101	%	44-148	1		08/17/16 07:00	460-00-4	
<b>8260 MSV Low Level</b>	Analytical Method: EPA 5030B/8260							
Acetone	<b>68.4</b>	ug/L	4.0	1		08/15/16 16:41	67-64-1	
Benzene	ND	ug/L	0.50	1		08/15/16 16:41	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		08/15/16 16:41	75-27-4	
Bromoform	ND	ug/L	0.50	1		08/15/16 16:41	75-25-2	
Bromomethane	ND	ug/L	0.50	1		08/15/16 16:41	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		08/15/16 16:41	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		08/15/16 16:41	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		08/15/16 16:41	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		08/15/16 16:41	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		08/15/16 16:41	108-90-7	
Chloroethane	ND	ug/L	0.50	1		08/15/16 16:41	75-00-3	
Chloroform	ND	ug/L	0.50	1		08/15/16 16:41	67-66-3	
Chloromethane	ND	ug/L	0.50	1		08/15/16 16:41	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		08/15/16 16:41	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		08/15/16 16:41	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		08/15/16 16:41	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		08/15/16 16:41	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		08/15/16 16:41	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		08/15/16 16:41	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		08/15/16 16:41	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		08/15/16 16:41	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		08/15/16 16:41	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		08/15/16 16:41	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		08/15/16 16:41	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		08/15/16 16:41	10061-02-6	
Ethanol	ND	ug/L	500	1		08/15/16 16:41	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		08/15/16 16:41	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		08/15/16 16:41	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		08/15/16 16:41	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		08/15/16 16:41	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		08/15/16 16:41	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		08/15/16 16:41	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		08/15/16 16:41	1634-04-4	
Styrene	ND	ug/L	1.0	1		08/15/16 16:41	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		08/15/16 16:41	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		08/15/16 16:41	127-18-4	
Toluene	ND	ug/L	0.50	1		08/15/16 16:41	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		08/15/16 16:41	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		08/15/16 16:41	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		08/15/16 16:41	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		08/15/16 16:41	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		08/15/16 16:41	75-01-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

Sample: TRIP BLANK		Lab ID: 2041033003	Collected: 08/10/16 00:00	Received: 08/10/16 16:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
m&p-Xylene	ND	ug/L	2.0	1		08/15/16 16:41	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		08/15/16 16:41	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	95	%	72-126	1		08/15/16 16:41	1868-53-7	
4-Bromofluorobenzene (S)	101	%	68-124	1		08/15/16 16:41	460-00-4	
Toluene-d8 (S)	102	%	79-119	1		08/15/16 16:41	2037-26-5	

Sample: FB-081016		Lab ID: 2041033004	Collected: 08/10/16 14:34	Received: 08/10/16 16:00	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		08/17/16 09:14		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	100	%	44-148	1		08/17/16 09:14	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	15.4	ug/L	4.0	1		08/15/16 16:59	67-64-1	
Benzene	ND	ug/L	0.50	1		08/15/16 16:59	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		08/15/16 16:59	75-27-4	
Bromoform	ND	ug/L	0.50	1		08/15/16 16:59	75-25-2	
Bromomethane	ND	ug/L	0.50	1		08/15/16 16:59	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		08/15/16 16:59	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		08/15/16 16:59	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		08/15/16 16:59	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		08/15/16 16:59	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		08/15/16 16:59	108-90-7	
Chloroethane	ND	ug/L	0.50	1		08/15/16 16:59	75-00-3	
Chloroform	ND	ug/L	0.50	1		08/15/16 16:59	67-66-3	
Chloromethane	0.66	ug/L	0.50	1		08/15/16 16:59	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		08/15/16 16:59	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		08/15/16 16:59	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		08/15/16 16:59	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		08/15/16 16:59	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		08/15/16 16:59	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		08/15/16 16:59	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		08/15/16 16:59	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		08/15/16 16:59	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		08/15/16 16:59	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		08/15/16 16:59	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		08/15/16 16:59	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		08/15/16 16:59	10061-02-6	
Ethanol	ND	ug/L	500	1		08/15/16 16:59	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		08/15/16 16:59	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		08/15/16 16:59	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		08/15/16 16:59	98-82-8	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

Sample: <b>FB-081016</b>		Lab ID: <b>2041033004</b>		Collected: 08/10/16 14:34		Received: 08/10/16 16:00		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Methyl acetate	ND	ug/L	2.0	1		08/15/16 16:59	79-20-9		
Methylene Chloride	ND	ug/L	0.50	1		08/15/16 16:59	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		08/15/16 16:59	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	0.50	1		08/15/16 16:59	1634-04-4		
Styrene	ND	ug/L	1.0	1		08/15/16 16:59	100-42-5		
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		08/15/16 16:59	79-34-5		
Tetrachloroethene	ND	ug/L	0.50	1		08/15/16 16:59	127-18-4		
Toluene	ND	ug/L	0.50	1		08/15/16 16:59	108-88-3		
1,1,1-Trichloroethane	ND	ug/L	0.50	1		08/15/16 16:59	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	0.50	1		08/15/16 16:59	79-00-5		
Trichloroethene	ND	ug/L	0.50	1		08/15/16 16:59	79-01-6		
Trichlorofluoromethane	ND	ug/L	0.50	1		08/15/16 16:59	75-69-4		
Vinyl chloride	ND	ug/L	0.50	1		08/15/16 16:59	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		08/15/16 16:59	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		08/15/16 16:59	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	96	%.	72-126	1		08/15/16 16:59	1868-53-7		
4-Bromofluorobenzene (S)	103	%.	68-124	1		08/15/16 16:59	460-00-4		
Toluene-d8 (S)	102	%.	79-119	1		08/15/16 16:59	2037-26-5		

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL SAMPLING  
Pace Project No.: 2041033

QC Batch: 61142 Analysis Method: EPA 8015/8021  
QC Batch Method: EPA 8015/8021 Analysis Description: 8021 W GCV BTEX, MTBE, GRO  
Associated Lab Samples: 2041033001, 2041033002, 2041033003, 2041033004

METHOD BLANK: 252494 Matrix: Water  
Associated Lab Samples: 2041033001, 2041033002, 2041033003, 2041033004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	08/16/16 22:32	
4-Bromofluorobenzene (S)	%.	99	44-148	08/16/16 22:32	

LABORATORY CONTROL SAMPLE: 252495

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	472	94	61-136	
4-Bromofluorobenzene (S)	%.			101	44-148	
4-Bromofluorobenzene (S)	%.			103	44-148	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 252496 252497

Parameter	Units	2041033002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Gasoline Range Organics	ug/L	ND	500	500	481	455	91	86	15-147	6	20	
4-Bromofluorobenzene (S)	%.						102	102	44-148			
4-Bromofluorobenzene (S)	%.						102	102	44-148			
4-Bromofluorobenzene (S)	%.						102	102	44-148			
4-Bromofluorobenzene (S)	%.						102	102	44-148			

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL SAMPLING  
Pace Project No.: 2041033

QC Batch: 61010 Analysis Method: EPA 7470  
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
Associated Lab Samples: 2041033001, 2041033002

METHOD BLANK: 252051 Matrix: Water  
Associated Lab Samples: 2041033001, 2041033002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	08/15/16 14:32	

LABORATORY CONTROL SAMPLE: 252052

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	1.1	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 252053 252054

Parameter	Units	2041033002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	1.2	1	1	2.4	2.4	119	121	75-125	1	20	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

QC Batch: 61035 Analysis Method: EPA 6020  
QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
Associated Lab Samples: 2041033001, 2041033002

METHOD BLANK: 252130 Matrix: Water

Associated Lab Samples: 2041033001, 2041033002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	08/16/16 21:31	
Chromium	mg/L	ND	0.0010	08/16/16 21:31	
Lead	mg/L	ND	0.0010	08/16/16 21:31	
Vanadium	mg/L	ND	0.0050	08/16/16 21:31	

LABORATORY CONTROL SAMPLE: 252131

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.02	0.020	98	83-115	
Chromium	mg/L	.02	0.020	98	85-115	
Lead	mg/L	.02	0.019	94	84-115	
Vanadium	mg/L	.02	0.020	99	81-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 252132 252133

Parameter	Units	2041033002		252133		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result						
Arsenic	mg/L	0.0017	.02	.02	0.019	0.018	85	84	80-120	1	20
Chromium	mg/L	0.011	.02	.02	0.031	0.032	100	101	80-120	1	20
Lead	mg/L	ND	.02	.02	0.020	0.020	99	99	80-120	0	20
Vanadium	mg/L	0.0073	.02	.02	0.028	0.028	101	102	80-120	1	20

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

QC Batch: 61013 Analysis Method: EPA 5030B/8260  
 QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Low Level  
 Associated Lab Samples: 2041033001, 2041033002, 2041033003, 2041033004

METHOD BLANK: 252059 Matrix: Water  
 Associated Lab Samples: 2041033001, 2041033002, 2041033003, 2041033004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	08/15/16 14:36	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	08/15/16 14:36	
1,1,2-Trichloroethane	ug/L	ND	0.50	08/15/16 14:36	
1,1-Dichloroethane	ug/L	ND	0.50	08/15/16 14:36	
1,1-Dichloroethene	ug/L	ND	0.50	08/15/16 14:36	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	08/15/16 14:36	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	08/15/16 14:36	
1,2-Dichloroethane	ug/L	ND	0.50	08/15/16 14:36	
1,2-Dichloropropane	ug/L	ND	0.50	08/15/16 14:36	
2-Butanone (MEK)	ug/L	ND	2.0	08/15/16 14:36	
2-Hexanone	ug/L	ND	1.0	08/15/16 14:36	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	08/15/16 14:36	
Acetone	ug/L	ND	4.0	08/15/16 14:36	
Benzene	ug/L	ND	0.50	08/15/16 14:36	
Bromodichloromethane	ug/L	ND	0.50	08/15/16 14:36	
Bromoform	ug/L	ND	0.50	08/15/16 14:36	
Bromomethane	ug/L	ND	0.50	08/15/16 14:36	
Carbon disulfide	ug/L	ND	1.0	08/15/16 14:36	
Carbon tetrachloride	ug/L	ND	0.50	08/15/16 14:36	
Chlorobenzene	ug/L	ND	0.50	08/15/16 14:36	
Chloroethane	ug/L	ND	0.50	08/15/16 14:36	
Chloroform	ug/L	ND	0.50	08/15/16 14:36	
Chloromethane	ug/L	ND	0.50	08/15/16 14:36	
cis-1,2-Dichloroethene	ug/L	ND	1.0	08/15/16 14:36	
cis-1,3-Dichloropropene	ug/L	ND	0.50	08/15/16 14:36	
Dibromochloromethane	ug/L	ND	0.50	08/15/16 14:36	
Dichlorodifluoromethane	ug/L	ND	1.0	08/15/16 14:36	
Ethanol	ug/L	ND	500	08/15/16 14:36	
Ethylbenzene	ug/L	ND	0.50	08/15/16 14:36	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	08/15/16 14:36	
m&p-Xylene	ug/L	ND	2.0	08/15/16 14:36	
Methyl acetate	ug/L	ND	2.0	08/15/16 14:36	
Methyl-tert-butyl ether	ug/L	ND	0.50	08/15/16 14:36	
Methylene Chloride	ug/L	ND	0.50	08/15/16 14:36	
o-Xylene	ug/L	ND	1.0	08/15/16 14:36	
Styrene	ug/L	ND	1.0	08/15/16 14:36	
tert-Butyl Alcohol	ug/L	ND	200	08/15/16 14:36	
Tetrachloroethene	ug/L	ND	0.50	08/15/16 14:36	
Toluene	ug/L	ND	0.50	08/15/16 14:36	
trans-1,2-Dichloroethene	ug/L	ND	0.50	08/15/16 14:36	
trans-1,3-Dichloropropene	ug/L	ND	0.50	08/15/16 14:36	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

METHOD BLANK: 252059

Matrix: Water

Associated Lab Samples: 2041033001, 2041033002, 2041033003, 2041033004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	0.50	08/15/16 14:36	
Trichlorofluoromethane	ug/L	ND	0.50	08/15/16 14:36	
Vinyl chloride	ug/L	ND	0.50	08/15/16 14:36	
4-Bromofluorobenzene (S)	%	100	68-124	08/15/16 14:36	
Dibromofluoromethane (S)	%	96	72-126	08/15/16 14:36	
Toluene-d8 (S)	%	101	79-119	08/15/16 14:36	

LABORATORY CONTROL SAMPLE: 252060

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	49.8	100	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	53.4	107	15-179	
1,1,2-Trichloroethane	ug/L	50	49.1	98	58-144	
1,1-Dichloroethane	ug/L	50	48.8	98	63-129	
1,1-Dichloroethene	ug/L	50	52.5	105	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	49.8	100	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	52.2	104	52-161	
1,2-Dichloroethane	ug/L	50	44.2	88	57-148	
1,2-Dichloropropane	ug/L	50	45.6	91	66-128	
2-Butanone (MEK)	ug/L	50	49.7	99	32-183	
2-Hexanone	ug/L	50	51.4	103	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	49.5	99	26-171	
Acetone	ug/L	50	50.9	102	22-165	
Benzene	ug/L	50	55.6	111	62-131	
Bromodichloromethane	ug/L	50	44.7	89	69-132	
Bromoform	ug/L	50	43.2	86	35-166	
Bromomethane	ug/L	50	39.8	80	34-158	
Carbon disulfide	ug/L	50	55.4	111	31-128	
Carbon tetrachloride	ug/L	50	49.3	99	54-144	
Chlorobenzene	ug/L	50	50.5	101	70-127	
Chloroethane	ug/L	50	38.3	77	17-195	
Chloroform	ug/L	50	46.7	93	73-134	
Chloromethane	ug/L	50	44.2	88	17-153	
cis-1,2-Dichloroethene	ug/L	50	54.7	109	68-129	
cis-1,3-Dichloropropene	ug/L	50	51.0	102	72-138	
Dibromochloromethane	ug/L	50	43.1	86	49-146	
Dichlorodifluoromethane	ug/L	50	38.0	76	10-179	
Ethylbenzene	ug/L	50	50.0	100	66-126	
Isopropylbenzene (Cumene)	ug/L	50	54.0	108	51-138	
m&p-Xylene	ug/L	100	107	107	65-129	
Methyl acetate	ug/L	50	58.0	116	20-142	
Methyl-tert-butyl ether	ug/L	50	53.8	108	37-166	
Methylene Chloride	ug/L	50	55.1	110	46-168	
o-Xylene	ug/L	50	53.7	107	65-124	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

LABORATORY CONTROL SAMPLE: 252060

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Styrene	ug/L	50	53.9	108	72-133	
Tetrachloroethene	ug/L	50	47.4	95	46-157	
Toluene	ug/L	50	50.0	100	69-126	
trans-1,2-Dichloroethene	ug/L	50	53.5	107	60-129	
trans-1,3-Dichloropropene	ug/L	50	52.0	104	59-149	
Trichloroethene	ug/L	50	46.3	93	67-132	
Trichlorofluoromethane	ug/L	50	44.1	88	39-171	
Vinyl chloride	ug/L	50	42.1	84	27-149	
4-Bromofluorobenzene (S)	%			104	68-124	
Dibromofluoromethane (S)	%			100	72-126	
Toluene-d8 (S)	%			99	79-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 252061 252062

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2041033002 Result	Spike Conc.	Spike Conc.	MS Result						
1,1,1-Trichloroethane	ug/L	ND	50	50	56.4	55.1	113	110	54-137	2	20
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	56.0	56.1	112	112	15-187	0	20
1,1,2-Trichloroethane	ug/L	ND	50	50	52.2	52.0	104	104	59-148	0	20
1,1-Dichloroethane	ug/L	ND	50	50	53.3	52.1	107	104	59-133	2	20
1,1-Dichloroethene	ug/L	ND	50	50	58.2	57.2	116	114	44-146	2	20
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	51.8	52.1	104	104	23-166	1	20
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	54.8	54.6	110	109	55-166	0	20
1,2-Dichloroethane	ug/L	ND	50	50	47.6	46.6	95	93	56-154	2	20
1,2-Dichloropropane	ug/L	ND	50	50	49.8	48.7	100	97	62-135	2	20
2-Butanone (MEK)	ug/L	ND	50	50	50.0	52.2	100	104	20-205	4	20
2-Hexanone	ug/L	ND	50	50	53.2	54.1	106	108	25-189	2	20
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	50	51.1	52.2	102	104	23-184	2	20
Acetone	ug/L	14.8	50	50	66.9	69.6	104	110	11-217	4	20
Benzene	ug/L	ND	50	50	61.6	60.6	123	121	52-141	2	20
Bromodichloromethane	ug/L	ND	50	50	47.9	47.5	96	95	70-134	1	20
Bromoform	ug/L	ND	50	50	46.4	46.4	93	93	37-171	0	20
Bromomethane	ug/L	ND	50	50	45.1	43.6	90	87	34-155	3	20
Carbon disulfide	ug/L	ND	50	50	68.1	63.5	136	127	28-130	7	20 M1
Carbon tetrachloride	ug/L	ND	50	50	55.8	55.5	112	111	48-146	0	20
Chlorobenzene	ug/L	ND	50	50	54.8	54.5	110	109	67-129	1	20
Chloroethane	ug/L	ND	50	50	44.3	42.0	89	84	12-192	5	20
Chloroform	ug/L	ND	50	50	50.9	49.8	102	100	66-143	2	20
Chloromethane	ug/L	0.66	50	50	49.0	48.2	97	95	14-155	2	20
cis-1,2-Dichloroethene	ug/L	ND	50	50	60.0	58.6	120	117	56-141	2	20
cis-1,3-Dichloropropene	ug/L	ND	50	50	54.9	54.2	110	108	70-139	1	20
Dibromochloromethane	ug/L	ND	50	50	46.1	45.3	92	91	50-150	2	20
Dichlorodifluoromethane	ug/L	ND	50	50	42.0	40.8	84	82	10-173	3	20
Ethylbenzene	ug/L	ND	50	50	54.6	54.2	109	108	57-135	1	20

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

Parameter	Units	252061		252062		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		2041033002 Result	MS Spike Conc.	MSD Spike Conc.								
Isopropylbenzene (Cumene)	ug/L	ND	50	50	59.2	58.4	118	117	40-146	1	20	
m&p-Xylene	ug/L	ND	100	100	116	116	116	116	56-136	0	20	
Methyl acetate	ug/L	ND	50	50	54.3	55.5	109	111	10-142	2	20	
Methyl-tert-butyl ether	ug/L	ND	50	50	56.2	55.5	112	111	35-176	1	20	
Methylene Chloride	ug/L	ND	50	50	58.3	56.9	117	114	45-166	2	20	
o-Xylene	ug/L	ND	50	50	58.1	57.5	116	115	57-133	1	20	
Styrene	ug/L	ND	50	50	57.9	57.1	116	114	58-144	1	20	
Tetrachloroethene	ug/L	ND	50	50	53.0	52.5	106	105	48-143	1	20	
Toluene	ug/L	ND	50	50	55.2	54.6	110	109	59-136	1	20	
trans-1,2-Dichloroethene	ug/L	ND	50	50	60.9	58.7	122	117	57-132	4	20	
trans-1,3-Dichloropropene	ug/L	ND	50	50	55.5	55.0	111	110	59-154	1	20	
Trichloroethene	ug/L	ND	50	50	51.7	50.6	103	101	58-140	2	20	
Trichlorofluoromethane	ug/L	ND	50	50	50.4	49.6	101	99	24-175	2	20	
Vinyl chloride	ug/L	ND	50	50	46.9	45.5	94	91	21-150	3	20	
4-Bromofluorobenzene (S)	%.						104	105	68-124			
Dibromofluoromethane (S)	%.						99	98	72-126			
Toluene-d8 (S)	%.						100	99	79-119			

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

QC Batch: 61006 Analysis Method: EPA 8015B Modified  
 QC Batch Method: EPA 3535 Analysis Description: EPA 8015 ORO  
 Associated Lab Samples: 2041033001, 2041033002

METHOD BLANK: 252038 Matrix: Water

Associated Lab Samples: 2041033001, 2041033002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	ND	0.25	08/16/16 13:50	
Oil Range Organics (>C28-C40)	mg/L	ND	0.50	08/16/16 13:50	
n-Pentacosane (S)	%	51	16-137	08/16/16 13:50	
o-Terphenyl (S)	%	64	10-121	08/16/16 13:50	

LABORATORY CONTROL SAMPLE: 252039

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	.4	0.30	74	10-115	
n-Pentacosane (S)	%			71	16-137	
o-Terphenyl (S)	%			82	10-121	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 252040 252041

Parameter	Units	2041033002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diesel Range Organic (C10-C28)	mg/L	ND	.8	.4	0.59	0.33	52	40	10-122	55	20	R1
n-Pentacosane (S)	%						72	77	16-137			
o-Terphenyl (S)	%						76	92	10-121			

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

QC Batch: 61108 Analysis Method: EPA 8270 by SIM  
 QC Batch Method: EPA 3510 Analysis Description: 8270 Water by SIM MSSV  
 Associated Lab Samples: 2041033001, 2041033002

METHOD BLANK: 252394 Matrix: Water

Associated Lab Samples: 2041033001, 2041033002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	08/17/16 11:58	
Anthracene	mg/L	ND	0.00010	08/17/16 11:58	
Benzo(a)anthracene	mg/L	ND	0.00010	08/17/16 11:58	
Benzo(a)pyrene	mg/L	ND	0.00010	08/17/16 11:58	
Benzo(b)fluoranthene	mg/L	ND	0.00010	08/17/16 11:58	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	08/17/16 11:58	
Benzo(k)fluoranthene	mg/L	ND	0.00010	08/17/16 11:58	
Chrysene	mg/L	ND	0.00010	08/17/16 11:58	
Fluoranthene	mg/L	ND	0.00010	08/17/16 11:58	
Fluorene	mg/L	ND	0.00010	08/17/16 11:58	
Naphthalene	mg/L	ND	0.00010	08/17/16 11:58	
Phenanthrene	mg/L	ND	0.00010	08/17/16 11:58	
Pyrene	mg/L	ND	0.00010	08/17/16 11:58	
2-Fluorobiphenyl (S)	%	80	25-150	08/17/16 11:58	
Terphenyl-d14 (S)	%	90	25-150	08/17/16 11:58	

