REGION 6

DALLAS, TX 75270

April 23, 2024

Skyler Kerby
General Manager
Veolia ES Technical Solutions, LLC
Highway 73
P.O. Box 2563
Port Arthur, Texas 77643

RE: The United States Environmental Protection Agency Region 6 Reauthorization Approval for Incineration and Commercial Storage of Polychlorinated Biphenyls (PCBs) at Veolia ES Technical Solutions, LLC, in Jefferson County, Texas; EPA ID No. TXD000838896

Dear Ms. Kerby:

This letter and the enclosed Conditions of Approval grants approval to Veolia ES Technical Solutions, LLC for incineration and commercial storage of PCB waste. A Public Notice was published in the Port Arthur News newspaper announcing the proposed approval which opened a 45-day comment period, during which requests could be made for a Public Hearing. No comments were received during the comment period which closed on April 14, 2024.

Violation of 40 CFR Part 761, or any of the enclosed Conditions of Approval may subject Veolia ES Technical Solutions, LLC to enforcement action under the Toxic Substances Control Act (TSCA) and/or other applicable laws and regulations. Such action could result in a termination, revocation, or modification of the approval. This approval becomes effective on the date of this letter and expires at midnight, the same day and month, five years later.

If you have questions, please contact Harry Shah at (214) 665-6457 or shah.harry@epa.gov.

Sincerely,

X Melissa Smith

Melissa Smith
Acting Director

Land, Chemicals and Redevelopment Division

Enclosure

cc: Charly Fritz (TCEQ)

Veolia Environmental Services (Veolia) Commercial Disposal and Storage of Liquid and Solid PCBs Approval and Supporting Documents

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CONDITIONS OF APPROVAL FOR COMMERCIAL DISPOSAL AND STORAGE OF LIQUID AND SOLID PCBs AT VEOLIA ES TECHNICAL SOLUTIONS, L.L.C., PORT ARTHUR, TEXAS

This approval is issued pursuant to Section 6(e) of the Toxic Substances Control Act (TSCA) and the federal Polychlorinated Biphenyls (PCB) Regulations, 40 CFR Part 761.

The terms and abbreviations in these conditions are in accordance with those defined in 40 C.F.R. § 761.3 unless otherwise noted. The term "Facility" hereinafter refers to Veolia ES Technical Solutions, L.L.C. (Veolia), Port Arthur, Texas.

I. LOCATION OF FACILITY

The Facility is located on the southern side of Highway 73, west of Port Arthur in Jefferson County, Texas.

II. AUTHORIZATIONS

A. PCB WASTE AUTHORIZED FOR STORAGE AND DISPOSAL

The Facility is authorized for commercial storage and disposal of liquid and solid polychlorinated biphenyls (PCBs) regulated pursuant to 40 C.F.R. 761.

B. PCB DISPOSAL UNITS AND STORAGE AREAS AUTHORIZED

The Facility shall comply with 40 C.F.R. § 761.65 (Storage for disposal) and 40 C.F.R. §761.70 (Incineration), unless otherwise specified in these conditions, in the following authorized disposal and storage areas:

1. The Incinerator Train consisting of a rotary kiln, afterburner, pollution control system, bulk solids processing area, containerized feed devices with related bulk liquid storage, and feed tanks consisting of 746,000 gallons of capacity. The bulk feed tanks authorized by this approval are the tanks numbered as follows: 501-516, 521-524, 535-536, and 550-553.

2. The Container Storage Area (Facility Unit #87). The maximum capacity of this storage area is 2,040 55-gallon drums, or their equivalent.

3. The North Container Staging Area (Facility Unit #93). The maximum. capacity of this storage area is 192 55-gallon drums, or their equivalent.

4. The South Container Staging Area (Facility Unit #94). The maximum capacity of this storage area is 160 55-gallon drums, or their equivalent.

5. The Truck and Container Storage Area (Facility Unit #3) with a maximum capacity of 1009 cubic yards.

6. The Stabilization Building Container Storage Area (Facility Unit #35) with a maximum capacity of 1,609 cubic yards.

7. The Bulk Solids Storage Area (Facility Unit #46) with a maximum capacity of 2,887 cubic yards.

8. The Ash Storage Building (Facility Unit #2) with a maximum storage capacity of 238 cubic yards.

9. The Truck Wash and Process Support Building (Facility Unit #103) with a maximum storage capacity of 46.7 cubic yards.

C. AUTHORIZATION TO OPERATE ADDITIONAL UNITS

1. For a new disposal unit or storage area not identified in II. B. above or in the PCB incineration or storage application, the Facility shall not commence storage or disposal in a new unit or area until it has notified the United States Environmental Protection Agency (EPA) Region 6 RCRA Permits and Solid Waste Section and received written approval authorizing the new unit or area for PCB disposal or storage.