LABORATORY CONTROL SAMPLE: 252395

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0032	79	35-150	
Anthracene	mg/L	.004	0.0033	81	35-150	
Benzo(a)anthracene	mg/L	.004	0.0028	71	35-150	
Benzo(a)pyrene	mg/L	.004	0.0028	71	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0029	72	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0028	71	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0032	79	35-150	
Chrysene	mg/L	.004	0.0032	79	35-150	
Fluoranthene	mg/L	.004	0.0031	77	35-150	
Fluorene	mg/L	.004	0.0030	75	35-150	
Naphthalene	mg/L	.004	0.0031	78	35-150	
Phenanthrene	mg/L	.004	0.0031	78	35-150	
Pyrene	mg/L	.004	0.0029	73	35-150	
2-Fluorobiphenyl (S)	%			74	25-150	
Terphenyl-d14 (S)	%			72	25-150	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

Parameter	Units	252396		252397		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2041033002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Acenaphthene	mg/L	ND	.004	.004	0.0036	0.0033	90	81	35-150	10	20
Anthracene	mg/L	ND	.004	.004	0.0039	0.0036	97	91	35-150	7	20
Benzo(a)anthracene	mg/L	ND	.004	.004	0.0034	0.0031	85	78	35-150	8	20
Benzo(a)pyrene	mg/L	ND	.004	.004	0.0028	0.0026	71	65	35-150	8	20
Benzo(b)fluoranthene	mg/L	ND	.004	.004	0.0029	0.0027	72	68	35-150	7	20
Benzo(g,h,i)perylene	mg/L	ND	.004	.004	0.0027	0.0025	67	62	35-150	7	20
Benzo(k)fluoranthene	mg/L	ND	.004	.004	0.0029	0.0026	72	66	35-150	10	20
Chrysene	mg/L	ND	.004	.004	0.0033	0.0030	82	76	35-150	7	20
Fluoranthene	mg/L	ND	.004	.004	0.0035	0.0033	88	82	35-150	6	20
Fluorene	mg/L	ND	.004	.004	0.0035	0.0032	87	81	35-150	7	20
Naphthalene	mg/L	ND	.004	.004	0.0036	0.0033	91	83	35-150	9	20
Phenanthrene	mg/L	ND	.004	.004	0.0037	0.0034	94	85	35-150	10	20
Pyrene	mg/L	ND	.004	.004	0.0037	0.0033	94	83	35-150	11	20
2-Fluorobiphenyl (S)	%.						86	88	25-150		20
Terphenyl-d14 (S)	%.						79	82	25-150		20

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## QUALIFIERS

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The Nelac Institute

### LABORATORIES

PASI-N Pace Analytical Services - New Orleans

### ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

R1 RPD value was outside control limits.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PUMA TERMINAL SAMPLING

Pace Project No.: 2041033

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2041033001	EB-081016	EPA 3535	61006	EPA 8015B Modified	61156
2041033002	MW 20B	EPA 3535	61006	EPA 8015B Modified	61156
2041033001	EB-081016	EPA 8015/8021	61142		
2041033002	MW 20B	EPA 8015/8021	61142		
2041033003	TRIP BLANK	EPA 8015/8021	61142		
2041033004	FB-081016	EPA 8015/8021	61142		
2041033001	EB-081016	EPA 3010	61035	EPA 6020	61053
2041033002	MW 20B	EPA 3010	61035	EPA 6020	61053
2041033001	EB-081016	EPA 7470	61010	EPA 7470	61050
2041033002	MW 20B	EPA 7470	61010	EPA 7470	61050
2041033001	EB-081016	EPA 3510	61108	EPA 8270 by SIM	61231
2041033002	MW 20B	EPA 3510	61108	EPA 8270 by SIM	61231
2041033001	EB-081016	EPA 5030B/8260	61013		
2041033002	MW 20B	EPA 5030B/8260	61013		
2041033003	TRIP BLANK	EPA 5030B/8260	61013		
2041033004	FB-081016	EPA 5030B/8260	61013		

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WO#: 2041033

IN-OF-CUSTODY / Analytical Request Document

in-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



2041033

Section A Required Client Information:

Company: Arcadis/BBL Cariba
Address: Cityview Plaza I Ste 401
San Juan, P.R. 00968
Email To: E.Frair Calderon @ arcadis.com
Phone: 787-471-4400
Requested Due Date/TAT:

Report To: E Frair Calderon
Copy To:
Purchase Order No.:
Project Name: Param Terminal MW - sampling
Project Number: B006310

Section C Invoice Information:

Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager: J. Bodony
Pace Profile #: 7252

Page: 1 of 1
2035994

REGULATORY AGENCY
NPDES GROUND WATER DRINKING WATER
UST RCRA OTHER
Site Location: P.R.
STATE:

Table with columns for Matrix Codes, Collected (Composite Start/End), Preservatives (Unpreserved, H2SO4, HNO3, HCl, NaOH, Na2S2O3, Methanol, Other), Analysis Test 1, and Requested Analysis Filtered (Y/N). Includes handwritten sample IDs like EB-081016 and MW 20B.

Table with columns for Additional Comments, Relinquished By/Affiliation, Date, Time, Accepted By/Affiliation, Date, Time, and Sample Conditions. Includes handwritten notes like 'Level IV' and 'Fed Exp'.

ORIGINAL
SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: E. Dilgado
SIGNATURE of SAMPLER: [Signature]
DATE Signed (MM/DD/YY): Aug 10, 2016

\*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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Urb. Jardines de Guaynabo  
Calle Marginal Bldg A-10  
Guaynabo, PR 00969

Sample Condition Upon Receipt

WO#: 2041033

PM: JAR1 Due Date: 08/24/16

CLIENT: 98-ARCADISPR

Project #

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 4  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 8-15-16 JAR

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1	
Chain of Custody Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9	
Sample Labels match COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14	trip blanks with lead spec
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15	

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_



1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

### Sample Condition Upon Receipt

Project #: **20**

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 5  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 5-16-16 JMB

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15

#### Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

August 26, 2016

Efrain Calderon  
BBL Caribe Engineering P.S.C.  
48 City View Plaza1, Suite 401  
Road 16, Km. 1.2  
Guaynabo, PR 00968

RE: Project: PUMA TERMINAL MW-SAMPLING  
Pace Project No.: 2041051

Dear Efrain Calderon:

Enclosed are the analytical results for sample(s) received by the laboratory on August 11, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Yeireliz Torres for  
Juan Redondo  
juan.redondo@pacelabs.com  
Project Manager

Enclosures

cc: Sharon Colon  
Abner Hernandez  
Marianela Mercado-Burgos



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## CERTIFICATIONS

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

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### New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:  
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):  
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):  
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):  
T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-  
00119

Commonwealth of Virginia (TNI): 480246

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### SAMPLE SUMMARY

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2041051001	EB-081116	Water	08/11/16 08:50	08/11/16 16:15
2041051002	MW-114A	Water	08/11/16 11:02	08/11/16 16:15
2041051003	MW-111A	Water	08/11/16 13:52	08/11/16 16:15
2041051004	MW-110AB	Water	08/11/16 14:48	08/11/16 16:15
2041051005	TB-081116	Water	08/11/16 00:00	08/11/16 16:15
2041051006	FB-081116	Water	08/11/16 14:54	08/11/16 16:15

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL MW-SAMPLING  
Pace Project No.: 2041051

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2041051001	EB-081116	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2041051002	MW-114A	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2041051003	MW-111A	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2041051004	MW-110AB	EPA 8015B Modified	SLF	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
2041051005	TB-081116	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
2041051006	FB-081116	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	RMP	47	PASI-N

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW-SAMPLING  
Pace Project No.: 2041051

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**Method:** EPA 8015B Modified  
**Description:** 8015M DRO/ORO Organics  
**Client:** BBL Caribe / Arcadis PR  
**Date:** August 26, 2016

### General Information:

4 samples were analyzed for EPA 8015B Modified. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 3535 with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 61006

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2041033002

R1: RPD value was outside control limits.

- MSD (Lab ID: 252041)
- Diesel Range Organic (C10-C28)

### Additional Comments:

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW-SAMPLING  
Pace Project No.: 2041051

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**Method:** EPA 8015/8021  
**Description:** 8021 GCV BTEX, MTBE, GRO  
**Client:** BBL Caribe / Arcadis PR  
**Date:** August 26, 2016

**General Information:**

6 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

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**Method:** EPA 6020

**Description:** 6020 MET ICPMS

**Client:** BBL Caribe / Arcadis PR

**Date:** August 26, 2016

**General Information:**

4 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW-SAMPLING  
Pace Project No.: 2041051

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**Method:** EPA 7470  
**Description:** 7470 Mercury  
**Client:** BBL Caribe / Arcadis PR  
**Date:** August 26, 2016

**General Information:**

4 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW-SAMPLING  
Pace Project No.: 2041051

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**Method:** EPA 8270 by SIM  
**Description:** 8270 MSSV PAH by SIM SEP  
**Client:** BBL Caribe / Arcadis PR  
**Date:** August 26, 2016

**General Information:**

4 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

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**Method:** EPA 5030B/8260

**Description:** 8260 MSV Low Level

**Client:** BBL Caribe / Arcadis PR

**Date:** August 26, 2016

### General Information:

6 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 61013

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2041033002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 252061)

- Carbon disulfide

### Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

Sample: EB-081116	Lab ID: 2041051001	Collected: 08/11/16 08:50	Received: 08/11/16 16:15	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	08/15/16 10:22	08/16/16 20:54		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	08/15/16 10:22	08/16/16 20:54		
<b>Surrogates</b>								
n-Pentacosane (S)	41	%	16-137	1	08/15/16 10:22	08/16/16 20:54	629-99-2	
o-Terphenyl (S)	40	%	10-121	1	08/15/16 10:22	08/16/16 20:54	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		08/17/16 10:07		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	100	%	44-148	1		08/17/16 10:07	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	ND	mg/L	0.0010	1	08/15/16 10:18	08/16/16 22:17	7440-38-2	
Chromium	ND	mg/L	0.0010	1	08/15/16 10:18	08/16/16 22:17	7440-47-3	
Lead	ND	mg/L	0.0010	1	08/15/16 10:18	08/16/16 22:17	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	08/15/16 10:18	08/16/16 22:17	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	08/15/16 09:31	08/15/16 15:05	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:12	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:12	83-32-9	
Fluorene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:12	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:12	85-01-8	
Anthracene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:12	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:12	206-44-0	
Pyrene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:12	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:12	56-55-3	
Chrysene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:12	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:12	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:12	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:12	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:12	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	78	%	25-150	1	08/16/16 09:46	08/17/16 15:12	321-60-8	
Terphenyl-d14 (S)	77	%	25-150	1	08/16/16 09:46	08/17/16 15:12	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	10.2	ug/L	4.0	1		08/15/16 17:17	67-64-1	
Benzene	ND	ug/L	0.50	1		08/15/16 17:17	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		08/15/16 17:17	75-27-4	
Bromoform	ND	ug/L	0.50	1		08/15/16 17:17	75-25-2	
Bromomethane	ND	ug/L	0.50	1		08/15/16 17:17	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		08/15/16 17:17	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		08/15/16 17:17	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

Sample: EB-081116	Lab ID: 2041051001	Collected: 08/11/16 08:50	Received: 08/11/16 16:15	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		08/15/16 17:17	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		08/15/16 17:17	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		08/15/16 17:17	108-90-7	
Chloroethane	ND	ug/L	0.50	1		08/15/16 17:17	75-00-3	
Chloroform	ND	ug/L	0.50	1		08/15/16 17:17	67-66-3	
Chloromethane	ND	ug/L	0.50	1		08/15/16 17:17	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		08/15/16 17:17	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		08/15/16 17:17	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		08/15/16 17:17	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		08/15/16 17:17	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		08/15/16 17:17	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		08/15/16 17:17	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		08/15/16 17:17	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		08/15/16 17:17	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		08/15/16 17:17	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		08/15/16 17:17	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		08/15/16 17:17	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		08/15/16 17:17	10061-02-6	
Ethanol	ND	ug/L	500	1		08/15/16 17:17	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		08/15/16 17:17	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		08/15/16 17:17	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		08/15/16 17:17	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		08/15/16 17:17	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		08/15/16 17:17	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		08/15/16 17:17	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		08/15/16 17:17	1634-04-4	
Styrene	ND	ug/L	1.0	1		08/15/16 17:17	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		08/15/16 17:17	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		08/15/16 17:17	127-18-4	
Toluene	0.60	ug/L	0.50	1		08/15/16 17:17	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		08/15/16 17:17	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		08/15/16 17:17	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		08/15/16 17:17	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		08/15/16 17:17	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		08/15/16 17:17	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		08/15/16 17:17	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		08/15/16 17:17	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	94	%	72-126	1		08/15/16 17:17	1868-53-7	
4-Bromofluorobenzene (S)	103	%	68-124	1		08/15/16 17:17	460-00-4	
Toluene-d8 (S)	101	%	79-119	1		08/15/16 17:17	2037-26-5	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

Sample: MW-114A	Lab ID: 2041051002	Collected: 08/11/16 11:02	Received: 08/11/16 16:15	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	08/15/16 10:22	08/16/16 21:22		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	08/15/16 10:22	08/16/16 21:22		
<b>Surrogates</b>								
n-Pentacosane (S)	58	%	16-137	1	08/15/16 10:22	08/16/16 21:22	629-99-2	
o-Terphenyl (S)	57	%	10-121	1	08/15/16 10:22	08/16/16 21:22	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		08/17/16 09:40		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	99	%	44-148	1		08/17/16 09:40	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	<b>0.0038</b>	mg/L	0.0010	1	08/15/16 10:18	08/16/16 22:21	7440-38-2	
Chromium	ND	mg/L	0.0010	1	08/15/16 10:18	08/16/16 22:21	7440-47-3	
Lead	ND	mg/L	0.0010	1	08/15/16 10:18	08/16/16 22:21	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	08/15/16 10:18	08/16/16 22:21	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	08/15/16 09:31	08/15/16 15:11	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 14:50	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 14:50	83-32-9	
Fluorene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 14:50	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 14:50	85-01-8	
Anthracene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 14:50	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 14:50	206-44-0	
Pyrene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 14:50	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 14:50	56-55-3	
Chrysene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 14:50	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 14:50	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 14:50	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 14:50	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 14:50	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	87	%	25-150	1	08/16/16 09:46	08/17/16 14:50	321-60-8	
Terphenyl-d14 (S)	84	%	25-150	1	08/16/16 09:46	08/17/16 14:50	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	ND	ug/L	4.0	1		08/15/16 17:35	67-64-1	
Benzene	ND	ug/L	0.50	1		08/15/16 17:35	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		08/15/16 17:35	75-27-4	
Bromoform	ND	ug/L	0.50	1		08/15/16 17:35	75-25-2	
Bromomethane	ND	ug/L	0.50	1		08/15/16 17:35	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		08/15/16 17:35	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		08/15/16 17:35	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

Sample: MW-114A	Lab ID: 2041051002	Collected: 08/11/16 11:02	Received: 08/11/16 16:15	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>	Analytical Method: EPA 5030B/8260							
Carbon disulfide	ND	ug/L	1.0	1		08/15/16 17:35	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		08/15/16 17:35	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		08/15/16 17:35	108-90-7	
Chloroethane	ND	ug/L	0.50	1		08/15/16 17:35	75-00-3	
Chloroform	ND	ug/L	0.50	1		08/15/16 17:35	67-66-3	
Chloromethane	ND	ug/L	0.50	1		08/15/16 17:35	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		08/15/16 17:35	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		08/15/16 17:35	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		08/15/16 17:35	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		08/15/16 17:35	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		08/15/16 17:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		08/15/16 17:35	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		08/15/16 17:35	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		08/15/16 17:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		08/15/16 17:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		08/15/16 17:35	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		08/15/16 17:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		08/15/16 17:35	10061-02-6	
Ethanol	ND	ug/L	500	1		08/15/16 17:35	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		08/15/16 17:35	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		08/15/16 17:35	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		08/15/16 17:35	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		08/15/16 17:35	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		08/15/16 17:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		08/15/16 17:35	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		08/15/16 17:35	1634-04-4	
Styrene	ND	ug/L	1.0	1		08/15/16 17:35	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		08/15/16 17:35	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		08/15/16 17:35	127-18-4	
Toluene	ND	ug/L	0.50	1		08/15/16 17:35	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		08/15/16 17:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		08/15/16 17:35	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		08/15/16 17:35	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		08/15/16 17:35	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		08/15/16 17:35	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		08/15/16 17:35	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		08/15/16 17:35	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	95	%	72-126	1		08/15/16 17:35	1868-53-7	
4-Bromofluorobenzene (S)	103	%	68-124	1		08/15/16 17:35	460-00-4	
Toluene-d8 (S)	102	%	79-119	1		08/15/16 17:35	2037-26-5	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

Sample: MW-111A	Lab ID: 2041051003	Collected: 08/11/16 13:52	Received: 08/11/16 16:15	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	0.99	mg/L	0.50	1	08/15/16 10:22	08/16/16 21:50		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	08/15/16 10:22	08/16/16 21:50		
<b>Surrogates</b>								
n-Pentacosane (S)	99	%	16-137	1	08/15/16 10:22	08/16/16 21:50	629-99-2	
o-Terphenyl (S)	93	%	10-121	1	08/15/16 10:22	08/16/16 21:50	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		08/17/16 11:01		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	99	%	44-148	1		08/17/16 11:01	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	0.0011	mg/L	0.0010	1	08/15/16 10:18	08/16/16 22:25	7440-38-2	
Chromium	0.0012	mg/L	0.0010	1	08/15/16 10:18	08/16/16 22:25	7440-47-3	
Lead	ND	mg/L	0.0010	1	08/15/16 10:18	08/16/16 22:25	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	08/15/16 10:18	08/16/16 22:25	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	08/15/16 09:31	08/15/16 15:13	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:33	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:33	83-32-9	
Fluorene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:33	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:33	85-01-8	
Anthracene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:33	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:33	206-44-0	
Pyrene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:33	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:33	56-55-3	
Chrysene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:33	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:33	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:33	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:33	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:33	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	76	%	25-150	1	08/16/16 09:46	08/17/16 15:33	321-60-8	
Terphenyl-d14 (S)	72	%	25-150	1	08/16/16 09:46	08/17/16 15:33	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	4.6	ug/L	4.0	1		08/15/16 17:53	67-64-1	
Benzene	ND	ug/L	0.50	1		08/15/16 17:53	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		08/15/16 17:53	75-27-4	
Bromoform	ND	ug/L	0.50	1		08/15/16 17:53	75-25-2	
Bromomethane	ND	ug/L	0.50	1		08/15/16 17:53	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		08/15/16 17:53	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		08/15/16 17:53	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

Sample: MW-111A	Lab ID: 2041051003	Collected: 08/11/16 13:52	Received: 08/11/16 16:15	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		08/15/16 17:53	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		08/15/16 17:53	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		08/15/16 17:53	108-90-7	
Chloroethane	ND	ug/L	0.50	1		08/15/16 17:53	75-00-3	
Chloroform	ND	ug/L	0.50	1		08/15/16 17:53	67-66-3	
Chloromethane	ND	ug/L	0.50	1		08/15/16 17:53	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		08/15/16 17:53	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		08/15/16 17:53	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		08/15/16 17:53	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		08/15/16 17:53	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		08/15/16 17:53	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		08/15/16 17:53	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		08/15/16 17:53	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		08/15/16 17:53	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		08/15/16 17:53	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		08/15/16 17:53	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		08/15/16 17:53	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		08/15/16 17:53	10061-02-6	
Ethanol	ND	ug/L	500	1		08/15/16 17:53	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		08/15/16 17:53	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		08/15/16 17:53	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		08/15/16 17:53	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		08/15/16 17:53	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		08/15/16 17:53	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		08/15/16 17:53	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		08/15/16 17:53	1634-04-4	
Styrene	ND	ug/L	1.0	1		08/15/16 17:53	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		08/15/16 17:53	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		08/15/16 17:53	127-18-4	
Toluene	ND	ug/L	0.50	1		08/15/16 17:53	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		08/15/16 17:53	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		08/15/16 17:53	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		08/15/16 17:53	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		08/15/16 17:53	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		08/15/16 17:53	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		08/15/16 17:53	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		08/15/16 17:53	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	95	%	72-126	1		08/15/16 17:53	1868-53-7	
4-Bromofluorobenzene (S)	102	%	68-124	1		08/15/16 17:53	460-00-4	
Toluene-d8 (S)	102	%	79-119	1		08/15/16 17:53	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

Sample: MW-110AB	Lab ID: 2041051004	Collected: 08/11/16 14:48	Received: 08/11/16 16:15	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	1.1	mg/L	0.50	1	08/15/16 10:22	08/16/16 22:19		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	08/15/16 10:22	08/16/16 22:19		
<b>Surrogates</b>								
n-Pentacosane (S)	83	%	16-137	1	08/15/16 10:22	08/16/16 22:19	629-99-2	
o-Terphenyl (S)	80	%	10-121	1	08/15/16 10:22	08/16/16 22:19	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		08/17/16 11:27		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	99	%	44-148	1		08/17/16 11:27	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	0.0036	mg/L	0.0010	1	08/15/16 10:18	08/16/16 22:29	7440-38-2	
Chromium	ND	mg/L	0.0010	1	08/15/16 10:18	08/16/16 22:29	7440-47-3	
Lead	ND	mg/L	0.0010	1	08/15/16 10:18	08/16/16 22:29	7439-92-1	
Vanadium	0.99	mg/L	0.0050	1	08/15/16 10:18	08/16/16 22:29	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	0.23	ug/L	0.20	1	08/15/16 09:31	08/15/16 15:15	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:55	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:55	83-32-9	
Fluorene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:55	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:55	85-01-8	
Anthracene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:55	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:55	206-44-0	
Pyrene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:55	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:55	56-55-3	
Chrysene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:55	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:55	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:55	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:55	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	08/16/16 09:46	08/17/16 15:55	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	85	%	25-150	1	08/16/16 09:46	08/17/16 15:55	321-60-8	
Terphenyl-d14 (S)	81	%	25-150	1	08/16/16 09:46	08/17/16 15:55	1718-51-0	
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Acetone	5.0	ug/L	4.0	1		08/15/16 18:11	67-64-1	
Benzene	ND	ug/L	0.50	1		08/15/16 18:11	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		08/15/16 18:11	75-27-4	
Bromoform	ND	ug/L	0.50	1		08/15/16 18:11	75-25-2	
Bromomethane	ND	ug/L	0.50	1		08/15/16 18:11	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		08/15/16 18:11	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		08/15/16 18:11	75-65-0	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

Sample: MW-110AB	Lab ID: 2041051004	Collected: 08/11/16 14:48	Received: 08/11/16 16:15	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Carbon disulfide	ND	ug/L	1.0	1		08/15/16 18:11	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		08/15/16 18:11	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		08/15/16 18:11	108-90-7	
Chloroethane	ND	ug/L	0.50	1		08/15/16 18:11	75-00-3	
Chloroform	ND	ug/L	0.50	1		08/15/16 18:11	67-66-3	
Chloromethane	<b>0.81</b>	ug/L	0.50	1		08/15/16 18:11	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		08/15/16 18:11	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		08/15/16 18:11	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		08/15/16 18:11	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		08/15/16 18:11	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		08/15/16 18:11	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		08/15/16 18:11	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		08/15/16 18:11	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		08/15/16 18:11	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		08/15/16 18:11	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		08/15/16 18:11	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		08/15/16 18:11	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		08/15/16 18:11	10061-02-6	
Ethanol	ND	ug/L	500	1		08/15/16 18:11	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		08/15/16 18:11	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		08/15/16 18:11	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		08/15/16 18:11	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		08/15/16 18:11	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		08/15/16 18:11	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		08/15/16 18:11	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		08/15/16 18:11	1634-04-4	
Styrene	ND	ug/L	1.0	1		08/15/16 18:11	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		08/15/16 18:11	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		08/15/16 18:11	127-18-4	
Toluene	ND	ug/L	0.50	1		08/15/16 18:11	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		08/15/16 18:11	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		08/15/16 18:11	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		08/15/16 18:11	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		08/15/16 18:11	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		08/15/16 18:11	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		08/15/16 18:11	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		08/15/16 18:11	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	94	%	72-126	1		08/15/16 18:11	1868-53-7	
4-Bromofluorobenzene (S)	101	%	68-124	1		08/15/16 18:11	460-00-4	
Toluene-d8 (S)	102	%	79-119	1		08/15/16 18:11	2037-26-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

Sample: TB-081116	Lab ID: 2041051005	Collected: 08/11/16 00:00	Received: 08/11/16 16:15	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>	Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		08/17/16 10:34		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	100	%	44-148	1		08/17/16 10:34	460-00-4	
<b>8260 MSV Low Level</b>	Analytical Method: EPA 5030B/8260							
Acetone	<b>181</b>	ug/L	4.0	1		08/15/16 18:29	67-64-1	
Benzene	ND	ug/L	0.50	1		08/15/16 18:29	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		08/15/16 18:29	75-27-4	
Bromoform	ND	ug/L	0.50	1		08/15/16 18:29	75-25-2	
Bromomethane	ND	ug/L	0.50	1		08/15/16 18:29	74-83-9	
2-Butanone (MEK)	<b>2.3</b>	ug/L	2.0	1		08/15/16 18:29	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		08/15/16 18:29	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		08/15/16 18:29	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		08/15/16 18:29	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		08/15/16 18:29	108-90-7	
Chloroethane	ND	ug/L	0.50	1		08/15/16 18:29	75-00-3	
Chloroform	ND	ug/L	0.50	1		08/15/16 18:29	67-66-3	
Chloromethane	<b>0.62</b>	ug/L	0.50	1		08/15/16 18:29	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		08/15/16 18:29	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		08/15/16 18:29	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		08/15/16 18:29	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		08/15/16 18:29	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		08/15/16 18:29	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		08/15/16 18:29	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		08/15/16 18:29	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		08/15/16 18:29	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		08/15/16 18:29	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		08/15/16 18:29	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		08/15/16 18:29	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		08/15/16 18:29	10061-02-6	
Ethanol	ND	ug/L	500	1		08/15/16 18:29	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		08/15/16 18:29	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		08/15/16 18:29	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		08/15/16 18:29	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		08/15/16 18:29	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		08/15/16 18:29	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		08/15/16 18:29	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		08/15/16 18:29	1634-04-4	
Styrene	ND	ug/L	1.0	1		08/15/16 18:29	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		08/15/16 18:29	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		08/15/16 18:29	127-18-4	
Toluene	ND	ug/L	0.50	1		08/15/16 18:29	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		08/15/16 18:29	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		08/15/16 18:29	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		08/15/16 18:29	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		08/15/16 18:29	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		08/15/16 18:29	75-01-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW-SAMPLING  
Pace Project No.: 2041051

Sample: TB-081116		Lab ID: 2041051005	Collected: 08/11/16 00:00	Received: 08/11/16 16:15	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
m&p-Xylene	ND	ug/L	2.0	1		08/15/16 18:29	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		08/15/16 18:29	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	95	%	72-126	1		08/15/16 18:29	1868-53-7	
4-Bromofluorobenzene (S)	102	%	68-124	1		08/15/16 18:29	460-00-4	
Toluene-d8 (S)	102	%	79-119	1		08/15/16 18:29	2037-26-5	

Sample: FB-081116		Lab ID: 2041051006	Collected: 08/11/16 14:54	Received: 08/11/16 16:15	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		08/17/16 12:21		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	101	%	44-148	1		08/17/16 12:21	460-00-4	

<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	12.1	ug/L	4.0	1		08/15/16 18:47	67-64-1	
Benzene	ND	ug/L	0.50	1		08/15/16 18:47	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		08/15/16 18:47	75-27-4	
Bromoform	ND	ug/L	0.50	1		08/15/16 18:47	75-25-2	
Bromomethane	ND	ug/L	0.50	1		08/15/16 18:47	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		08/15/16 18:47	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		08/15/16 18:47	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		08/15/16 18:47	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		08/15/16 18:47	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		08/15/16 18:47	108-90-7	
Chloroethane	ND	ug/L	0.50	1		08/15/16 18:47	75-00-3	
Chloroform	ND	ug/L	0.50	1		08/15/16 18:47	67-66-3	
Chloromethane	ND	ug/L	0.50	1		08/15/16 18:47	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		08/15/16 18:47	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		08/15/16 18:47	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		08/15/16 18:47	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		08/15/16 18:47	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		08/15/16 18:47	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		08/15/16 18:47	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		08/15/16 18:47	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		08/15/16 18:47	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		08/15/16 18:47	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		08/15/16 18:47	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		08/15/16 18:47	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		08/15/16 18:47	10061-02-6	
Ethanol	ND	ug/L	500	1		08/15/16 18:47	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		08/15/16 18:47	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		08/15/16 18:47	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		08/15/16 18:47	98-82-8	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

Sample: <b>FB-081116</b>	Lab ID: <b>2041051006</b>	Collected: 08/11/16 14:54	Received: 08/11/16 16:15	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Methyl acetate	ND	ug/L	2.0	1		08/15/16 18:47	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		08/15/16 18:47	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		08/15/16 18:47	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		08/15/16 18:47	1634-04-4	
Styrene	ND	ug/L	1.0	1		08/15/16 18:47	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		08/15/16 18:47	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		08/15/16 18:47	127-18-4	
Toluene	<b>0.61</b>	ug/L	0.50	1		08/15/16 18:47	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		08/15/16 18:47	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		08/15/16 18:47	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		08/15/16 18:47	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		08/15/16 18:47	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		08/15/16 18:47	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		08/15/16 18:47	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		08/15/16 18:47	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	95	%.	72-126	1		08/15/16 18:47	1868-53-7	
4-Bromofluorobenzene (S)	101	%.	68-124	1		08/15/16 18:47	460-00-4	
Toluene-d8 (S)	102	%.	79-119	1		08/15/16 18:47	2037-26-5	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

QC Batch: 61142 Analysis Method: EPA 8015/8021  
 QC Batch Method: EPA 8015/8021 Analysis Description: 8021 W GCV BTEX, MTBE, GRO  
 Associated Lab Samples: 2041051001, 2041051002, 2041051003, 2041051004, 2041051005, 2041051006

METHOD BLANK: 252494 Matrix: Water  
 Associated Lab Samples: 2041051001, 2041051002, 2041051003, 2041051004, 2041051005, 2041051006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	08/16/16 22:32	
4-Bromofluorobenzene (S)	%.	99	44-148	08/16/16 22:32	

LABORATORY CONTROL SAMPLE: 252495

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	472	94	61-136	
4-Bromofluorobenzene (S)	%.			101	44-148	
4-Bromofluorobenzene (S)	%.			103	44-148	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 252496 252497

Parameter	Units	2041033002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Gasoline Range Organics	ug/L	ND	500	500	481	455	91	86	15-147	6	20	
4-Bromofluorobenzene (S)	%.						102	102	44-148			
4-Bromofluorobenzene (S)	%.						102	102	44-148			
4-Bromofluorobenzene (S)	%.						102	102	44-148			
4-Bromofluorobenzene (S)	%.						102	102	44-148			

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

QC Batch: 61010 Analysis Method: EPA 7470  
 QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
 Associated Lab Samples: 2041051001, 2041051002, 2041051003, 2041051004

METHOD BLANK: 252051 Matrix: Water  
 Associated Lab Samples: 2041051001, 2041051002, 2041051003, 2041051004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	08/15/16 14:32	

LABORATORY CONTROL SAMPLE: 252052

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	1.1	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 252053 252054

Parameter	Units	2041033002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	1.2	1	1	2.4	2.4	119	121	75-125	1	20	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

QC Batch: 61035 Analysis Method: EPA 6020  
 QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
 Associated Lab Samples: 2041051001, 2041051002, 2041051003, 2041051004

METHOD BLANK: 252130 Matrix: Water  
 Associated Lab Samples: 2041051001, 2041051002, 2041051003, 2041051004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	08/16/16 21:31	
Chromium	mg/L	ND	0.0010	08/16/16 21:31	
Lead	mg/L	ND	0.0010	08/16/16 21:31	
Vanadium	mg/L	ND	0.0050	08/16/16 21:31	

LABORATORY CONTROL SAMPLE: 252131

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.02	0.020	98	83-115	
Chromium	mg/L	.02	0.020	98	85-115	
Lead	mg/L	.02	0.019	94	84-115	
Vanadium	mg/L	.02	0.020	99	81-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 252132 252133

Parameter	Units	2041033002		252133		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result						
Arsenic	mg/L	0.0017	.02	.02	0.019	85	84	80-120	1	20	
Chromium	mg/L	0.011	.02	.02	0.031	100	101	80-120	1	20	
Lead	mg/L	ND	.02	.02	0.020	99	99	80-120	0	20	
Vanadium	mg/L	0.0073	.02	.02	0.028	101	102	80-120	1	20	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

QC Batch: 61013 Analysis Method: EPA 5030B/8260  
 QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Low Level  
 Associated Lab Samples: 2041051001, 2041051002, 2041051003, 2041051004, 2041051005, 2041051006

METHOD BLANK: 252059 Matrix: Water  
 Associated Lab Samples: 2041051001, 2041051002, 2041051003, 2041051004, 2041051005, 2041051006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	08/15/16 14:36	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	08/15/16 14:36	
1,1,2-Trichloroethane	ug/L	ND	0.50	08/15/16 14:36	
1,1-Dichloroethane	ug/L	ND	0.50	08/15/16 14:36	
1,1-Dichloroethene	ug/L	ND	0.50	08/15/16 14:36	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	08/15/16 14:36	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	08/15/16 14:36	
1,2-Dichloroethane	ug/L	ND	0.50	08/15/16 14:36	
1,2-Dichloropropane	ug/L	ND	0.50	08/15/16 14:36	
2-Butanone (MEK)	ug/L	ND	2.0	08/15/16 14:36	
2-Hexanone	ug/L	ND	1.0	08/15/16 14:36	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	08/15/16 14:36	
Acetone	ug/L	ND	4.0	08/15/16 14:36	
Benzene	ug/L	ND	0.50	08/15/16 14:36	
Bromodichloromethane	ug/L	ND	0.50	08/15/16 14:36	
Bromoform	ug/L	ND	0.50	08/15/16 14:36	
Bromomethane	ug/L	ND	0.50	08/15/16 14:36	
Carbon disulfide	ug/L	ND	1.0	08/15/16 14:36	
Carbon tetrachloride	ug/L	ND	0.50	08/15/16 14:36	
Chlorobenzene	ug/L	ND	0.50	08/15/16 14:36	
Chloroethane	ug/L	ND	0.50	08/15/16 14:36	
Chloroform	ug/L	ND	0.50	08/15/16 14:36	
Chloromethane	ug/L	ND	0.50	08/15/16 14:36	
cis-1,2-Dichloroethene	ug/L	ND	1.0	08/15/16 14:36	
cis-1,3-Dichloropropene	ug/L	ND	0.50	08/15/16 14:36	
Dibromochloromethane	ug/L	ND	0.50	08/15/16 14:36	
Dichlorodifluoromethane	ug/L	ND	1.0	08/15/16 14:36	
Ethanol	ug/L	ND	500	08/15/16 14:36	
Ethylbenzene	ug/L	ND	0.50	08/15/16 14:36	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	08/15/16 14:36	
m&p-Xylene	ug/L	ND	2.0	08/15/16 14:36	
Methyl acetate	ug/L	ND	2.0	08/15/16 14:36	
Methyl-tert-butyl ether	ug/L	ND	0.50	08/15/16 14:36	
Methylene Chloride	ug/L	ND	0.50	08/15/16 14:36	
o-Xylene	ug/L	ND	1.0	08/15/16 14:36	
Styrene	ug/L	ND	1.0	08/15/16 14:36	
tert-Butyl Alcohol	ug/L	ND	200	08/15/16 14:36	
Tetrachloroethene	ug/L	ND	0.50	08/15/16 14:36	
Toluene	ug/L	ND	0.50	08/15/16 14:36	
trans-1,2-Dichloroethene	ug/L	ND	0.50	08/15/16 14:36	
trans-1,3-Dichloropropene	ug/L	ND	0.50	08/15/16 14:36	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

METHOD BLANK: 252059

Matrix: Water

Associated Lab Samples: 2041051001, 2041051002, 2041051003, 2041051004, 2041051005, 2041051006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	0.50	08/15/16 14:36	
Trichlorofluoromethane	ug/L	ND	0.50	08/15/16 14:36	
Vinyl chloride	ug/L	ND	0.50	08/15/16 14:36	
4-Bromofluorobenzene (S)	%	100	68-124	08/15/16 14:36	
Dibromofluoromethane (S)	%	96	72-126	08/15/16 14:36	
Toluene-d8 (S)	%	101	79-119	08/15/16 14:36	

LABORATORY CONTROL SAMPLE: 252060

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	49.8	100	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	53.4	107	15-179	
1,1,2-Trichloroethane	ug/L	50	49.1	98	58-144	
1,1-Dichloroethane	ug/L	50	48.8	98	63-129	
1,1-Dichloroethene	ug/L	50	52.5	105	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	49.8	100	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	52.2	104	52-161	
1,2-Dichloroethane	ug/L	50	44.2	88	57-148	
1,2-Dichloropropane	ug/L	50	45.6	91	66-128	
2-Butanone (MEK)	ug/L	50	49.7	99	32-183	
2-Hexanone	ug/L	50	51.4	103	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	49.5	99	26-171	
Acetone	ug/L	50	50.9	102	22-165	
Benzene	ug/L	50	55.6	111	62-131	
Bromodichloromethane	ug/L	50	44.7	89	69-132	
Bromoform	ug/L	50	43.2	86	35-166	
Bromomethane	ug/L	50	39.8	80	34-158	
Carbon disulfide	ug/L	50	55.4	111	31-128	
Carbon tetrachloride	ug/L	50	49.3	99	54-144	
Chlorobenzene	ug/L	50	50.5	101	70-127	
Chloroethane	ug/L	50	38.3	77	17-195	
Chloroform	ug/L	50	46.7	93	73-134	
Chloromethane	ug/L	50	44.2	88	17-153	
cis-1,2-Dichloroethene	ug/L	50	54.7	109	68-129	
cis-1,3-Dichloropropene	ug/L	50	51.0	102	72-138	
Dibromochloromethane	ug/L	50	43.1	86	49-146	
Dichlorodifluoromethane	ug/L	50	38.0	76	10-179	
Ethylbenzene	ug/L	50	50.0	100	66-126	
Isopropylbenzene (Cumene)	ug/L	50	54.0	108	51-138	
m&p-Xylene	ug/L	100	107	107	65-129	
Methyl acetate	ug/L	50	58.0	116	20-142	
Methyl-tert-butyl ether	ug/L	50	53.8	108	37-166	
Methylene Chloride	ug/L	50	55.1	110	46-168	
o-Xylene	ug/L	50	53.7	107	65-124	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW-SAMPLING  
Pace Project No.: 2041051

LABORATORY CONTROL SAMPLE: 252060

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Styrene	ug/L	50	53.9	108	72-133	
Tetrachloroethene	ug/L	50	47.4	95	46-157	
Toluene	ug/L	50	50.0	100	69-126	
trans-1,2-Dichloroethene	ug/L	50	53.5	107	60-129	
trans-1,3-Dichloropropene	ug/L	50	52.0	104	59-149	
Trichloroethene	ug/L	50	46.3	93	67-132	
Trichlorofluoromethane	ug/L	50	44.1	88	39-171	
Vinyl chloride	ug/L	50	42.1	84	27-149	
4-Bromofluorobenzene (S)	%			104	68-124	
Dibromofluoromethane (S)	%			100	72-126	
Toluene-d8 (S)	%			99	79-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 252061 252062

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2041033002 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
1,1,1-Trichloroethane	ug/L	ND	50	50	56.4	55.1	113	110	54-137	2	20	
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	56.0	56.1	112	112	15-187	0	20	
1,1,2-Trichloroethane	ug/L	ND	50	50	52.2	52.0	104	104	59-148	0	20	
1,1-Dichloroethane	ug/L	ND	50	50	53.3	52.1	107	104	59-133	2	20	
1,1-Dichloroethene	ug/L	ND	50	50	58.2	57.2	116	114	44-146	2	20	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	51.8	52.1	104	104	23-166	1	20	
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	54.8	54.6	110	109	55-166	0	20	
1,2-Dichloroethane	ug/L	ND	50	50	47.6	46.6	95	93	56-154	2	20	
1,2-Dichloropropane	ug/L	ND	50	50	49.8	48.7	100	97	62-135	2	20	
2-Butanone (MEK)	ug/L	ND	50	50	50.0	52.2	100	104	20-205	4	20	
2-Hexanone	ug/L	ND	50	50	53.2	54.1	106	108	25-189	2	20	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	50	51.1	52.2	102	104	23-184	2	20	
Acetone	ug/L	14.8	50	50	66.9	69.6	104	110	11-217	4	20	
Benzene	ug/L	ND	50	50	61.6	60.6	123	121	52-141	2	20	
Bromodichloromethane	ug/L	ND	50	50	47.9	47.5	96	95	70-134	1	20	
Bromoform	ug/L	ND	50	50	46.4	46.4	93	93	37-171	0	20	
Bromomethane	ug/L	ND	50	50	45.1	43.6	90	87	34-155	3	20	
Carbon disulfide	ug/L	ND	50	50	68.1	63.5	136	127	28-130	7	20	M1
Carbon tetrachloride	ug/L	ND	50	50	55.8	55.5	112	111	48-146	0	20	
Chlorobenzene	ug/L	ND	50	50	54.8	54.5	110	109	67-129	1	20	
Chloroethane	ug/L	ND	50	50	44.3	42.0	89	84	12-192	5	20	
Chloroform	ug/L	ND	50	50	50.9	49.8	102	100	66-143	2	20	
Chloromethane	ug/L	0.66	50	50	49.0	48.2	97	95	14-155	2	20	
cis-1,2-Dichloroethene	ug/L	ND	50	50	60.0	58.6	120	117	56-141	2	20	
cis-1,3-Dichloropropene	ug/L	ND	50	50	54.9	54.2	110	108	70-139	1	20	
Dibromochloromethane	ug/L	ND	50	50	46.1	45.3	92	91	50-150	2	20	
Dichlorodifluoromethane	ug/L	ND	50	50	42.0	40.8	84	82	10-173	3	20	
Ethylbenzene	ug/L	ND	50	50	54.6	54.2	109	108	57-135	1	20	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

Parameter	Units	252061		252062		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2041033002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Isopropylbenzene (Cumene)	ug/L	ND	50	50	59.2	58.4	118	117	40-146	1	20
m&p-Xylene	ug/L	ND	100	100	116	116	116	116	56-136	0	20
Methyl acetate	ug/L	ND	50	50	54.3	55.5	109	111	10-142	2	20
Methyl-tert-butyl ether	ug/L	ND	50	50	56.2	55.5	112	111	35-176	1	20
Methylene Chloride	ug/L	ND	50	50	58.3	56.9	117	114	45-166	2	20
o-Xylene	ug/L	ND	50	50	58.1	57.5	116	115	57-133	1	20
Styrene	ug/L	ND	50	50	57.9	57.1	116	114	58-144	1	20
Tetrachloroethene	ug/L	ND	50	50	53.0	52.5	106	105	48-143	1	20
Toluene	ug/L	ND	50	50	55.2	54.6	110	109	59-136	1	20
trans-1,2-Dichloroethene	ug/L	ND	50	50	60.9	58.7	122	117	57-132	4	20
trans-1,3-Dichloropropene	ug/L	ND	50	50	55.5	55.0	111	110	59-154	1	20
Trichloroethene	ug/L	ND	50	50	51.7	50.6	103	101	58-140	2	20
Trichlorofluoromethane	ug/L	ND	50	50	50.4	49.6	101	99	24-175	2	20
Vinyl chloride	ug/L	ND	50	50	46.9	45.5	94	91	21-150	3	20
4-Bromofluorobenzene (S)	%.						104	105	68-124		
Dibromofluoromethane (S)	%.						99	98	72-126		
Toluene-d8 (S)	%.						100	99	79-119		

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW-SAMPLING

Project No.: 2041051

QC Batch: 61006 Analysis Method: EPA 8015B Modified  
 QC Batch Method: EPA 3535 Analysis Description: EPA 8015 ORO  
 Associated Lab Samples: 2041051001, 2041051002, 2041051003, 2041051004

METHOD BLANK: 252038 Matrix: Water  
 Associated Lab Samples: 2041051001, 2041051002, 2041051003, 2041051004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	ND	0.25	08/16/16 13:50	
Oil Range Organics (>C28-C40)	mg/L	ND	0.50	08/16/16 13:50	
n-Pentacosane (S)	%	51	16-137	08/16/16 13:50	
o-Terphenyl (S)	%	64	10-121	08/16/16 13:50	

LABORATORY CONTROL SAMPLE: 252039

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	.4	0.30	74	10-115	
n-Pentacosane (S)	%			71	16-137	
o-Terphenyl (S)	%			82	10-121	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 252040 252041

Parameter	Units	2041033002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diesel Range Organic (C10-C28)	mg/L	ND	.8	.4	0.59	0.33	52	40	10-122	55	20	R1
n-Pentacosane (S)	%						72	77	16-137			
o-Terphenyl (S)	%						76	92	10-121			

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

QC Batch: 61108 Analysis Method: EPA 8270 by SIM  
 QC Batch Method: EPA 3510 Analysis Description: 8270 Water by SIM MSSV  
 Associated Lab Samples: 2041051001, 2041051002, 2041051003, 2041051004

METHOD BLANK: 252394 Matrix: Water  
 Associated Lab Samples: 2041051001, 2041051002, 2041051003, 2041051004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	08/17/16 11:58	
Anthracene	mg/L	ND	0.00010	08/17/16 11:58	
Benzo(a)anthracene	mg/L	ND	0.00010	08/17/16 11:58	
Benzo(a)pyrene	mg/L	ND	0.00010	08/17/16 11:58	
Benzo(b)fluoranthene	mg/L	ND	0.00010	08/17/16 11:58	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	08/17/16 11:58	
Benzo(k)fluoranthene	mg/L	ND	0.00010	08/17/16 11:58	
Chrysene	mg/L	ND	0.00010	08/17/16 11:58	
Fluoranthene	mg/L	ND	0.00010	08/17/16 11:58	
Fluorene	mg/L	ND	0.00010	08/17/16 11:58	
Naphthalene	mg/L	ND	0.00010	08/17/16 11:58	
Phenanthrene	mg/L	ND	0.00010	08/17/16 11:58	
Pyrene	mg/L	ND	0.00010	08/17/16 11:58	
2-Fluorobiphenyl (S)	%	80	25-150	08/17/16 11:58	
Terphenyl-d14 (S)	%	90	25-150	08/17/16 11:58	

LABORATORY CONTROL SAMPLE: 252395

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0032	79	35-150	
Anthracene	mg/L	.004	0.0033	81	35-150	
Benzo(a)anthracene	mg/L	.004	0.0028	71	35-150	
Benzo(a)pyrene	mg/L	.004	0.0028	71	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0029	72	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0028	71	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0032	79	35-150	
Chrysene	mg/L	.004	0.0032	79	35-150	
Fluoranthene	mg/L	.004	0.0031	77	35-150	
Fluorene	mg/L	.004	0.0030	75	35-150	
Naphthalene	mg/L	.004	0.0031	78	35-150	
Phenanthrene	mg/L	.004	0.0031	78	35-150	
Pyrene	mg/L	.004	0.0029	73	35-150	
2-Fluorobiphenyl (S)	%			74	25-150	
Terphenyl-d14 (S)	%			72	25-150	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

Parameter	Units	252396		252397		MS % Rec	MSD % Rec	% Rec	Limits	RPD	Max RPD	Qual
		2041033002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Acenaphthene	mg/L	ND	.004	.004	0.0036	0.0033	90	81	35-150	10	20	
Anthracene	mg/L	ND	.004	.004	0.0039	0.0036	97	91	35-150	7	20	
Benzo(a)anthracene	mg/L	ND	.004	.004	0.0034	0.0031	85	78	35-150	8	20	
Benzo(a)pyrene	mg/L	ND	.004	.004	0.0028	0.0026	71	65	35-150	8	20	
Benzo(b)fluoranthene	mg/L	ND	.004	.004	0.0029	0.0027	72	68	35-150	7	20	
Benzo(g,h,i)perylene	mg/L	ND	.004	.004	0.0027	0.0025	67	62	35-150	7	20	
Benzo(k)fluoranthene	mg/L	ND	.004	.004	0.0029	0.0026	72	66	35-150	10	20	
Chrysene	mg/L	ND	.004	.004	0.0033	0.0030	82	76	35-150	7	20	
Fluoranthene	mg/L	ND	.004	.004	0.0035	0.0033	88	82	35-150	6	20	
Fluorene	mg/L	ND	.004	.004	0.0035	0.0032	87	81	35-150	7	20	
Naphthalene	mg/L	ND	.004	.004	0.0036	0.0033	91	83	35-150	9	20	
Phenanthrene	mg/L	ND	.004	.004	0.0037	0.0034	94	85	35-150	10	20	
Pyrene	mg/L	ND	.004	.004	0.0037	0.0033	94	83	35-150	11	20	
2-Fluorobiphenyl (S)	%						86	88	25-150		20	
Terphenyl-d14 (S)	%						79	82	25-150		20	

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## QUALIFIERS

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The Nelac Institute

### LABORATORIES

PASI-N Pace Analytical Services - New Orleans

### ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

R1 RPD value was outside control limits.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PUMA TERMINAL MW-SAMPLING

Pace Project No.: 2041051

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2041051001	EB-081116	EPA 3535	61006	EPA 8015B Modified	61156
2041051002	MW-114A	EPA 3535	61006	EPA 8015B Modified	61156
2041051003	MW-111A	EPA 3535	61006	EPA 8015B Modified	61156
2041051004	MW-110AB	EPA 3535	61006	EPA 8015B Modified	61156
2041051001	EB-081116	EPA 8015/8021	61142		
2041051002	MW-114A	EPA 8015/8021	61142		
2041051003	MW-111A	EPA 8015/8021	61142		
2041051004	MW-110AB	EPA 8015/8021	61142		
2041051005	TB-081116	EPA 8015/8021	61142		
2041051006	FB-081116	EPA 8015/8021	61142		
2041051001	EB-081116	EPA 3010	61035	EPA 6020	61053
2041051002	MW-114A	EPA 3010	61035	EPA 6020	61053
2041051003	MW-111A	EPA 3010	61035	EPA 6020	61053
2041051004	MW-110AB	EPA 3010	61035	EPA 6020	61053
2041051001	EB-081116	EPA 7470	61010	EPA 7470	61050
2041051002	MW-114A	EPA 7470	61010	EPA 7470	61050
2041051003	MW-111A	EPA 7470	61010	EPA 7470	61050
2041051004	MW-110AB	EPA 7470	61010	EPA 7470	61050
2041051001	EB-081116	EPA 3510	61108	EPA 8270 by SIM	61231
2041051002	MW-114A	EPA 3510	61108	EPA 8270 by SIM	61231
2041051003	MW-111A	EPA 3510	61108	EPA 8270 by SIM	61231
2041051004	MW-110AB	EPA 3510	61108	EPA 8270 by SIM	61231
2041051001	EB-081116	EPA 5030B/8260	61013		
2041051002	MW-114A	EPA 5030B/8260	61013		
2041051003	MW-111A	EPA 5030B/8260	61013		
2041051004	MW-110AB	EPA 5030B/8260	61013		
2041051005	TB-081116	EPA 5030B/8260	61013		
2041051006	FB-081116	EPA 5030B/8260	61013		

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Urb. Jardines de Guaynabo  
Calle Marginal Bldg A-10  
Guaynabo, PR 00989

Sample Condition Upon Receipt

WO#: 2041051

PM: JAR1

Due Date: 08/25/16

CLIENT: 98-ARCADISPR

Project:

Courier:  Pace Courier  Hired Courier  Fed.X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 4  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 8-11-16 *[Signature]*

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_



1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

### Sample Condition Upon Receipt

Project #: **20**

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 5  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 8-12-14 mb

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present??	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7
Correct Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15

#### Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

September 06, 2016

Efrain Calderon  
BBL Caribe Engineering P.S.C.  
48 City View Plaza1, Suite 401  
Road 16, Km. 1.2  
Guaynabo, PR 00968

RE: Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2041215

Dear Efrain Calderon:

Enclosed are the analytical results for sample(s) received by the laboratory on August 16, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Juan Redondo  
juan.redondo@pacelabs.com  
Project Manager

Enclosures

cc: Sharon Colon  
Abner Hernandez  
Marianela Mercado-Burgos



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

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### New Orleans Certification IDs

California Env. Lab Accreditation Program Branch:  
11277CA

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 0025721

Kansas Department of Health and Environment (NELAC):  
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):  
02006

Pennsylvania Dept. of Env Protection (NELAC): 68-04202

Texas Commission on Env. Quality (NELAC):  
T104704405-09-TX

U.S. Dept. of Agriculture Foreign Soil Import: P330-10-  
00119

Commonwealth of Virginia (TNI): 480246

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### SAMPLE SUMMARY

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2041215001	TB-081616	Water	08/16/16 00:00	08/16/16 12:48
2041215002	EB-081616	Water	08/16/16 07:50	08/16/16 12:48
2041215003	MW-17B	Water	08/16/16 09:28	08/16/16 12:48
2041215004	MW-110B2	Water	08/16/16 12:16	08/16/16 12:48
2041215005	FB-081616	Water	08/16/16 12:21	08/16/16 12:48

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### SAMPLE ANALYTE COUNT

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2041215001	TB-081616	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2041215002	EB-081616	EPA 8015B Modified	ARW	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2041215003	MW-17B	EPA 8015B Modified	ARW	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2041215004	MW-110B2	EPA 8015B Modified	ARW	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 6020	KJR	4	PASI-N
		EPA 7470	MHB1	1	PASI-N
		EPA 8270 by SIM	GEJ	15	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N
2041215005	FB-081616	EPA 8015/8021	MHM	2	PASI-N
		EPA 5030B/8260	MLS	47	PASI-N

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

---

**Method:** EPA 8015B Modified

**Description:** 8015M DRO/ORO Organics

**Client:** BBL Caribe / Arcadis PR

**Date:** September 06, 2016

**General Information:**

3 samples were analyzed for EPA 8015B Modified. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3535 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

QC Batch: 61278

S3: Surrogate recovery exceeded laboratory control limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

- BLANK (Lab ID: 253002)
- n-Pentacosane (S)

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 61278

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

---

**Method:** EPA 8015/8021

**Description:** 8021 GCV BTEX, MTBE, GRO

**Client:** BBL Caribe / Arcadis PR

**Date:** September 06, 2016

**General Information:**

5 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 61273

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

---

**Method:** EPA 6020

**Description:** 6020 MET ICPMS

**Client:** BBL Caribe / Arcadis PR

**Date:** September 06, 2016

**General Information:**

3 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2041215

---

**Method:** EPA 7470  
**Description:** 7470 Mercury  
**Client:** BBL Caribe / Arcadis PR  
**Date:** September 06, 2016

**General Information:**

3 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

---

**Method:** EPA 8270 by SIM

**Description:** 8270 MSSV PAH by SIM SEP

**Client:** BBL Caribe / Arcadis PR

**Date:** September 06, 2016

**General Information:**

3 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 61383

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

**Additional Comments:**

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

---

**Method:** EPA 5030B/8260

**Description:** 8260 MSV Low Level

**Client:** BBL Caribe / Arcadis PR

**Date:** September 06, 2016

### General Information:

5 samples were analyzed for EPA 5030B/8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 61312

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2041212003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 253119)
  - Bromodichloromethane
  - Styrene
  - cis-1,3-Dichloropropene
- MSD (Lab ID: 253120)
  - 1,1,1-Trichloroethane
  - 1,1-Dichloroethane
  - 1,1-Dichloroethene
  - 1,2-Dichloropropane
  - Benzene
  - Bromomethane
  - Carbon disulfide
  - Carbon tetrachloride

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

---

**Method:** EPA 5030B/8260

**Description:** 8260 MSV Low Level

**Client:** BBL Caribe / Arcadis PR

**Date:** September 06, 2016

QC Batch: 61312

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2041212003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- Chlorobenzene
- Chloroform
- Ethylbenzene
- Methyl acetate
- Tetrachloroethene
- Toluene
- Trichloroethene
- Trichlorofluoromethane
- Vinyl chloride
- cis-1,2-Dichloroethene
- cis-1,3-Dichloropropene
- m&p-Xylene
- o-Xylene
- trans-1,2-Dichloroethene

R1: RPD value was outside control limits.

- MSD (Lab ID: 253120)
  - 1,1,1-Trichloroethane
  - 1,1,2,2-Tetrachloroethane
  - 1,1,2-Trichloroethane
  - 1,1-Dichloroethane
  - 1,1-Dichloroethene
  - 1,2-Dibromo-3-chloropropane
  - 1,2-Dibromoethane (EDB)
  - 1,2-Dichloroethane
  - 1,2-Dichloropropane
  - 2-Butanone (MEK)
  - 2-Hexanone
  - 4-Methyl-2-pentanone (MIBK)
  - Acetone
  - Benzene
  - Bromodichloromethane
  - Bromoform
  - Bromomethane
  - Carbon disulfide
  - Carbon tetrachloride
  - Chlorobenzene
  - Chloroethane
  - Chloroform
  - Chloromethane
  - Dibromochloromethane
  - Dichlorodifluoromethane
  - Ethylbenzene
  - Isopropylbenzene (Cumene)

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

---

**Method:** EPA 5030B/8260

**Description:** 8260 MSV Low Level

**Client:** BBL Caribe / Arcadis PR

**Date:** September 06, 2016

QC Batch: 61312

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2041212003

R1: RPD value was outside control limits.

- Methyl acetate
- Methyl-tert-butyl ether
- Methylene Chloride
- Styrene
- Tetrachloroethene
- Toluene
- Trichloroethene
- Trichlorofluoromethane
- Vinyl chloride
- cis-1,2-Dichloroethene
- cis-1,3-Dichloropropene
- m&p-Xylene
- o-Xylene
- trans-1,2-Dichloroethene
- trans-1,3-Dichloropropene

### Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

Sample: TB-081616	Lab ID: 2041215001	Collected: 08/16/16 00:00	Received: 08/16/16 12:48	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>	Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		08/24/16 05:47		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	102	%	44-148	1		08/24/16 05:47	460-00-4	
<b>8260 MSV Low Level</b>	Analytical Method: EPA 5030B/8260							
Acetone	11.8	ug/L	4.0	1		08/23/16 16:22	67-64-1	
Benzene	ND	ug/L	0.50	1		08/23/16 16:22	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		08/23/16 16:22	75-27-4	
Bromoform	ND	ug/L	0.50	1		08/23/16 16:22	75-25-2	
Bromomethane	ND	ug/L	0.50	1		08/23/16 16:22	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		08/23/16 16:22	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		08/23/16 16:22	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		08/23/16 16:22	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		08/23/16 16:22	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		08/23/16 16:22	108-90-7	
Chloroethane	ND	ug/L	0.50	1		08/23/16 16:22	75-00-3	
Chloroform	ND	ug/L	0.50	1		08/23/16 16:22	67-66-3	
Chloromethane	ND	ug/L	0.50	1		08/23/16 16:22	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		08/23/16 16:22	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		08/23/16 16:22	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		08/23/16 16:22	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		08/23/16 16:22	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		08/23/16 16:22	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		08/23/16 16:22	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		08/23/16 16:22	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		08/23/16 16:22	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		08/23/16 16:22	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		08/23/16 16:22	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		08/23/16 16:22	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		08/23/16 16:22	10061-02-6	
Ethanol	ND	ug/L	500	1		08/23/16 16:22	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		08/23/16 16:22	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		08/23/16 16:22	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		08/23/16 16:22	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		08/23/16 16:22	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		08/23/16 16:22	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		08/23/16 16:22	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		08/23/16 16:22	1634-04-4	
Styrene	ND	ug/L	1.0	1		08/23/16 16:22	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		08/23/16 16:22	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		08/23/16 16:22	127-18-4	
Toluene	ND	ug/L	0.50	1		08/23/16 16:22	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		08/23/16 16:22	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		08/23/16 16:22	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		08/23/16 16:22	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		08/23/16 16:22	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		08/23/16 16:22	75-01-4	

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## ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING  
Project No.: 2041215

Sample: TB-081616	Lab ID: 2041215001	Collected: 08/16/16 00:00	Received: 08/16/16 12:48	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
m&p-Xylene	ND	ug/L	2.0	1		08/23/16 16:22	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		08/23/16 16:22	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	91	%	72-126	1		08/23/16 16:22	1868-53-7	
4-Bromofluorobenzene (S)	100	%	68-124	1		08/23/16 16:22	460-00-4	
Toluene-d8 (S)	98	%	79-119	1		08/23/16 16:22	2037-26-5	
<b>Sample: EB-081616</b>		Lab ID: 2041215002 Collected: 08/16/16 07:50 Received: 08/16/16 12:48 Matrix: Water						
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535						
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	08/18/16 10:06	08/29/16 18:01		
Oil Range Organics (>C28-C40)	ND	mg/L	1.0	1	08/18/16 10:06	08/29/16 18:01		
<b>Surrogates</b>								
n-Pentacosane (S)	64	%	16-137	1	08/18/16 10:06	08/29/16 18:01	629-99-2	
o-Terphenyl (S)	55	%	10-121	1	08/18/16 10:06	08/29/16 18:01	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		08/24/16 06:13		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	98	%	44-148	1		08/24/16 06:13	460-00-4	
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010						
Arsenic	ND	mg/L	0.0010	1	08/17/16 17:30	08/23/16 12:57	7440-38-2	
Chromium	ND	mg/L	0.0010	1	08/17/16 17:30	08/23/16 12:57	7440-47-3	
Lead	ND	mg/L	0.0010	1	08/17/16 17:30	08/23/16 12:57	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	08/17/16 17:30	08/23/16 12:57	7440-62-2	
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470						
Mercury	ND	ug/L	0.20	1	08/18/16 07:57	08/18/16 12:55	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Naphthalene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 16:51	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 16:51	83-32-9	
Fluorene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 16:51	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 16:51	85-01-8	
Anthracene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 16:51	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 16:51	206-44-0	
Pyrene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 16:51	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 16:51	56-55-3	
Chrysene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 16:51	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 16:51	205-99-2	
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 16:51	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 16:51	50-32-8	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

Sample: EB-081616	Lab ID: 2041215002	Collected: 08/16/16 07:50	Received: 08/16/16 12:48	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 16:51	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	55	%	25-150	1	08/19/16 10:01	08/23/16 16:51	321-60-8	
Terphenyl-d14 (S)	63	%	25-150	1	08/19/16 10:01	08/23/16 16:51	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	22.6	ug/L	4.0	1		08/23/16 16:40	67-64-1	
Benzene	ND	ug/L	0.50	1		08/23/16 16:40	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		08/23/16 16:40	75-27-4	
Bromoform	ND	ug/L	0.50	1		08/23/16 16:40	75-25-2	
Bromomethane	ND	ug/L	0.50	1		08/23/16 16:40	74-83-9	
2-Butanone (MEK)	2.2	ug/L	2.0	1		08/23/16 16:40	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		08/23/16 16:40	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		08/23/16 16:40	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		08/23/16 16:40	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		08/23/16 16:40	108-90-7	
Chloroethane	ND	ug/L	0.50	1		08/23/16 16:40	75-00-3	
Chloroform	ND	ug/L	0.50	1		08/23/16 16:40	67-66-3	
Chloromethane	0.74	ug/L	0.50	1		08/23/16 16:40	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		08/23/16 16:40	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		08/23/16 16:40	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		08/23/16 16:40	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		08/23/16 16:40	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		08/23/16 16:40	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		08/23/16 16:40	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		08/23/16 16:40	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		08/23/16 16:40	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		08/23/16 16:40	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		08/23/16 16:40	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		08/23/16 16:40	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		08/23/16 16:40	10061-02-6	
Ethanol	ND	ug/L	500	1		08/23/16 16:40	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		08/23/16 16:40	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		08/23/16 16:40	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		08/23/16 16:40	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		08/23/16 16:40	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		08/23/16 16:40	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		08/23/16 16:40	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		08/23/16 16:40	1634-04-4	
Styrene	ND	ug/L	1.0	1		08/23/16 16:40	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		08/23/16 16:40	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		08/23/16 16:40	127-18-4	
Toluene	ND	ug/L	0.50	1		08/23/16 16:40	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		08/23/16 16:40	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		08/23/16 16:40	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		08/23/16 16:40	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		08/23/16 16:40	75-69-4	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Sample Project No.: 2041215

Sample: <b>EB-081616</b>		Lab ID: <b>2041215002</b>		Collected: 08/16/16 07:50		Received: 08/16/16 12:48		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260							
Vinyl chloride	ND	ug/L	0.50	1		08/23/16 16:40	75-01-4		
m&p-Xylene	ND	ug/L	2.0	1		08/23/16 16:40	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		08/23/16 16:40	95-47-6		
<b>Surrogates</b>									
Dibromofluoromethane (S)	90	%.	72-126	1		08/23/16 16:40	1868-53-7		
4-Bromofluorobenzene (S)	101	%.	68-124	1		08/23/16 16:40	460-00-4		
Toluene-d8 (S)	97	%.	79-119	1		08/23/16 16:40	2037-26-5		
<b>Sample: MW-17B</b>		Lab ID: <b>2041215003</b>		Collected: 08/16/16 09:28		Received: 08/16/16 12:48		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
<b>8015M DRO/ORO Organics</b>		Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535							
Diesel Range Organic (C10-C28)	<b>0.58</b>	mg/L	0.50	1	08/18/16 10:06	08/29/16 18:30			
Oil Range Organics (>C28-C40)	<b>4.4</b>	mg/L	1.0	1	08/18/16 10:06	08/29/16 18:30			
<b>Surrogates</b>									
n-Pentacosane (S)	107	%.	16-137	1	08/18/16 10:06	08/29/16 18:30	629-99-2		
o-Terphenyl (S)	77	%.	10-121	1	08/18/16 10:06	08/29/16 18:30	84-15-1		
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		08/24/16 06:39			
<b>Surrogates</b>									
4-Bromofluorobenzene (S)	95	%.	44-148	1		08/24/16 06:39	460-00-4		
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Arsenic	ND	mg/L	0.0010	1	08/17/16 17:30	08/23/16 13:01	7440-38-2		
Chromium	<b>0.0073</b>	mg/L	0.0010	1	08/17/16 17:30	08/23/16 13:01	7440-47-3		
Lead	<b>0.0084</b>	mg/L	0.0010	1	08/17/16 17:30	08/23/16 13:01	7439-92-1		
Vanadium	<b>0.011</b>	mg/L	0.0050	1	08/17/16 17:30	08/23/16 13:01	7440-62-2		
<b>7470 Mercury</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470							
Mercury	ND	ug/L	0.20	1	08/18/16 07:57	08/18/16 12:57	7439-97-6		
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510							
Naphthalene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:12	91-20-3		
Acenaphthene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:12	83-32-9		
Fluorene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:12	86-73-7		
Phenanthrene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:12	85-01-8		
Anthracene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:12	120-12-7		
Fluoranthene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:12	206-44-0		
Pyrene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:12	129-00-0		
Benzo(a)anthracene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:12	56-55-3		
Chrysene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:12	218-01-9		
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:12	205-99-2		
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:12	207-08-9		

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

Sample: MW-17B	Lab ID: 2041215003	Collected: 08/16/16 09:28	Received: 08/16/16 12:48	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(a)pyrene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:12	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:12	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	80	%	25-150	1	08/19/16 10:01	08/23/16 17:12	321-60-8	
Terphenyl-d14 (S)	58	%	25-150	1	08/19/16 10:01	08/23/16 17:12	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	11.5	ug/L	4.0	1		08/23/16 16:57	67-64-1	
Benzene	ND	ug/L	0.50	1		08/23/16 16:57	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		08/23/16 16:57	75-27-4	
Bromoform	ND	ug/L	0.50	1		08/23/16 16:57	75-25-2	
Bromomethane	ND	ug/L	0.50	1		08/23/16 16:57	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		08/23/16 16:57	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		08/23/16 16:57	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		08/23/16 16:57	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		08/23/16 16:57	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		08/23/16 16:57	108-90-7	
Chloroethane	ND	ug/L	0.50	1		08/23/16 16:57	75-00-3	
Chloroform	ND	ug/L	0.50	1		08/23/16 16:57	67-66-3	
Chloromethane	0.61	ug/L	0.50	1		08/23/16 16:57	74-87-3	
1,2-Dibromo-3-chloropropane	63.2	ug/L	2.0	1		08/23/16 16:57	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		08/23/16 16:57	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		08/23/16 16:57	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		08/23/16 16:57	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		08/23/16 16:57	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		08/23/16 16:57	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		08/23/16 16:57	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		08/23/16 16:57	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		08/23/16 16:57	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		08/23/16 16:57	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		08/23/16 16:57	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		08/23/16 16:57	10061-02-6	
Ethanol	ND	ug/L	500	1		08/23/16 16:57	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		08/23/16 16:57	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		08/23/16 16:57	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		08/23/16 16:57	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		08/23/16 16:57	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		08/23/16 16:57	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		08/23/16 16:57	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		08/23/16 16:57	1634-04-4	
Styrene	ND	ug/L	1.0	1		08/23/16 16:57	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		08/23/16 16:57	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		08/23/16 16:57	127-18-4	
Toluene	ND	ug/L	0.50	1		08/23/16 16:57	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		08/23/16 16:57	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		08/23/16 16:57	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		08/23/16 16:57	79-01-6	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Sample Project No.: 2041215

Sample: MW-17B	Lab ID: 2041215003	Collected: 08/16/16 09:28	Received: 08/16/16 12:48	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>								
Analytical Method: EPA 5030B/8260								
Trichlorofluoromethane	ND	ug/L	0.50	1		08/23/16 16:57	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		08/23/16 16:57	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		08/23/16 16:57	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		08/23/16 16:57	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	90	%	72-126	1		08/23/16 16:57	1868-53-7	
4-Bromofluorobenzene (S)	100	%	68-124	1		08/23/16 16:57	460-00-4	
Toluene-d8 (S)	97	%	79-119	1		08/23/16 16:57	2037-26-5	
<b>Sample: MW-110B2</b>								
Lab ID: 2041215004 Collected: 08/16/16 12:16 Received: 08/16/16 12:48 Matrix: Water								
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8015M DRO/ORO Organics</b>								
Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535								
Diesel Range Organic (C10-C28)	ND	mg/L	0.50	1	08/18/16 10:06	08/29/16 18:58		
Oil Range Organics (>C28-C40)	1.2	mg/L	1.0	1	08/18/16 10:06	08/29/16 18:58		
<b>Surrogates</b>								
n-Pentacosane (S)	74	%	16-137	1	08/18/16 10:06	08/29/16 18:58	629-99-2	
o-Terphenyl (S)	73	%	10-121	1	08/18/16 10:06	08/29/16 18:58	84-15-1	
<b>8021 GCV BTEX, MTBE, GRO</b>								
Analytical Method: EPA 8015/8021								
Gasoline Range Organics	ND	ug/L	50.0	1		08/24/16 07:06		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	99	%	44-148	1		08/24/16 07:06	460-00-4	
<b>6020 MET ICPMS</b>								
Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Arsenic	0.0013	mg/L	0.0010	1	08/17/16 17:30	08/23/16 13:05	7440-38-2	
Chromium	0.0014	mg/L	0.0010	1	08/17/16 17:30	08/23/16 13:05	7440-47-3	
Lead	ND	mg/L	0.0010	1	08/17/16 17:30	08/23/16 13:05	7439-92-1	
Vanadium	ND	mg/L	0.0050	1	08/17/16 17:30	08/23/16 13:05	7440-62-2	
<b>7470 Mercury</b>								
Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	ND	ug/L	0.20	1	08/18/16 07:57	08/18/16 12:59	7439-97-6	
<b>8270 MSSV PAH by SIM SEP</b>								
Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Naphthalene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:34	91-20-3	
Acenaphthene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:34	83-32-9	
Fluorene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:34	86-73-7	
Phenanthrene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:34	85-01-8	
Anthracene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:34	120-12-7	
Fluoranthene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:34	206-44-0	
Pyrene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:34	129-00-0	
Benzo(a)anthracene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:34	56-55-3	
Chrysene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:34	218-01-9	
Benzo(b)fluoranthene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:34	205-99-2	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

Sample: MW-110B2	Lab ID: 2041215004	Collected: 08/16/16 12:16	Received: 08/16/16 12:48	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV PAH by SIM SEP</b>		Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510						
Benzo(k)fluoranthene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:34	207-08-9	
Benzo(a)pyrene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:34	50-32-8	
Benzo(g,h,i)perylene	ND	mg/L	0.00010	1	08/19/16 10:01	08/23/16 17:34	191-24-2	
<b>Surrogates</b>								
2-Fluorobiphenyl (S)	77	%	25-150	1	08/19/16 10:01	08/23/16 17:34	321-60-8	
Terphenyl-d14 (S)	59	%	25-150	1	08/19/16 10:01	08/23/16 17:34	1718-51-0	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	7.1	ug/L	4.0	1		08/23/16 17:15	67-64-1	
Benzene	ND	ug/L	0.50	1		08/23/16 17:15	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		08/23/16 17:15	75-27-4	
Bromoform	ND	ug/L	0.50	1		08/23/16 17:15	75-25-2	
Bromomethane	ND	ug/L	0.50	1		08/23/16 17:15	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		08/23/16 17:15	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		08/23/16 17:15	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		08/23/16 17:15	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		08/23/16 17:15	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		08/23/16 17:15	108-90-7	
Chloroethane	ND	ug/L	0.50	1		08/23/16 17:15	75-00-3	
Chloroform	ND	ug/L	0.50	1		08/23/16 17:15	67-66-3	
Chloromethane	0.56	ug/L	0.50	1		08/23/16 17:15	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		08/23/16 17:15	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		08/23/16 17:15	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		08/23/16 17:15	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		08/23/16 17:15	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		08/23/16 17:15	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		08/23/16 17:15	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		08/23/16 17:15	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		08/23/16 17:15	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		08/23/16 17:15	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		08/23/16 17:15	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		08/23/16 17:15	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		08/23/16 17:15	10061-02-6	
Ethanol	ND	ug/L	500	1		08/23/16 17:15	64-17-5	
Ethylbenzene	ND	ug/L	0.50	1		08/23/16 17:15	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		08/23/16 17:15	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		08/23/16 17:15	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		08/23/16 17:15	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		08/23/16 17:15	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		08/23/16 17:15	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		08/23/16 17:15	1634-04-4	
Styrene	ND	ug/L	1.0	1		08/23/16 17:15	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		08/23/16 17:15	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		08/23/16 17:15	127-18-4	
Toluene	ND	ug/L	0.50	1		08/23/16 17:15	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		08/23/16 17:15	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		08/23/16 17:15	79-00-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Sample Project No.: 2041215

Sample: MW-110B2		Lab ID: 2041215004	Collected: 08/16/16 12:16	Received: 08/16/16 12:48	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Trichloroethene	ND	ug/L	0.50	1		08/23/16 17:15	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		08/23/16 17:15	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		08/23/16 17:15	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		08/23/16 17:15	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		08/23/16 17:15	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	89	%	72-126	1		08/23/16 17:15	1868-53-7	
4-Bromofluorobenzene (S)	101	%	68-124	1		08/23/16 17:15	460-00-4	
Toluene-d8 (S)	98	%	79-119	1		08/23/16 17:15	2037-26-5	

Sample: FB-081616		Lab ID: 2041215005	Collected: 08/16/16 12:21	Received: 08/16/16 12:48	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8021 GCV BTEX, MTBE, GRO</b>		Analytical Method: EPA 8015/8021						
Gasoline Range Organics	ND	ug/L	50.0	1		08/24/16 07:32		
<b>Surrogates</b>								
4-Bromofluorobenzene (S)	101	%	44-148	1		08/24/16 07:32	460-00-4	
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Acetone	21.7	ug/L	4.0	1		08/23/16 17:33	67-64-1	
Benzene	ND	ug/L	0.50	1		08/23/16 17:33	71-43-2	
Bromodichloromethane	ND	ug/L	0.50	1		08/23/16 17:33	75-27-4	
Bromoform	ND	ug/L	0.50	1		08/23/16 17:33	75-25-2	
Bromomethane	ND	ug/L	0.50	1		08/23/16 17:33	74-83-9	
2-Butanone (MEK)	ND	ug/L	2.0	1		08/23/16 17:33	78-93-3	
tert-Butyl Alcohol	ND	ug/L	200	1		08/23/16 17:33	75-65-0	
Carbon disulfide	ND	ug/L	1.0	1		08/23/16 17:33	75-15-0	
Carbon tetrachloride	ND	ug/L	0.50	1		08/23/16 17:33	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		08/23/16 17:33	108-90-7	
Chloroethane	ND	ug/L	0.50	1		08/23/16 17:33	75-00-3	
Chloroform	ND	ug/L	0.50	1		08/23/16 17:33	67-66-3	
Chloromethane	1.1	ug/L	0.50	1		08/23/16 17:33	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		08/23/16 17:33	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		08/23/16 17:33	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		08/23/16 17:33	106-93-4	
Dichlorodifluoromethane	ND	ug/L	1.0	1		08/23/16 17:33	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		08/23/16 17:33	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		08/23/16 17:33	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		08/23/16 17:33	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		08/23/16 17:33	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		08/23/16 17:33	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		08/23/16 17:33	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		08/23/16 17:33	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		08/23/16 17:33	10061-02-6	
Ethanol	ND	ug/L	500	1		08/23/16 17:33	64-17-5	

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### ANALYTICAL RESULTS

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

Sample: <b>FB-081616</b>	Lab ID: <b>2041215005</b>	Collected: 08/16/16 12:21	Received: 08/16/16 12:48	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV Low Level</b>		Analytical Method: EPA 5030B/8260						
Ethylbenzene	ND	ug/L	0.50	1		08/23/16 17:33	100-41-4	
2-Hexanone	ND	ug/L	1.0	1		08/23/16 17:33	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		08/23/16 17:33	98-82-8	
Methyl acetate	ND	ug/L	2.0	1		08/23/16 17:33	79-20-9	
Methylene Chloride	ND	ug/L	0.50	1		08/23/16 17:33	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	1.0	1		08/23/16 17:33	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		08/23/16 17:33	1634-04-4	
Styrene	ND	ug/L	1.0	1		08/23/16 17:33	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		08/23/16 17:33	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		08/23/16 17:33	127-18-4	
Toluene	ND	ug/L	0.50	1		08/23/16 17:33	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		08/23/16 17:33	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		08/23/16 17:33	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		08/23/16 17:33	79-01-6	
Trichlorofluoromethane	ND	ug/L	0.50	1		08/23/16 17:33	75-69-4	
Vinyl chloride	ND	ug/L	0.50	1		08/23/16 17:33	75-01-4	
m&p-Xylene	ND	ug/L	2.0	1		08/23/16 17:33	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		08/23/16 17:33	95-47-6	
<b>Surrogates</b>								
Dibromofluoromethane (S)	91	%.	72-126	1		08/23/16 17:33	1868-53-7	
4-Bromofluorobenzene (S)	101	%.	68-124	1		08/23/16 17:33	460-00-4	
Toluene-d8 (S)	97	%.	79-119	1		08/23/16 17:33	2037-26-5	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

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QC Batch: 61273 Analysis Method: EPA 8015/8021  
 QC Batch Method: EPA 8015/8021 Analysis Description: 8021 W GCV BTEX , MTBE, GRO  
 Associated Lab Samples: 2041215001, 2041215002, 2041215003, 2041215004, 2041215005

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METHOD BLANK: 252988 Matrix: Water  
 Associated Lab Samples: 2041215001, 2041215002, 2041215003, 2041215004, 2041215005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	08/24/16 00:08	
4-Bromofluorobenzene (S)	%.	97	44-148	08/24/16 00:08	

LABORATORY CONTROL SAMPLE: 252989

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	395	79	61-136	
4-Bromofluorobenzene (S)	%.			98	44-148	
4-Bromofluorobenzene (S)	%.			101	44-148	

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2041215

QC Batch: 61283 Analysis Method: EPA 7470  
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury  
Associated Lab Samples: 2041215002, 2041215003, 2041215004

METHOD BLANK: 253024 Matrix: Water  
Associated Lab Samples: 2041215002, 2041215003, 2041215004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	08/18/16 12:39	

LABORATORY CONTROL SAMPLE: 253025

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	1.1	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 253026 253027

Parameter	Units	2041212003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	1	1	0.98	0.91	98	91	75-125	7	20	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

QC Batch: 61239 Analysis Method: EPA 6020  
 QC Batch Method: EPA 3010 Analysis Description: 6020 MET  
 Associated Lab Samples: 2041215002, 2041215003, 2041215004

METHOD BLANK: 252822 Matrix: Water

Associated Lab Samples: 2041215002, 2041215003, 2041215004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	08/23/16 11:36	
Chromium	mg/L	ND	0.0010	08/23/16 11:36	
Lead	mg/L	ND	0.0010	08/23/16 11:36	
Vanadium	mg/L	ND	0.0050	08/23/16 11:36	

LABORATORY CONTROL SAMPLE: 252823

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.02	0.022	108	83-115	
Chromium	mg/L	.02	0.020	102	85-115	
Lead	mg/L	.02	0.020	101	84-115	
Vanadium	mg/L	.02	0.021	106	81-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 252824 252825

Parameter	Units	2041183004		252825		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result						
Arsenic	mg/L	3.5 ug/L	.02	.02	0.023	0.024	100	103	80-120	3	20
Chromium	mg/L	3.0 ug/L	.02	.02	0.022	0.023	96	100	80-120	3	20
Lead	mg/L	0.0013	.02	.02	0.021	0.022	101	104	80-120	3	20
Vanadium	mg/L	6.3 ug/L	.02	.02	0.026	0.026	97	99	80-120	1	20

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2041215

QC Batch: 61312 Analysis Method: EPA 5030B/8260  
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Low Level  
Associated Lab Samples: 2041215001, 2041215002, 2041215003, 2041215004, 2041215005

METHOD BLANK: 253117 Matrix: Water  
Associated Lab Samples: 2041215001, 2041215002, 2041215003, 2041215004, 2041215005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	08/18/16 10:14	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	08/18/16 10:14	
1,1,2-Trichloroethane	ug/L	ND	0.50	08/18/16 10:14	
1,1-Dichloroethane	ug/L	ND	0.50	08/18/16 10:14	
1,1-Dichloroethene	ug/L	ND	0.50	08/18/16 10:14	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	08/18/16 10:14	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	08/18/16 10:14	
1,2-Dichloroethane	ug/L	ND	0.50	08/18/16 10:14	
1,2-Dichloropropane	ug/L	ND	0.50	08/18/16 10:14	
2-Butanone (MEK)	ug/L	ND	2.0	08/18/16 10:14	
2-Hexanone	ug/L	ND	1.0	08/18/16 10:14	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	08/18/16 10:14	
Acetone	ug/L	ND	4.0	08/18/16 10:14	
Benzene	ug/L	ND	0.50	08/18/16 10:14	
Bromodichloromethane	ug/L	ND	0.50	08/18/16 10:14	
Bromoform	ug/L	ND	0.50	08/18/16 10:14	
Bromomethane	ug/L	ND	0.50	08/18/16 10:14	
Carbon disulfide	ug/L	ND	1.0	08/18/16 10:14	
Carbon tetrachloride	ug/L	ND	0.50	08/18/16 10:14	
Chlorobenzene	ug/L	ND	0.50	08/18/16 10:14	
Chloroethane	ug/L	ND	0.50	08/18/16 10:14	
Chloroform	ug/L	ND	0.50	08/18/16 10:14	
Chloromethane	ug/L	ND	0.50	08/18/16 10:14	
cis-1,2-Dichloroethene	ug/L	ND	1.0	08/18/16 10:14	
cis-1,3-Dichloropropene	ug/L	ND	0.50	08/18/16 10:14	
Dibromochloromethane	ug/L	ND	0.50	08/18/16 10:14	
Dichlorodifluoromethane	ug/L	ND	1.0	08/18/16 10:14	
Ethanol	ug/L	ND	500	08/18/16 10:14	
Ethylbenzene	ug/L	ND	0.50	08/18/16 10:14	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	08/18/16 10:14	
m&p-Xylene	ug/L	ND	2.0	08/18/16 10:14	
Methyl acetate	ug/L	ND	2.0	08/18/16 10:14	
Methyl-tert-butyl ether	ug/L	ND	0.50	08/18/16 10:14	
Methylene Chloride	ug/L	0.68	0.50	08/18/16 10:14	Z3
o-Xylene	ug/L	ND	1.0	08/18/16 10:14	
Styrene	ug/L	ND	1.0	08/18/16 10:14	
tert-Butyl Alcohol	ug/L	ND	200	08/18/16 10:14	
Tetrachloroethene	ug/L	ND	0.50	08/18/16 10:14	
Toluene	ug/L	ND	0.50	08/18/16 10:14	
trans-1,2-Dichloroethene	ug/L	ND	0.50	08/18/16 10:14	
trans-1,3-Dichloropropene	ug/L	ND	0.50	08/18/16 10:14	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

METHOD BLANK: 253117

Matrix: Water

Associated Lab Samples: 2041215001, 2041215002, 2041215003, 2041215004, 2041215005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Trichloroethene	ug/L	ND	0.50	08/18/16 10:14	
Trichlorofluoromethane	ug/L	ND	0.50	08/18/16 10:14	
Vinyl chloride	ug/L	ND	0.50	08/18/16 10:14	
4-Bromofluorobenzene (S)	%	101	68-124	08/18/16 10:14	
Dibromofluoromethane (S)	%	117	72-126	08/18/16 10:14	
Toluene-d8 (S)	%	102	79-119	08/18/16 10:14	

METHOD BLANK: 253803

Matrix: Water

Associated Lab Samples: 2041215001, 2041215002, 2041215003, 2041215004, 2041215005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	0.50	08/23/16 13:25	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	08/23/16 13:25	
1,1,2-Trichloroethane	ug/L	ND	0.50	08/23/16 13:25	
1,1-Dichloroethane	ug/L	ND	0.50	08/23/16 13:25	
1,1-Dichloroethene	ug/L	ND	0.50	08/23/16 13:25	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	08/23/16 13:25	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	08/23/16 13:25	
1,2-Dichloroethane	ug/L	ND	0.50	08/23/16 13:25	
1,2-Dichloropropane	ug/L	ND	0.50	08/23/16 13:25	
2-Butanone (MEK)	ug/L	ND	2.0	08/23/16 13:25	
2-Hexanone	ug/L	ND	1.0	08/23/16 13:25	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	1.0	08/23/16 13:25	
Acetone	ug/L	ND	4.0	08/23/16 13:25	
Benzene	ug/L	ND	0.50	08/23/16 13:25	
Bromodichloromethane	ug/L	ND	0.50	08/23/16 13:25	
Bromoform	ug/L	ND	0.50	08/23/16 13:25	
Bromomethane	ug/L	ND	0.50	08/23/16 13:25	
Carbon disulfide	ug/L	ND	1.0	08/23/16 13:25	
Carbon tetrachloride	ug/L	ND	0.50	08/23/16 13:25	
Chlorobenzene	ug/L	ND	0.50	08/23/16 13:25	
Chloroethane	ug/L	ND	0.50	08/23/16 13:25	
Chloroform	ug/L	ND	0.50	08/23/16 13:25	
Chloromethane	ug/L	ND	0.50	08/23/16 13:25	
cis-1,2-Dichloroethene	ug/L	ND	1.0	08/23/16 13:25	
cis-1,3-Dichloropropene	ug/L	ND	0.50	08/23/16 13:25	
Dibromochloromethane	ug/L	ND	0.50	08/23/16 13:25	
Dichlorodifluoromethane	ug/L	ND	1.0	08/23/16 13:25	
Ethanol	ug/L	ND	500	08/23/16 13:25	
Ethylbenzene	ug/L	ND	0.50	08/23/16 13:25	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	08/23/16 13:25	
m&p-Xylene	ug/L	ND	2.0	08/23/16 13:25	
Methyl acetate	ug/L	ND	2.0	08/23/16 13:25	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

METHOD BLANK: 253803

Matrix: Water

Associated Lab Samples: 2041215001, 2041215002, 2041215003, 2041215004, 2041215005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Methyl-tert-butyl ether	ug/L	ND	0.50	08/23/16 13:25	
Methylene Chloride	ug/L	ND	0.50	08/23/16 13:25	
o-Xylene	ug/L	ND	1.0	08/23/16 13:25	
Styrene	ug/L	ND	1.0	08/23/16 13:25	
tert-Butyl Alcohol	ug/L	ND	200	08/23/16 13:25	
Tetrachloroethene	ug/L	ND	0.50	08/23/16 13:25	
Toluene	ug/L	ND	0.50	08/23/16 13:25	
trans-1,2-Dichloroethene	ug/L	ND	0.50	08/23/16 13:25	
trans-1,3-Dichloropropene	ug/L	ND	0.50	08/23/16 13:25	
Trichloroethene	ug/L	ND	0.50	08/23/16 13:25	
Trichlorofluoromethane	ug/L	ND	0.50	08/23/16 13:25	
Vinyl chloride	ug/L	ND	0.50	08/23/16 13:25	
4-Bromofluorobenzene (S)	%	101	68-124	08/23/16 13:25	
Dibromofluoromethane (S)	%	96	72-126	08/23/16 13:25	
Toluene-d8 (S)	%	99	79-119	08/23/16 13:25	

LABORATORY CONTROL SAMPLE: 253118

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	62.2	124	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	50.6	101	15-179	
1,1,2-Trichloroethane	ug/L	50	54.1	108	58-144	
1,1-Dichloroethane	ug/L	50	57.2	114	63-129	
1,1-Dichloroethene	ug/L	50	59.4	119	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	50.5	101	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	55.6	111	52-161	
1,2-Dichloroethane	ug/L	50	54.8	110	57-148	
1,2-Dichloropropane	ug/L	50	51.7	103	66-128	
2-Butanone (MEK)	ug/L	50	52.2	104	32-183	
2-Hexanone	ug/L	50	48.1	96	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	48.0	96	26-171	
Acetone	ug/L	50	53.0	106	22-165	
Benzene	ug/L	50	55.7	111	62-131	
Bromodichloromethane	ug/L	50	51.1	102	69-132	
Bromoform	ug/L	50	51.9	104	35-166	
Bromomethane	ug/L	50	67.3	135	34-158	
Carbon disulfide	ug/L	50	63.1	126	31-128	
Carbon tetrachloride	ug/L	50	56.5	113	54-144	
Chlorobenzene	ug/L	50	53.7	107	70-127	
Chloroethane	ug/L	50	61.1	122	17-195	
Chloroform	ug/L	50	55.1	110	73-134	
Chloromethane	ug/L	50	52.2	104	17-153	
cis-1,2-Dichloroethene	ug/L	50	57.1	114	68-129	
cis-1,3-Dichloropropene	ug/L	50	54.2	108	72-138	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

LABORATORY CONTROL SAMPLE: 253118

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dibromochloromethane	ug/L	50	49.3	99	49-146	
Dichlorodifluoromethane	ug/L	50	47.2	94	10-179	
Ethylbenzene	ug/L	50	53.7	107	66-126	
Isopropylbenzene (Cumene)	ug/L	50	51.7	103	51-138	
m&p-Xylene	ug/L	100	107	107	65-129	
Methyl acetate	ug/L	50	55.9	112	20-142	
Methyl-tert-butyl ether	ug/L	50	57.0	114	37-166	
Methylene Chloride	ug/L	50	56.9	114	46-168	
o-Xylene	ug/L	50	52.8	106	65-124	
Styrene	ug/L	50	53.7	107	72-133	
Tetrachloroethene	ug/L	50	55.2	110	46-157	
Toluene	ug/L	50	55.6	111	69-126	
trans-1,2-Dichloroethene	ug/L	50	58.5	117	60-129	
trans-1,3-Dichloropropene	ug/L	50	55.1	110	59-149	
Trichloroethene	ug/L	50	55.5	111	67-132	
Trichlorofluoromethane	ug/L	50	85.6	171	39-171	
Vinyl chloride	ug/L	50	51.9	104	27-149	
4-Bromofluorobenzene (S)	%			99	68-124	
Dibromofluoromethane (S)	%			118	72-126	
Toluene-d8 (S)	%			103	79-119	

LABORATORY CONTROL SAMPLE: 253804

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	48.7	97	62-131	
1,1,2,2-Tetrachloroethane	ug/L	50	48.3	97	15-179	
1,1,2-Trichloroethane	ug/L	50	47.3	95	58-144	
1,1-Dichloroethane	ug/L	50	46.6	93	63-129	
1,1-Dichloroethene	ug/L	50	47.4	95	51-139	
1,2-Dibromo-3-chloropropane	ug/L	50	47.4	95	21-160	
1,2-Dibromoethane (EDB)	ug/L	50	48.4	97	52-161	
1,2-Dichloroethane	ug/L	50	49.1	98	57-148	
1,2-Dichloropropane	ug/L	50	48.4	97	66-128	
2-Butanone (MEK)	ug/L	50	44.8	90	32-183	
2-Hexanone	ug/L	50	48.8	98	36-170	
4-Methyl-2-pentanone (MIBK)	ug/L	50	47.6	95	26-171	
Acetone	ug/L	50	44.0	88	22-165	
Benzene	ug/L	50	51.8	104	62-131	
Bromodichloromethane	ug/L	50	45.4	91	69-132	
Bromoform	ug/L	50	45.8	92	35-166	
Bromomethane	ug/L	50	48.8	98	34-158	
Carbon disulfide	ug/L	50	52.5	105	31-128	
Carbon tetrachloride	ug/L	50	50.6	101	54-144	
Chlorobenzene	ug/L	50	48.8	98	70-127	
Chloroethane	ug/L	50	40.8	82	17-195	

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

LABORATORY CONTROL SAMPLE: 253804

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloroform	ug/L	50	43.4	87	73-134	
Chloromethane	ug/L	50	42.8	86	17-153	
cis-1,2-Dichloroethene	ug/L	50	45.0	90	68-129	
cis-1,3-Dichloropropene	ug/L	50	49.6	99	72-138	
Dibromochloromethane	ug/L	50	44.9	90	49-146	
Dichlorodifluoromethane	ug/L	50	41.5	83	10-179	
Ethylbenzene	ug/L	50	48.8	98	66-126	
Isopropylbenzene (Cumene)	ug/L	50	52.1	104	51-138	
m&p-Xylene	ug/L	100	102	102	65-129	
Methyl acetate	ug/L	50	44.0	88	20-142	
Methyl-tert-butyl ether	ug/L	50	44.7	89	37-166	
Methylene Chloride	ug/L	50	47.4	95	46-168	
o-Xylene	ug/L	50	49.2	98	65-124	
Styrene	ug/L	50	50.4	101	72-133	
Tetrachloroethene	ug/L	50	49.9	100	46-157	
Toluene	ug/L	50	50.5	101	69-126	
trans-1,2-Dichloroethene	ug/L	50	45.4	91	60-129	
trans-1,3-Dichloropropene	ug/L	50	49.8	100	59-149	
Trichloroethene	ug/L	50	49.7	99	67-132	
Trichlorofluoromethane	ug/L	50	56.5	113	39-171	
Vinyl chloride	ug/L	50	41.3	83	27-149	
4-Bromofluorobenzene (S)	%			100	68-124	
Dibromofluoromethane (S)	%			94	72-126	
Toluene-d8 (S)	%			100	79-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 253119 253120

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2041212003 Result	Spike Conc.	MSD Spike Conc.	MS Result							MSD Result
1,1,1-Trichloroethane	ug/L	ND	50	50	42.5	88.4	85	177	54-137	70	20	M1,R1
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	31.3	66.6	63	133	15-187	72	20	R1
1,1,2-Trichloroethane	ug/L	ND	50	50	32.5	69.6	65	139	59-148	73	20	R1
1,1-Dichloroethane	ug/L	ND	50	50	38.4	80.8	77	162	59-133	71	20	M1,R1
1,1-Dichloroethene	ug/L	ND	50	50	42.2	85.3	84	171	44-146	68	20	M1,R1
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	30.8	67.8	62	136	23-166	75	20	R1
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	33.6	71.6	67	143	55-166	72	20	R1
1,2-Dichloroethane	ug/L	ND	50	50	33.4	70.4	67	141	56-154	71	20	R1
1,2-Dichloropropane	ug/L	ND	50	50	32.6	68.7	65	137	62-135	71	20	M1,R1
2-Butanone (MEK)	ug/L	ND	50	50	32.6	69.1	65	138	20-205	72	20	R1
2-Hexanone	ug/L	ND	50	50	29.0	62.7	58	125	25-189	74	20	R1
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	50	28.9	62.5	58	125	23-184	74	20	R1
Acetone	ug/L	15.7	50	50	51.2	84.6	71	138	11-217	49	20	R1
Benzene	ug/L	ND	50	50	37.3	75.5	75	151	52-141	68	20	M1,R1
Bromodichloromethane	ug/L	ND	50	50	31.8	66.1	64	132	70-134	70	20	M1,R1

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2041215

Parameter	Units	253119		253120		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2041212003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Bromoform	ug/L	ND	50	50	30.8	67.1	62	134	37-171	74	20 R1
Bromomethane	ug/L	ND	50	50	29.0	99.8	58	200	34-155	110	20 M1,R1
Carbon disulfide	ug/L	ND	50	50	48.4	93.8	96	187	28-130	64	20 M1,R1
Carbon tetrachloride	ug/L	ND	50	50	38.7	78.1	77	156	48-146	67	20 M1,R1
Chlorobenzene	ug/L	ND	50	50	33.7	71.0	67	142	67-129	71	20 M1,R1
Chloroethane	ug/L	ND	50	50	28.0	91.0	56	182	12-192	106	20 R1
Chloroform	ug/L	ND	50	50	36.2	75.6	72	151	66-143	71	20 M1,R1
Chloromethane	ug/L	0.63	50	50	23.8	77.3	46	153	14-155	106	20 R1
cis-1,2-Dichloroethene	ug/L	ND	50	50	38.0	79.1	76	158	56-141	70	20 M1,R1
cis-1,3-Dichloropropene	ug/L	ND	50	50	33.5	69.9	67	140	70-139	70	20 M1,R1
Dibromochloromethane	ug/L	ND	50	50	30.1	64.5	60	129	50-150	73	20 R1
Dichlorodifluoromethane	ug/L	ND	50	50	21.9	70.0	44	140	10-173	105	20 R1
Ethylbenzene	ug/L	ND	50	50	34.2	71.8	68	144	57-135	71	20 M1,R1
Isopropylbenzene (Cumene)	ug/L	ND	50	50	33.7	72.4	67	145	40-146	73	20 R1
m&p-Xylene	ug/L	ND	100	100	68.1	143	68	143	56-136	71	20 M1,R1
Methyl acetate	ug/L	ND	50	50	35.3	75.3	71	151	10-142	72	20 M1,R1
Methyl-tert-butyl ether	ug/L	ND	50	50	35.0	75.4	70	151	35-176	73	20 R1
Methylene Chloride	ug/L	ND	50	50	37.3	77.2	75	154	45-166	70	20 R1
o-Xylene	ug/L	ND	50	50	32.7	68.4	65	137	57-133	71	20 M1,R1
Styrene	ug/L	ND	50	50	26.4	63.3	53	127	58-144	82	20 M1,R1
Tetrachloroethene	ug/L	ND	50	50	36.3	75.2	73	150	48-143	70	20 M1,R1
Toluene	ug/L	ND	50	50	36.2	74.7	72	149	59-136	69	20 M1,R1
trans-1,2-Dichloroethene	ug/L	ND	50	50	41.0	82.5	82	165	57-132	67	20 M1,R1
trans-1,3-Dichloropropene	ug/L	ND	50	50	33.5	71.7	67	143	59-154	73	20 R1
Trichloroethene	ug/L	ND	50	50	37.3	77.0	75	154	58-140	69	20 M1,R1
Trichlorofluoromethane	ug/L	ND	50	50	37.3	127	75	253	24-175	109	20 M1,R1
Vinyl chloride	ug/L	0.55	50	50	24.7	77.7	48	154	21-150	103	20 M1,R1
4-Bromofluorobenzene (S)	%.						102	102	68-124		
Dibromofluoromethane (S)	%.						118	121	72-126		
Toluene-d8 (S)	%.						103	103	79-119		

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**QUALITY CONTROL DATA**

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2041215

QC Batch: 61278 Analysis Method: EPA 8015B Modified  
QC Batch Method: EPA 3535 Analysis Description: EPA 8015 ORO  
Associated Lab Samples: 2041215002, 2041215003, 2041215004

METHOD BLANK: 253002 Matrix: Water  
Associated Lab Samples: 2041215002, 2041215003, 2041215004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	ND	0.25	08/26/16 12:58	
Oil Range Organics (>C28-C40)	mg/L	ND	0.50	08/26/16 12:58	
n-Pentacosane (S)	%	167	16-137	08/26/16 12:58	S3
o-Terphenyl (S)	%	55	10-121	08/26/16 12:58	

LABORATORY CONTROL SAMPLE: 253003

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	mg/L	.4	.22J	55	10-115	
Oil Range Organics (>C28-C40)	mg/L		ND			
n-Pentacosane (S)	%			99	16-137	
o-Terphenyl (S)	%			94	10-121	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

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### QUALITY CONTROL DATA

Project: PUMA TERMINAL MW SAMPLING

QC Project No.: 2041215

QC Batch: 61383 Analysis Method: EPA 8270 by SIM  
QC Batch Method: EPA 3510 Analysis Description: 8270 Water by SIM MSSV  
Associated Lab Samples: 2041215002, 2041215003, 2041215004

METHOD BLANK: 253461 Matrix: Water

Associated Lab Samples: 2041215002, 2041215003, 2041215004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/L	ND	0.00010	08/23/16 10:42	
Anthracene	mg/L	ND	0.00010	08/23/16 10:42	
Benzo(a)anthracene	mg/L	ND	0.00010	08/23/16 10:42	
Benzo(a)pyrene	mg/L	ND	0.00010	08/23/16 10:42	
Benzo(b)fluoranthene	mg/L	ND	0.00010	08/23/16 10:42	
Benzo(g,h,i)perylene	mg/L	ND	0.00010	08/23/16 10:42	
Benzo(k)fluoranthene	mg/L	ND	0.00010	08/23/16 10:42	
Chrysene	mg/L	ND	0.00010	08/23/16 10:42	
Fluoranthene	mg/L	ND	0.00010	08/23/16 10:42	
Fluorene	mg/L	ND	0.00010	08/23/16 10:42	
Naphthalene	mg/L	ND	0.00010	08/23/16 10:42	
Phenanthrene	mg/L	ND	0.00010	08/23/16 10:42	
Pyrene	mg/L	ND	0.00010	08/23/16 10:42	
2-Fluorobiphenyl (S)	%	79	25-150	08/23/16 10:42	
Terphenyl-d14 (S)	%	82	25-150	08/23/16 10:42	

LABORATORY CONTROL SAMPLE: 253462

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/L	.004	0.0039	98	35-150	
Anthracene	mg/L	.004	0.0041	102	35-150	
Benzo(a)anthracene	mg/L	.004	0.0035	87	35-150	
Benzo(a)pyrene	mg/L	.004	0.0036	89	35-150	
Benzo(b)fluoranthene	mg/L	.004	0.0037	94	35-150	
Benzo(g,h,i)perylene	mg/L	.004	0.0036	89	35-150	
Benzo(k)fluoranthene	mg/L	.004	0.0041	102	35-150	
Chrysene	mg/L	.004	0.0041	102	35-150	
Fluoranthene	mg/L	.004	0.0038	94	35-150	
Fluorene	mg/L	.004	0.0036	91	35-150	
Naphthalene	mg/L	.004	0.0038	96	35-150	
Phenanthrene	mg/L	.004	0.0038	95	35-150	
Pyrene	mg/L	.004	0.0038	94	35-150	
2-Fluorobiphenyl (S)	%			89	25-150	
Terphenyl-d14 (S)	%			91	25-150	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: PUMA TERMINAL MW SAMPLING  
Pace Project No.: 2041215

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.  
 ND - Not Detected at or above adjusted reporting limit.  
 J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.  
 MDL - Adjusted Method Detection Limit.  
 PQL - Practical Quantitation Limit.  
 RL - Reporting Limit.  
 S - Surrogate  
 1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.  
 Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.  
 LCS(D) - Laboratory Control Sample (Duplicate)  
 MS(D) - Matrix Spike (Duplicate)  
 DUP - Sample Duplicate  
 RPD - Relative Percent Difference  
 NC - Not Calculable.  
 SG - Silica Gel - Clean-Up  
 U - Indicates the compound was analyzed for, but not detected.  
 N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.  
 Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.  
 TNI - The Nelac Institute

### LABORATORIES

PASI-N Pace Analytical Services - New Orleans

### BATCH QUALIFIERS

Batch: 61273  
 [M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.  
 Batch: 61558  
 [M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.  
 Batch: 61827  
 [M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.  
 R1 RPD value was outside control limits.  
 S3 Surrogate recovery exceeded laboratory control limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.  
 Z3 Methylene chloride is a common laboratory contaminant. Results for this analyte should be considered estimated unless the amount found in the sample is 3 to 5 times higher than that found in the method blank.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PUMA TERMINAL MW SAMPLING

Pace Project No.: 2041215

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2041215002	EB-081616	EPA 3535	61278	EPA 8015B Modified	61827
2041215003	MW-17B	EPA 3535	61278	EPA 8015B Modified	61827
2041215004	MW-110B2	EPA 3535	61278	EPA 8015B Modified	61827
2041215001	TB-081616	EPA 8015/8021	61273		
2041215002	EB-081616	EPA 8015/8021	61273		
2041215003	MW-17B	EPA 8015/8021	61273		
2041215004	MW-110B2	EPA 8015/8021	61273		
2041215005	FB-081616	EPA 8015/8021	61273		
2041215002	EB-081616	EPA 3010	61239	EPA 6020	61243
2041215003	MW-17B	EPA 3010	61239	EPA 6020	61243
2041215004	MW-110B2	EPA 3010	61239	EPA 6020	61243
2041215002	EB-081616	EPA 7470	61283	EPA 7470	61284
2041215003	MW-17B	EPA 7470	61283	EPA 7470	61284
2041215004	MW-110B2	EPA 7470	61283	EPA 7470	61284
2041215002	EB-081616	EPA 3510	61383	EPA 8270 by SIM	61558
2041215003	MW-17B	EPA 3510	61383	EPA 8270 by SIM	61558
2041215004	MW-110B2	EPA 3510	61383	EPA 8270 by SIM	61558
2041215001	TB-081616	EPA 5030B/8260	61312		
2041215002	EB-081616	EPA 5030B/8260	61312		
2041215003	MW-17B	EPA 5030B/8260	61312		
2041215004	MW-110B2	EPA 5030B/8260	61312		
2041215005	FB-081616	EPA 5030B/8260	61312		

### REPORT OF LABORATORY ANALYSIS

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2041215

Page: 1 of 1  
**1627371**

**Section A**

Required Client Information:

Company: Aracelis / GBL Report To: E. Fraiz Calderon  
 Address: Citivilen Plaza 15to Copy To:  
401 Guaynabo P.R. 00968  
 Email To: E.Fraiz Calderon @ pacelabs.com  
 Phone: (877-977-4000) Fax: Project Name: Final Terminal MW Sampling  
 Requested Due Date/TAT: STC Project Number:

**Section C**

Invoice Information:

Attention:  
 Company Name:  
 Address:  
 Pace Quote Reference:  
 Pace Project Manager: J. Redondo  
 Pace Profile #:

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER \_\_\_\_\_  
 Site Location: P.R.  
 STATE: P.R.

ITEM #	SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analysis Test ↓	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.									
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Methanol	Other													
					DATE	TIME	DATE	TIME																							
1	TB-081616		WT	G			08/16/16	LAB	4																						
2	EB-081616		WT	G			08/16/16	0750	9	4																					
3	MW-17B		WT	G			08/16/16	0928	9	4																					
4	MW-110B2		WT	G			08/16/16	1216	9	4																					
5	FB-081616		WT	G			08/16/16	1221	4																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Level: <u>IV</u>	<u>Aracelis / Aracelis</u>	<u>08/16/16</u>	<u>1248</u>	<u>Aracelis - Pacelabs</u>	<u>8/16/16</u>	<u>1248</u>	<u>Y</u>
	<u>Aracelis - Pacelabs</u>	<u>8/16/16</u>	<u>17:10</u>	<u>Aracelis - Pacelabs</u>	<u>8/16/16</u>	<u>17:10</u>	<u>Y</u>
	<u>Aracelis - Pacelabs</u>	<u>8/17/16</u>	<u>930</u>	<u>Aracelis - Pacelabs</u>	<u>8/17/16</u>	<u>930</u>	<u>Y</u>

**ORIGINAL**

SAMPLER NAME AND SIGNATURE: Aracelis Calderon  
 PRINT Name of SAMPLER: Aracelis Calderon  
 SIGNATURE of SAMPLER: [Signature]  
 DATE Signed (MM/DD/YY): 08/16/16

Temp in °C: \_\_\_\_\_  
 Received on Ice (Y/N): \_\_\_\_\_  
 Custody Sealed Cooler (Y/N): \_\_\_\_\_  
 Samples Intact (Y/N): \_\_\_\_\_

35 of 1331

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Urb. Jardines de Guaynabo  
Calle Mrginal Blq A-10  
Guaynabo, PR 00969

Sample Condition Upon Receipt

WO#: 2041215

PM: JAR1 Due Date: 08/30/16  
CLIENT: 98-ARCADISPR

Project #

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 4  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice:  Wet  Blue  None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: \_\_\_\_\_

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	1	
Chain of Custody Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2	
Chain of Custody Complete:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8	
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10	
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11	
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	12	
All containers preservation checked found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13	If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14	
Trip Blank Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15	

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_



1000 Riverbend Blvd., Suite F  
St. Rose, LA 70087

### Sample Condition Upon Receipt

Project #: **20 41215**

Courier:  Pace Courier  Hired Courier  Fed X  UPS  DHL  USPS  Customer  Other

Custody Seal on Cooler/Box Present: [see COC]

Custody Seals intact:  Yes  No

Thermometer Used:  Therm Fisher IR 5  
 Therm Fisher IR 6  
 Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 08-17-16 ms

Temp must be measured from Temperature blank when present

Comments:

Temperature Blank Present?"	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	1
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2
Chain of Custody Complete:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7 <i>See comment below</i>
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8
Filtered vol. Rec. for Diss. tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10
All containers received within manufacture's precautionary and/or expiration dates.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13 If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	15

Client Notification/ Resolution:

*Limited Volume - TPH-DRO/PALH*

Person Contacted:

Date/Time:

Comments/ Resolution:

*Received 1x 500 Amber for 002 broken in shipment.*



# APPENDIX E

## Calibration Logs





# INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, LLC.

92 North Main St, Building 20  
Windsor, NJ 08561  
Toll-free: (800) 301-9663

## Pine Environmental Services, Inc.

Instrument ID R8264  
Description MSA Sirius  
Calibrated 5/24/2016 4:53:28PM

Manufacturer MSA	State Certified
Model Number Sirius	Status Pass
Serial Number/ Lot A3-8050	Temp °C 26.6
Number	
Location New Jersey	Humidity % 40
Department	

### Calibration Specifications

Calibration Specifications							
Group # 1				Range Acc %		3.0000	
Group Name Carbon Monoxide				Reading Acc %		0.0000	
Stated Accy Pct of Range				Plus/Minus		0.00	
<u>Nom In Val / In Val</u>	<u>In Type</u>	<u>Out Val</u>	<u>Out Type</u>	<u>Fnd As</u>	<u>Lft As</u>	<u>Dev%</u>	<u>Pass/Fail</u>
60.00 / 60.00	PPM	60.00	PPM	60.00	60.00	0.00%	Pass
Group # 2				Range Acc %		3.0000	
Group Name Hydrogen Sulfide				Reading Acc %		0.0000	
Stated Accy Pct of Range				Plus/Minus		0.00	
<u>Nom In Val / In Val</u>	<u>In Type</u>	<u>Out Val</u>	<u>Out Type</u>	<u>Fnd As</u>	<u>Lft As</u>	<u>Dev%</u>	<u>Pass/Fail</u>
20.00 / 20.00	PPM	20.00	PPM	20.00	20.00	0.00%	Pass
Group # 3				Range Acc %		3.0000	
Group Name Pentane				Reading Acc %		0.0000	
Stated Accy Pct of Range				Plus/Minus		0.00	
<u>Nom In Val / In Val</u>	<u>In Type</u>	<u>Out Val</u>	<u>Out Type</u>	<u>Fnd As</u>	<u>Lft As</u>	<u>Dev%</u>	<u>Pass/Fail</u>
58.00 / 58.00	%LEL	58.00	%LEL	58.00	58.00	0.00%	Pass
Group # 4				Range Acc %		3.0000	
Group Name Oxygen				Reading Acc %		0.0000	
Stated Accy Pct of Range				Plus/Minus		0.00	
<u>Nom In Val / In Val</u>	<u>In Type</u>	<u>Out Val</u>	<u>Out Type</u>	<u>Fnd As</u>	<u>Lft As</u>	<u>Dev%</u>	<u>Pass/Fail</u>
15.00 / 15.00	%Volume	15.00	%Volume	15.00	15.00	0.00%	Pass
Group # 5				Range Acc %		0.0000	
Group Name Isobutlyene				Reading Acc %		3.0000	
Stated Accy Pct of Reading				Plus/Minus		0.00	
<u>Nom In Val / In Val</u>	<u>In Type</u>	<u>Out Val</u>	<u>Out Type</u>	<u>Fnd As</u>	<u>Lft As</u>	<u>Dev%</u>	<u>Pass/Fail</u>
100.00 / 100.00	PPM	100.00	PPM	99.50	99.90	-0.10%	Pass



## INSTRUMENT CALIBRATION REPORT

**Pine Environmental Services, LLC.**

92 North Main St, Building 20  
Windsor, NJ 08561  
Toll-free: (800) 301-9663

### **Pine Environmental Services, Inc.**

**Instrument ID** R8264  
**Description** MSA Sirius  
**Calibrated** 5/24/2016 4:53:28PM

<u>Test Instruments Used During the Calibration</u>					<u>(As Of Cal Entry Date)</u>	
<u>Test Standard ID</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Model Number</u>	<u>Serial Number / Lot Number</u>	<u>Last Cal Date / Opened Date</u>	<u>Next Cal Date / Expiration Date</u>
NJ ISO 100 - 0329FF13	NJ ISO 100 PPM 0329FF13	American Gas Group	GP11012	0329FF13		5/1/2017
NJ MSA 1746792	NJ MSA 1267561	Calgaz	GP12098	1746792	8/6/2015	10/31/2016

#### Notes about this calibration

**Calibration Result** Calibration Successful  
**Who Calibrated** Cesar Sanchez

All instruments are calibrated by Pine Environmental Services, LLC. according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

**Notify Pine Environmental Services, LLC. of any defect within 24 hours of receipt of equipment**  
**Please call 866-960-7463 for Technical Assistance**



# INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, LLC.

92 North Main St, Building 20  
Windsor, NJ 08561  
Toll-free: (800) 301-9663

## Pine Environmental Services, Inc.

Instrument ID 33073  
Description MSA Sirius  
Calibrated 5/25/2016 4:03:37PM

Manufacturer MSA  
Model Number Sirius  
Serial Number/ Lot A3-6786  
Number  
Location New Jersey  
Department

State Certified  
Status Pass  
Temp °C 29.5  
Humidity % 26

### Calibration Specifications

				Range Acc %			
<b>Group # 1</b>				3.0000			
<b>Group Name</b> Carbon Monoxide				<b>Reading Acc %</b> 0.0000			
<b>Stated Accy</b> Pct of Range				<b>Plus/Minus</b> 0.00			
<u>Nom In Val / In Val</u>	<u>In Type</u>	<u>Out Val</u>	<u>Out Type</u>	<u>Fnd As</u>	<u>Lft As</u>	<u>Dev%</u>	<u>Pass/Fail</u>
60.00 / 60.00	PPM	60.00	PPM	60.00	60.00	0.00%	Pass
<b>Group # 2</b>				Range Acc % 3.0000			
<b>Group Name</b> Hydrogen Sulfide				Reading Acc % 0.0000			
<b>Stated Accy</b> Pct of Range				Plus/Minus 0.00			
<u>Nom In Val / In Val</u>	<u>In Type</u>	<u>Out Val</u>	<u>Out Type</u>	<u>Fnd As</u>	<u>Lft As</u>	<u>Dev%</u>	<u>Pass/Fail</u>
20.00 / 20.00	PPM	20.00	PPM	20.00	20.00	0.00%	Pass
<b>Group # 3</b>				Range Acc % 3.0000			
<b>Group Name</b> Pentane				Reading Acc % 0.0000			
<b>Stated Accy</b> Pct of Range				Plus/Minus 0.00			
<u>Nom In Val / In Val</u>	<u>In Type</u>	<u>Out Val</u>	<u>Out Type</u>	<u>Fnd As</u>	<u>Lft As</u>	<u>Dev%</u>	<u>Pass/Fail</u>
58.00 / 58.00	%LEL	58.00	%LEL	58.00	58.00	0.00%	Pass
<b>Group # 4</b>				Range Acc % 3.0000			
<b>Group Name</b> Oxygen				Reading Acc % 0.0000			
<b>Stated Accy</b> Pct of Range				Plus/Minus 0.00			
<u>Nom In Val / In Val</u>	<u>In Type</u>	<u>Out Val</u>	<u>Out Type</u>	<u>Fnd As</u>	<u>Lft As</u>	<u>Dev%</u>	<u>Pass/Fail</u>
15.00 / 15.00	%Volume	15.00	%Volume	15.00	15.00	0.00%	Pass
<b>Group # 5</b>				Range Acc % 0.0000			
<b>Group Name</b> Isobutylene				Reading Acc % 3.0000			
<b>Stated Accy</b> Pct of Reading				Plus/Minus 0.00			
<u>Nom In Val / In Val</u>	<u>In Type</u>	<u>Out Val</u>	<u>Out Type</u>	<u>Fnd As</u>	<u>Lft As</u>	<u>Dev%</u>	<u>Pass/Fail</u>
100.00 / 100.00	PPM	100.00	PPM	100.00	101.00	1.00%	Pass

# INSTRUMENT CALIBRATION REPORT



**Pine Environmental Services, LLC.**

92 North Main St, Building 20

Windsor, NJ 08561

Toll-free: (800) 301-9663

## **Pine Environmental Services, Inc.**

**Instrument ID** 33073  
**Description** MSA Sirius  
**Calibrated** 5/25/2016 4:03:37PM

<u>Test Instruments Used During the Calibration</u>				<u>(As Of Cal Entry Date)</u>		
<u>Test Standard ID</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Model Number</u>	<u>Serial Number / Lot Number</u>	<u>Last Cal Date/ Opened Date</u>	<u>Next Cal Date / Expiration Date</u>
NJ ISO 100 0321FH11	Isobutylene 100ppm	American Gas Group		0321FH11		6/30/2015
NJ MSA 1746792	NJ MSA 1267561	Calgaz	GP12098	1746792	8/6/2015	10/31/2016

### Notes about this calibration

**Calibration Result** Calibration Successful

**Who Calibrated** Silas Saye

All instruments are calibrated by Pine Environmental Services, LLC. according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

**Notify Pine Environmental Services, LLC. of any defect within 24 hours of receipt of equipment  
Please call 866-960-7463 for Technical Assistance**

Project/Site Name: BAYAMON PUMA  
 Project Number: 63767

SERIAL #: A3-6786 PINE INSTRUMENT #: 033073

PARAMETER: (Check as applicable)

% LEL (Explosivity)  % O<sub>2</sub>  H<sub>2</sub>S ppm  CO ppm  VOC ppm  Other (Specify) \_\_\_\_\_

STANDARDS:

STD NUMBER	TYPE	STD VALUE	VENDOR/LOT#	DATE STD RECEIVED	EXPIRATION DATE
Standard 1	LEL Pentane Stimulant	58%	P.R 112106	5-31-2016	Nov-2017
Standard 2	Oxygen	15%			
Standard 3	H <sub>2</sub> S	20 ppm			
Standard 4	CO	60 ppm			
Standard 5	Isobutylene (VOC)	100 ppm			
			DAQ-248-100-15	5-31-2016	03-19-2020

CALIBRATION/BUMP TEST DATA:

DATE (yy/mm/dd)	TIME (24 hr.)	STD #	INSTRUMENT RESPONSE (BUMP TEST)	% DEV	INSTRUMENT CALIBRATED (YES, NO) <sup>1</sup>	INST. RESPONSE AFTER CAL. (BUMP TEST)	SAMPLER INITIALS	COMMENTS
16-05-31	1620	1	60	±10%	No	B.T. PASS	F.C	
		2	14.6		No	B.T. PASS		
		3	20		No	B.T. PASS		
		4	60		No	B.T. PASS		
		5	100.0	±2%	No	B.T. PASS		

16-06-1	0800	1	55	±10%	No	B.T. PASS	F.C.	
		2	14.7		No	B.T. PASS		
		3	18		No	B.T. PASS		
		4	54		No	B.T. PASS		
		5	103	±2%	Yes	100		

16-06-2	0810	1	60	±10%	No	B.T. PASS	F.C	
		2	14.5		No	B.T. PASS		
		3	20		No	B.T. PASS		
		4	60		No	B.T. PASS		
		5	104.4	±2%	Yes	100		

<sup>1</sup> Instrument needs calibration if it fails the bump test (percent deviation exceeds acceptable range) or at least monthly.

**ARCADIS** PUERTO RICO Field Instrument Calibration/Bump Test Records  
 Infrastructure environment building. Air Quality Instruments: MSA Sirius

Project/Site Name: BAYAMON PUMA

Project Number: 63767

SERIAL #: A3-6786 PINE INSTRUMENT #: 033073

PARAMETER: (Check as applicable)

% LEL (Explosivity)  % O<sub>2</sub>  H<sub>2</sub>S ppm  CO ppm  VOC ppm  Other (Specify) \_\_\_\_\_

**STANDARDS:**

STD NUMBER	TYPE	STD VALUE	VENDOR/LOT#	DATE STD RECEIVED	EXPIRATION DATE
Standard 1	LEL Pentane Stimulant	58%	P.E. 112106 DAQ-248-100-15	5-31-2016	Nov-2017
Standard 2	Oxygen	15%			
Standard 3	H <sub>2</sub> S	20 ppm			
Standard 4	CO	60 ppm			
Standard 5	Isobutylene (VOC)	100 ppm			

**CALIBRATION/BUMP TEST DATA:**

DATE (yy/mm/dd)	TIME (24 hr.)	STD #	INSTRUMENT RESPONSE (BUMP TEST)	% DEV	INSTRUMENT CALIBRATED (YES, NO) <sup>1</sup>	INST. RESPONSE AFTER CAL. (BUMP TEST)	SAMPLER INITIALS	COMMENTS
16-06-03	0658	1	58	±10%	No	B.T. PASS	F.C.	
		2	14.6		No	B.T. PASS		
		3	20		No	B.T. PASS		
		4	60		No	B.T. PASS		
		5	94.4	±2%	Yes	100.0		

16-06-06	0730	1	58	±10%	No	B.T. PASS	F.C.	
		2	14.6		No	B.T. PASS		
		3	20		No	B.T. PASS		
		4	60		No	B.T. PASS		
		5	100.0	±2%	No	B.T. PASS		

16-06-07	1010	1	54	±10%	No	B.T. PASS	F.C.	
		2	14.7		No	B.T. PASS	F.C.	
		3	20		No	B.T. PASS	F.C.	
		4	60		No	B.T. PASS	F.C.	
		5	100.0	±2%	No	B.T. PASS	F.C.	

<sup>1</sup> Instrument needs calibration if it fails the bump test (percent deviation exceeds acceptable range) or at least monthly.

Field Instrument Calibration Records  
Air Quality Instruments: MSA Sirius

Project/Site Name: BAYAMON PUMA

Project Number: 63767

SERIAL #: A3-6786

PINE INSTRUMENT #: 033073

PARAMETER: (Check as applicable)

% LEL (Explosivity)     % O<sub>2</sub>     H<sub>2</sub>S ppm     CO ppm     VOC ppm     Other (Specify) \_\_\_\_\_

STANDARDS:

STD NUMBER	TYPE	STD VALUE	VENDOR/LOT#	DATE STD RECEIVED	EXPIRATION DATE
Standard 1	LEL Pentane Stimulant	58%	P.E. 112106 DAQ-248-100-15	5-31-2016	Nov-2017
Standard 2	Oxygen	15%			
Standard 3	H <sub>2</sub> S	20 ppm			
Standard 4	CO	60 ppm			
Standard 5	Isobutylene (VOC)	100 ppm			

CALIBRATION DATA:

**Important Note!** Instrument needs calibration if it fails the bump test (percent deviation exceeds acceptable range) or at least monthly.

DATE (mm/dd/yy)	TIME (24 hr.)	ST D #	INST. RESPONSE (BUMP TEST)	% DEV (FROM CYLINDER LABEL)	INST. CALIBRATION (PASSED, FAILED)	INST. RESPONSE AFTER CAL. (BUMP TEST)	SAMPLER INITIALS	COMMENTS
06-10-16	0700	1	51	±10%	PASSED	58	F.C.	
		2	14.6			14.5		
		3	20			20		
		4	54			60		
		5	113.6	±2%	PASSED	100.0		

06-15-16	0705	1	58	±10%	PASSED	B.T.P.	F.C.	A3-6686 R8264
		2	14.7			B.T.P.		
		3	20			B.T.P.		
		4	60			B.T.P.		
		5	100.0	±2%	PASSED	B.T.P.		)

06-16-16	0615	1	55	±10%	PASSED	B.T.P.	F.C.	A3-6686 R8264
		2	14.7			B.T.P.		
		3	20			B.T.P.		
		4	60			B.T.P.		
		5	93.8	±2%	PASSED	100.0		F.C.



Field Instrument Calibration Records  
Air Quality Instruments: MSA Sirius

Project/Site Name: BAYAMON PUMA

Project Number: 63767

SERIAL #: A3-6786

PINE INSTRUMENT #: 033073

PARAMETER: (Check as applicable)

% LEL (Explosivity)     % O<sub>2</sub>     H<sub>2</sub>S ppm     CO ppm     VOC ppm     Other (Specify) \_\_\_\_\_

STANDARDS:

STD NUMBER	TYPE	STD VALUE	VENDOR/LOT#	DATE STD RECEIVED	EXPIRATION DATE
Standard 1	LEL Pentane Stimulant	58%	P.E 112106	5-31-2016	Nov-2017
Standard 2	Oxygen	15%			
Standard 3	H <sub>2</sub> S	20 ppm			
Standard 4	CO	60 ppm			
Standard 5	Isobutylene (VOC)	100 ppm	DA9-248-100-15	5-31-2016	03-19-2020

CALIBRATION DATA:

**Important Note!** Instrument needs calibration if it fails the bump test (percent deviation exceeds acceptable range) or at least monthly.

DATE (mm/dd/yy)	TIME (24 hr.)	ST D #	INST. RESPONSE (BUMP TEST)	% DEV (FROM CYLINDER LABEL)	INST. CALIBRATION (PASSED, FAILED)	INST. RESPONSE AFTER CAL. (BUMP TEST)	SAMPLER INITIALS	COMMENTS
06-21-16	0650	1	61	±10%	PASSED	B.T.P.	F.C.	
		2	14.7			B.T.P.		
		3	20			B.T.P.		
		4	60			B.T.P.		
		5	104.5	±2%	PASSED	100.0		

06-22-16	0640	1	62	±10%	PASSED	B.T.P.	F.C.	
		2	14.7			B.T.P.		
		3	20			B.T.P.		
		4	60			B.T.P.		
		5	100.0	±2%	PASSED	B.T.P.		

06-23-16	0645	1	61	±10%	PASSED	B.T.P.	F.C.	
		2	14.7			B.T.P.		
		3	20			B.T.P.		
		4	60			B.T.P.		
		5	95.2	±2%	PASSED	100.0		

Field Instrument Calibration Records  
Air Quality Instruments: MSA Sirius

Project/Site Name: BAYAMON PUMA

Project Number: 63767

SERIAL #: A3-6786

PINE INSTRUMENT #: 033073

PARAMETER: (Check as applicable)

% LEL (Explosivity)     % O<sub>2</sub>     H<sub>2</sub>S ppm     CO ppm     VOC ppm     Other (Specify) \_\_\_\_\_

STANDARDS:

STD NUMBER	TYPE	STD VALUE	VENDOR/LOT#	DATE STD RECEIVED	EXPIRATION DATE
Standard 1	LEL Pentane Stimulant	58%	P.E. 112106	5-31-2016	Nov-2017
Standard 2	Oxygen	15%			
Standard 3	H <sub>2</sub> S	20 ppm			
Standard 4	CO	60 ppm			
Standard 5	Isobutylene (VOC)	100 ppm	DAQ-248-100-15	5-31-2016	03-19-2020

CALIBRATION DATA:

**Important Note!** Instrument needs calibration if it fails the bump test (percent deviation exceeds acceptable range) or at least monthly.

DATE (mm/dd/yy)	TIME (24 hr.)	ST D #	INST. RESPONSE (BUMP TEST)	% DEV (FROM CYLINDER LABEL)	INST. CALIBRATION (PASSED, FAILED)	INST. RESPONSE AFTER CAL. (BUMP TEST)	SAMPLER INITIALS	COMMENTS
06-24-16	0705	1	62	±10%	PASSED	B.T.P.	F.C.	
		2	14.7			B.T.P.		
		3	20			B.T.P.		
		4	60			B.T.P.		
		5	104.4	±2%	PASSED	100.0		

06-27-16	0700	1	62	±10%	PASSED	B.T.P.	F.C.	
		2	14.7			B.T.P.		
		3	20			B.T.P.		
		4	60			B.T.P.		
		5	100.0	±2%	PASSED	B.T.P.		

06-28-16	0808	1	60	±10%	PASSED	58	F.C.	
		2	14.9			14.8		
		3	20			20		
		4	66.70			60		
		5	89.1	±2%	PASSED	100.0		

Field Instrument Calibration Records  
Air Quality Instruments: MSA Sirius

Project/Site Name: BAYAMON PUMA

Project Number: 130063767

SERIAL #: A3-6786

PINE INSTRUMENT #: 033073

PARAMETER: (Check as applicable)

% LEL (Explosivity)     % O<sub>2</sub>     H<sub>2</sub>S ppm     CO ppm     VOC ppm     Other (Specify) \_\_\_\_\_

STANDARDS:

STD NUMBER	TYPE	STD VALUE	VENDOR/LOT#	DATE STD RECEIVED	EXPIRATION DATE
Standard 1	LEL Pentane Stimulant	58%	P.E 112106	5-31-2016	NOV-2017
Standard 2	Oxygen	15%			
Standard 3	H <sub>2</sub> S	20 ppm			
Standard 4	CO	60 ppm			
Standard 5	Isobutylene (VOC)	100 ppm	DAQ-248-100-15	5-31-2016	03-19-2020

CALIBRATION DATA:

**Important Note!** Instrument needs calibration if it fails the bump test (percent deviation exceeds acceptable range) or at least monthly.

DATE (mm/dd/yy)	TIME (24 hr.)	ST D #	INST. RESPONSE (BUMP TEST)	% DEV (FROM CYLINDER LABEL)	INST. CALIBRATION (PASSED, FAILED)	INST. RESPONSE AFTER CAL. (BUMP TEST)	SAMPLER INITIALS	COMMENTS
7-5-16	0745	1	60	±10%	PASSED	B.T.P.	F.C.	
		2	14.5			B.T.P.		
		3	20			B.T.P.		
		4	60			B.T.P.		
		5	100.0	±2%	PASSED	B.T.P.		

7-6-16	0710	1	56	±10%	PASSED	B.T.P.	F.C.	
		2	14.9			B.T.P.		
		3	20			B.T.P.		
		4	60			B.T.P.		
		5	92.2	±2%	PASSED	100.0		

7-12-16	0646	1	54	±10%	Failed	58	Ac	
		2	14.1			14.1		
		3	18			20		
		4	56			60		
		5	94.1	±2%		100.0		

Field Instrument Calibration Records  
Air Quality Instruments: MSA Sirius

Project/Site Name: Bayamon Puma

Project Number: B0063767

SERIAL #: A3-6786

PINE INSTRUMENT #: 033073

PARAMETER: (Check as applicable)

% LEL (Explosivity)     % O<sub>2</sub>     H<sub>2</sub>S ppm     CO ppm     VOC ppm     Other (Specify) \_\_\_\_\_

STANDARDS:

STD NUMBER	TYPE	STD VALUE	VENDOR/LOT#	DATE STD RECEIVED	EXPIRATION DATE
Standard 1	LEL Pentane Stimulant	58%	P.E. 112106	5-31-2016	Nov - 2019
Standard 2	Oxygen	15%			
Standard 3	H <sub>2</sub> S	20 ppm			
Standard 4	CO	60 ppm			
Standard 5	Isobutylene (VOC)	100 ppm	DAQ-248-100-15	5-31-2016	03-19-2020

CALIBRATION DATA:

**Important Note!** Instrument needs calibration if it fails the bump test (percent deviation exceeds acceptable range) or at least monthly.

DATE (mm/dd/yy)	TIME (24 hr.)	STD #	INST. RESPONSE (BUMP TEST)	% DEV (FROM CYLINDER LABEL)	INST. CALIBRATION (PASSED, FAILED)	INST. RESPONSE AFTER CAL. (BUMP TEST)	SAMPLER INITIALS	COMMENTS
7-13-16	0645	1	58	±10%	Passed	BT	A.C.	
		2	14.7			BT		
		3	20			BT		
		4	60			BT		
		5	100.0	±2%	Passed	BT		

7-14-16	0650	1	58	±10%	Passed	BT	A.C.	
		2	14.6			BT		
		3	20			BT		
		4	60			BT		
		5	100.0	±2%	Passed	BT		

7-15-16	0716	1	58	±10%	Passed	BT	A.C.	
		2	14.7			BT		
		3	20			BT		
		4	60			BT		
		5	100	±2%	Passed	BT		

Project/Site Name: BAYAMON PUMA  
 Project Number: 63767  
 SERIAL #: A3-6686 PINE INSTRUMENT #: R8264

PARAMETER: (Check as applicable)

% LEL (Explosivity)  % O<sub>2</sub>  H<sub>2</sub>S ppm  CO ppm  VOC ppm  Other (Specify) \_\_\_\_\_

**STANDARDS:**

STD NUMBER	TYPE	STD VALUE	VENDOR/LOT#	DATE STD RECEIVED	EXPIRATION DATE
Standard 1	LEL Pentane Stimulant	58%	P.E. 112106	5-31-2016	NOV-2017
Standard 2	Oxygen	15%			
Standard 3	H <sub>2</sub> S	20 ppm	DAQ-248-100-15	5-31-2016	03-19-2020
Standard 4	CO	60 ppm			
Standard 5	Isobutylene (VOC)	100 ppm			

**CALIBRATION/BUMP TEST DATA:**

DATE (yy/mm/dd)	TIME (24 hr.)	STD #	INSTRUMENT RESPONSE (BUMP TEST)	% DEV	INSTRUMENT CALIBRATED (YES, NO) <sup>1</sup>	INST. RESPONSE AFTER CAL. (BUMP TEST)	SAMPLER INITIALS	COMMENTS
16-05-31	1605	1	62	±10%	Yes	58	F.C.	
		2	14.8		Yes	14.7		
		3	20		Yes	20		
		4	77		Yes	60		
		5	91.7	±2%	Yes	100		

16/05/05	1755	1	58	±10%	Yes	/	AL	
		2	<del>14.8</del> 14.7		Yes			
		3	20		Yes			
		4	60		Yes			
		5	100	±2%	Yes			

16/05/10	0840	1	58	±10%	No	/	AL	
		2	14.6		No			
		3	20		No			
		4	60		No			
		5	100	±2%	No			

<sup>1</sup> Instrument needs calibration if it fails the bump test (percent deviation exceeds acceptable range) or at least monthly.

Project/Site Name: Boyanon Punta  
 Project Number: 63767

SERIAL #: A3-6686 PINE INSTRUMENT #: R8264

PARAMETER: (Check as applicable)  
 % LEL (Explosivity)  % O<sub>2</sub>  H<sub>2</sub>S ppm  CO ppm  VOC ppm  Other (Specify) \_\_\_\_\_

**STANDARDS:**

STD NUMBER	TYPE	STD VALUE	VENDOR/LOT#	DATE STD RECEIVED	EXPIRATION DATE
Standard 1	LEL Pentane Stimulant	58%	P.E. 112106	5-31-2016	NOV-2019
Standard 2	Oxygen	15%			
Standard 3	H <sub>2</sub> S	20 ppm			
Standard 4	CO	60 ppm			
Standard 5	Isobutylene (VOC)	100 ppm	DAB-248-100-15	5-31-2016	03-19-2020

**CALIBRATION/BUMP TEST DATA:**

DATE (yy/mm/dd)	TIME (24 hr.)	STD #	INSTRUMENT RESPONSE (BUMP TEST)	% DEV	INSTRUMENT CALIBRATED (YES, NO) <sup>1</sup>	INST. RESPONSE AFTER CAL. (BUMP TEST)	SAMPLER INITIALS	COMMENTS
16/08/10	0815	1	58	±10%	No		Ac	
		2	14.1		No			
		3	20		No			
		4	60		No			
		5	100	±2%	No			

16/08/11	0810	1	60	±10%	Yes	58	Ac	
		2	14.6		Yes	14.1		
		3	19		Yes	20		
		4	60		Yes	60		
		5	98	±2%	Yes	100		

16/08/15	1000	1	60	±10%	No		Ac	
		2	14.1		No			
		3	20		No			
		4	60		No			
		5	100	±2%	No			

<sup>1</sup> Instrument needs calibration if it fails the bump test (percent deviation exceeds acceptable range) or at least monthly.

Project/Site Name: Bayamon Puma  
 Project Number: 63761  
 SERIAL #: A3-6686 PINE INSTRUMENT #: R8264

PARAMETER: (Check as applicable)

% LEL (Explosivity)  % O<sub>2</sub>  H<sub>2</sub>S ppm  CO ppm  VOC ppm  Other (Specify) \_\_\_\_\_

**STANDARDS:**

STD NUMBER	TYPE	STD VALUE	VENDOR/LOT#	DATE STD RECEIVED	EXPIRATION DATE
Standard 1	LEL Pentane Stimulant	58%	P.E. 112106 DAR-248-100-15	5-31-016 5-31-2016	Nov-2019 03-19-2020
Standard 2	Oxygen	15%			
Standard 3	H <sub>2</sub> S	20 ppm			
Standard 4	CO	60 ppm			
Standard 5	Isobutylene (VOC)	100 ppm			

**CALIBRATION/BUMP TEST DATA:**

DATE (yy/mm/dd)	TIME (24 hr.)	STD #	INSTRUMENT RESPONSE (BUMP TEST)	% DEV	INSTRUMENT CALIBRATED (YES, NO) <sup>1</sup>	INST. RESPONSE AFTER CAL. (BUMP TEST)	SAMPLER INITIALS	COMMENTS
16/08/16	0730	1	58	±10%	NO		AL	
		2	14.1		NO			
		3	20		NO			
		4	60		NO			
		5	100	±2%	NO			

		1		±10%				
		2						
		3						
		4						
		5		±2%				

		1		±10%				
		2						
		3						
		4						
		5		±2%				

<sup>1</sup> Instrument needs calibration if it fails the bump test (percent deviation exceeds acceptable range) or at least monthly.

Project Number: B0063767  
 Project Name: PYMA

### Field Instrument Calibration Records Water Quality Instruments

 INSTRUMENT (Make/Model): YSI-6920 / 650 MDS

 INSTRUMENT #: 27083 / 11000

PARAMETER: (Check as applicable)

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> pH          | <input checked="" type="checkbox"/> DO %   |
| <input checked="" type="checkbox"/> Cond. ms/cm | <input checked="" type="checkbox"/> Temp C |
| <input checked="" type="checkbox"/> Turb. NTU   | <input checked="" type="checkbox"/> ORP mV |
| <input type="checkbox"/> DO mg/L                |  |

**STANDARDS:**

STD NUMBER	TYPE	STD VALUE	VENDOR/LOT#	DATE STD PURCHASED/ PREPARED/RECEIVED	EXPIRATION DATE
Standard 1	Conductivity	1.413 ms/cm	Pine Environmental <u>6GC013</u>	<u>5-31-2016</u>	<u>03-31-2017</u>
Standard 2	pH	7.0	Pine Environmental <u>6A544</u>	<u>5-31-2016</u>	<u>01-31-2018</u>
Standard 3	pH	4.0	Pine Environmental <u>6A048</u>	<u>5-31-2016</u>	<u>01-31-2018</u>
Standard 4	pH	10.0	Pine Environmental <u>6B188</u>	<u>5-31-2016</u>	<u>02-28-2018</u>
Standard 5	ORP	240 mV	Pine Environmental <u>9099</u>	<u>5-31-2016</u>	<u>07-31-2020</u>
Standard 6	Turbidity	0 NTU	Pine Environmental <u>6B663</u>	<u>5-31-2016</u>	<u>04-30-2017</u>
Standard 7	Turbidity	126 NTU	Pine Environmental <u>6B2447</u>	<u>5-31-2016</u>	<u>08-31-2016</u>
Standard 8	DO %	<u>100%</u>	<u>BAROMETRIC 760.0 mm.Hg</u>		

DATE (yy/mm/dd)	TIME (hr:min)	STD #	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	INST. RESPONSE AFTER CAL.	SAMPLER INITIALS	TEMP °C COMMENTS
16-06-02	0915	1	1.393		Yes	1.413	F.C.	25.77
16-06-02	0915	2	7.02		Yes	7.00	F.C.	26.20
16-06-02	0915	3	3.92		Yes	4.00	F.C.	26.55
16-06-02	0915	4	10.04		Yes	10.01	FC	26.77
16-06-02	0915	5	238.7		Yes	240.0	FC	26.79
16-06-02	0915	6	-1.3		Yes	0.0	FC	26.82
16-06-02	0915	7	142.6		Yes	126.0	FC	26.95
16-06-02	0915	8	102.2		Yes	100.0	F.C.	27.32
16-06-06	1700	1	1.419		Yes	1.413	F.C.	27.98
16-06-06	1700	2	7.05		Yes	7.00	FC	28.56
16-06-06	1700	3	4.04		Yes	4.00	FC	28.59





Project Number: PO0 63767  
 Project Name: PUMA

### Field Instrument Calibration Records Water Quality Instruments

 INSTRUMENT (Make/Model): YSI-6920 / 650 MDS

 INSTRUMENT #: 27083 / 11000

PARAMETER: (Check as applicable)

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> pH          | <input checked="" type="checkbox"/> DO %   |
| <input checked="" type="checkbox"/> Cond. ms/cm | <input type="checkbox"/> Temp C            |
| <input checked="" type="checkbox"/> Turb. NTU   | <input checked="" type="checkbox"/> ORP mV |
| <input type="checkbox"/> DO mg/L                |  |

**STANDARDS:**

STD NUMBER	TYPE	STD VALUE	VENDOR/LOT#	DATE STD PURCHASED/ PREPARED/RECEIVED	EXPIRATION DATE
Standard 1	Conductivity	1.413 ms/cm	Pine Environmental <u>66C013</u>	<u>5-31-2016</u>	<u>07-31-2017</u>
Standard 2	pH	7.0	Pine Environmental <u>66A544</u>	<u>5-31-2016</u>	<u>01-31-2018</u>
Standard 3	pH	4.0	Pine Environmental <u>66A048</u>	<u>5-31-2016</u>	<u>01-31-2018</u>
Standard 4	pH	10.0	Pine Environmental <u>66B188</u>	<u>5-31-2016</u>	<u>02-28-2018</u>
Standard 5	ORP	240 mV	Pine Environmental <u>9099</u>	<u>5-31-2016</u>	<u>07-31-2020</u>
Standard 6	Turbidity	0 NTU	Pine Environmental <u>C686663</u>	<u>5-31-2016</u>	<u>04-30-2017</u>
Standard 7	Turbidity	126 NTU	Pine Environmental <u>C582447</u>	<u>5-31-2016</u>	<u>08-31-2016</u>
Standard 8	DO %	<u>100%</u>	<u>BAIRD METRIC 7600 mm H.G</u>	—	—

DATE (yy/mm/dd)	TIME (hr:min)	STD #	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	INST. RESPONSE AFTER CAL.	SAMPLER INITIALS	TEMP °C COMMENTS
<u>16-06-15</u>	<u>1200</u>	<u>1</u>	<u>1.421</u>		<u>Yes</u>	<u>1.413</u>	<u>F.C</u>	<u>28.04</u>
<u>16-06-15</u>	<u>1200</u>	<u>2</u>	<u>7.06</u>		<u>Yes</u>	<u>7.00</u>	<u>F.C</u>	<u>28.62</u>
<u>16-06-15</u>	<u>1200</u>	<u>3</u>	<u>4.03</u>		<u>Yes</u>	<u>4.00</u>	<u>F.C</u>	<u>28.64</u>
<u>16-06-15</u>	<u>1200</u>	<u>4</u>	<u>10.06</u>		<u>Yes</u>	<u>10.01</u>	<u>F.C</u>	<u>28.50</u>
<u>16-06-15</u>	<u>1200</u>	<u>5</u>	<u>236.6</u>		<u>Yes</u>	<u>240.0</u>	<u>F.C</u>	<u>28.52</u>
<u>16-06-15</u>	<u>1200</u>	<u>6</u>	<u>3.6</u>		<u>Yes</u>	<u>0.0</u>	<u>F.C</u>	<u>28.43</u>
<u>16-06-15</u>	<u>1200</u>	<u>7</u>	<u>116.1</u>		<u>Yes</u>	<u>126.0</u>	<u>F.C</u>	<u>28.42</u>
<u>16-06-15</u>	<u>1200</u>	<u>8</u>	<u>102.6</u>		<u>Yes</u>	<u>100.0</u>	<u>F.C</u>	<u>27.47</u>
<u>16-06-21</u>	<u>0805</u>	<u>1</u>	<u>1.403</u>		<u>Yes</u>	<u>1.413</u>	<u>F.C</u>	<u>25.71</u>
<u>16-06-21</u>	<u>0805</u>	<u>2</u>	<u>6.97</u>		<u>Yes</u>	<u>7.00</u>	<u>F.C</u>	<u>26.02</u>
<u>16-06-21</u>	<u>0805</u>	<u>3</u>	<u>4.03</u>		<u>Yes</u>	<u>4.00</u>	<u>F.C</u>	<u>26.20</u>

DATE (yy/mm/dd)	TIME (hr:min)	STD #	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	INST. RESPONSE AFTER CAL.	SAMPLER INITIALS	TEMP °C COMMENTS
16-06-21	0805	4	10.04		Yes	10.01	F.C.	26.32
16-06-21	0805	5	243.4		Yes	240.0	F.C.	26.53
16-06-21	0805	6	3.0		Yes	0.0	F.C.	26.52
16-06-21	0805	7	120.2		Yes	126.0	F.C.	26.79
16-06-21	0805	8	100.3		Yes	100.0	F.C.	26.80
16-06-22	0800	1	1.412		Yes	1.413	F.C.	25.34
16-06-22	0800	2	6.96		Yes	7.00	F.C.	26.21
16-06-22	0800	3	4.06		Yes	4.00	F.C.	26.30
16-06-22	0800	4	10.10		Yes	10.01	F.C.	26.48
16-06-22	0800	5	239.4		Yes	240.0	F.C.	26.40
16-06-22	0800	6	1.2		Yes	0.0	F.C.	26.41
16-06-22	0800	7	124.4		Yes	126.0	F.C.	26.43
16-06-22	0800	8	100.4		Yes	100.0	F.C.	26.40
16-06-28	0755	1	1.408		Yes	1.413	F.C.	24.93
16-06-28	0755	2	6.99		Yes	7.00	F.C.	25.04
16-06-28	0755	3	3.99		Yes	4.00	F.C.	25.43
16-06-28	0755	4	10.03		Yes	10.00	F.C.	25.51
16-06-28	0755	5	241.4		Yes	240.0	F.C.	25.71
16-06-28	0755	6	-6.4		Yes	0.0	F.C.	26.16
16-06-28	0755	7	138.4		Yes	126.0	F.C.	25.94
16-06-28	0755	8	100.6		Yes	100.0	F.C.	26.30
							F.	
16-06-29		1	1.412		Yes	1.413	F.C.	24.81
16-06-29		2	6.98		Yes	7.00	F.C.	25.92
16-06-29		3	3.98		Yes	4.00	F.C.	25.33
16-06-29		4	10.02		Yes	10.00	F.C.	25.44
16-06-29		5	240.9		Yes	240.0	F.C.	25.69
16-06-29		6	2.8		Yes	0.0	F.C.	25.46
16-06-29		7	133.1		Yes	126.0	F.C.	25.98
16-06-29		8	100.9		Yes	100.0	F.C.	26.38





Project Number: B0063767  
Project Name: PUMA

### Field Instrument Calibration Records Water Quality Instruments

INSTRUMENT (Make/Model): YSI-6920 / 650 MDS

INSTRUMENT #: 27083 / 11000

PARAMETER: (Check as applicable)

- pH                       DO %  
 Cond. ms/cm             Temp C  
 Turb. NTU                 ORP mV  
 DO mg/L

STANDARDS:

STD NUMBER	TYPE	STD VALUE	VENDOR/LOT#	DATE STD PURCHASED/ PREPARED/RECEIVED	EXPIRATION DATE
Standard 1	Conductivity	1.413 ms/cm	Pine Environmental 66C013	5-31-2016	03-31-2017
Standard 2	pH	7.0	Pine Environmental 66A544	5-31-2016	01-31-2018
Standard 3	pH	4.0	Pine Environmental 66A048	5-31-2016	01-31-2018
Standard 4	pH	10.0	Pine Environmental 66B188	5-31-2016	02-28-2018
Standard 5	ORP	240 mV	Pine Environmental 9099	5-31-2016	07-31-2020
Standard 6	Turbidity	0 NTU	Pine Environmental 668663	5-31-2016	04-30-2017
Standard 7	Turbidity	126 NTU	Pine Environmental 6582447	5-31-2016	08-31-2016
Standard 8	DO %	100%	BARO METAC 760-02M HG	—	—

DATE (yy/mm/dd)	TIME (hr:min)	STD #	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	INST. RESPONSE AFTER CAL.	SAMPLER INITIALS	TEMP °C COMMENTS
16-07-13	0800	1	1.447		Yes	1.413	F.C.	26.57
16-07-13	0800	2	7.04		Yes	7.00	F.C.	27.14
16-07-13	0800	3	4.06		Yes	4.00	F.C.	27.35
16-07-13	0800	4	10.08		Yes	10.01	F.C.	27.53
16-07-13	0800	5	241.7		Yes	240.0	F.C.	27.53
16-07-17	0800	6	2.2		Yes	0.0	FC	27.54
16-07-13	0800	7	123.1		Yes	126.0	FC	27.51
16-07-13	0800	8	99.9		Yes	100.0	F.C.	26.86
16-08-05	1810	1	1.332		Yes	1.413	F.C.	28.90
16-08-05	1810	2	6.95		Yes	7.00	F.C.	28.77
16-08-05	1810	3	4.02		Yes	4.00	FC	29.06



# APPENDIX F

Pace Analytical Services Explanation Letter





RE: Contestación a requerimientos de límites de la Junta para agua subterránea

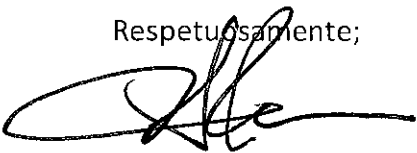
A quien pueda interesar:

A continuación respuestas, comentarios y observaciones de Pace Analytical con relación al document Guía de Cierre Permanente para sistemas de tanques de almacenamiento soterrados notificado el 17 de febrero del 2015 y discutidos en reunion llevada a cabo el 24 de marzo del 2015 con Wilmarie Rivera y Juan Osorio de la JCA y nuevamente mencionados en la pasada reunión del 20 de abril del presente año.

- Los límites de rastreo sugeridos para los compuestos que no presentan MCL (nivel máximo de contaminación) de agua subterránea, son para agua potable según lo indica la propia guía (pag 31 iten d), lo que no aplica para muestras de agua subterránea cruda y el método 8270.
- Estos límites se extraen del Reglamento de Calidad de Agua según la guía (pag 31 item f) del año 2010, y hace mención que se obtienen de los estados de Florida y Luisiana los cuales no pertenecen a la region II de EPA como Puerto Rico por lo que Pace solicitó deben ser revisados de todas formas ya que la guía se aprueba el 20 de enero del 2015. Se acordó que basado en éstas y otras discrepancias señaladas, se revisaría el reglamento y que muestras tanto Pace reportaría los los límites validados mas bajos posible.
- Pace presenta en la reunión del 24 de marzo del 2015 un documento ( tabla comparativa) alertando a la Junta de que los límites de agua potable requeridos para los compuestos en cuestión ( Benzo(a) antraceno, Benzo(a) pireno y Benzo (a) fluoranteno no podían ser alcanzados aún utilizando la tecnología más sofisticada (8270 SIM) para analizar PAH's.
- Se establece que el tipo de muestra de agua subterránea es no tratada y contiene posibles contaminantes y minerales causantes de interferencias, por lo que lograr límites de detección extremadamente bajos con precisión no es posible.

De tener preguntas o dudas a lo expuesto de mi parte en esta minuta , estamos en la mayor disposición de aclarar las mismas hasta donde nuestra capacidad y conocimiento así lo permita.

Respetuosamente;

A handwritten signature in black ink, appearing to be 'JR' with a long horizontal stroke extending to the right.

Juan A. Redondo Diaz

Gerente de Proyectos

Pace Analytical PR SC

Arcadis Caribe, P.S.C.

48 City View Plaza 1

Suite 401

Rd. 165

Km 1.2

Guaynabo, Puerto Rico 00968

Tel 787 777 4000

Fax 787 777 8086