2. For expansion in capacity or major modification of an existing unit or area, the Facility shall not dispose or store PCBs in the modified unit or area until it has notified the EPA Region 6 RCRA Permits and Solid Waste Section and received a written approval from EPA for the expansion or modification. A major modification is defined as a change in the configuration or location of those authorized units and areas listed in II. B .1-8 above.

III. PCB INCINERATOR OPERATING REQUIREMENTS

A. GENERAL REQUIREMENTS

1. At all times during PCB disposal, the Facility shall meet the incineration operating requirements specified in 40 C.F.R. § 761.70 (a) and (b) unless otherwise specified in these conditions of approval.

2. The Facility shall analyze each batch feed of PCBs from each liquid/sludge feed tank, or liquid sludge container of PCBs, for PCB concentration prior to the waste being introduced into the incinerator. The results of the analysis shall be recorded and kept on file. Analysis of all PCBs shall be done in accordance with the procedures specified in the Facility Waste Analysis Plan (WAP) (Appendix 1) and the Facility Standard Division Practice (SDP) PCB Sampling and Analytical Requirements (Appendix 2) submitted with the PCB application and any applicable permit modification.

3. In accordance with the Waste Analysis Plan (WAP) the Facility shall take a representative sample of each batch (e.g., roll-off box) of PCB solids fed through the bulk material handling building. The sample shall consist of at least three aliquots and shall be analyzed for PCB concentration. The results of each analysis shall be kept on file. The weight of the

PCB solids in each batch delivered to the bulk material handling building shall be recorded and the results kept on file.

4. The Facility shall take a representative sample, consisting of at least three aliquots, out of ten percent of the contents of PCB containers of each shipment of PCB Items (other than PCB capacitors but including PCB remediation waste) to be fed to the incinerator. A "shipment" is defined as one or more containers of PCBs identified by the generator's waste profile as being from the same source of PCB contamination. For shipments of less than 10 containers, the contents of at least one PCB container shall be sampled and analyzed to verify the generator's waste profile. If more than one container is sampled, the representative samples from each container shall be composited into one sample. The sample shall be analyzed for PCBs using an EPA standard method for PCBs, and the results kept on file. The weight of each container shall also be recorded, and the results kept on file. For containers with only shredded PCB capacitors, the PCB concentration shall be recorded as 35 percent of the total weight of each container.

5. The Facility shall cease incineration of PCBs upon notification by EPA or the State of an Ozone Action Day for Port Arthur, Texas until ground-level ozone falls below Ozone Action Day levels as issued in accordance with the Texas State Implementation Plan (SIP).

6. The Facility shall comply with its PCB Operators Manual for onsite handling of PCBs. The manual shall be updated as required to include any new or revised procedures.

7. *Condition to modify, revoke and reissue, or terminate the Approval***.** EPA reserves the right to modify (including by imposing additional conditions), revoke and reissue, or terminate this Approval when any of the following circumstances exist:

   a. EPA has reason to believe the approved activities are not achieving the relevant standards or goals or otherwise are not in compliance with the Approval.

   b. EPA has reason to believe the approved activities present or may present an unreasonable risk of injury to health or the environment.

   c. EPA becomes aware of new or previously undisclosed information that may substantively impact its previous finding of no unreasonable risk and require modifications to this Approval; or

   d. EPA issues new regulations or standards that impact conditions of this Approval.

8. *Condition to require additional information***.** When any of the circumstances described above exist, EPA reserves the right to require the facility to provide additional information relevant to the Agency's determination whether to modify, revoke and reissue, or terminate the Approval. This may include information to inform EPA's finding that the approved activity does not present an unreasonable risk of injury to health or the environment, such as information related to the risks or impacts of the activity on surrounding communities and communities with environmental justice concerns, including those related to climate change and cumulative impacts of environmental and other burdens.

9. *Condition to provide additional information.* If the facility becomes aware of new or previously undisclosed information that may substantively impact EPA's previous finding

that approved activities do not present an unreasonable risk of injury to health or the environment, the facility must provide that information to the Agency as soon as possible but no later than 30-days. This may include information related to the risks or impacts of the approved activity on surrounding communities and communities with environmental justice concerns, including those related to climate change and cumulative impacts of environmental and other burdens.

B. SPECIFIC INCINERATOR OPERATING REQUIREMENTS

1. Veolia shall commence a PCB Trial Burn in conjunction with the Combustor NESHAP Confirmatory Performance Test (CfPT) on or before March 31, 2025, to confirm compliance with the incineration requirements in 40 CFR §761.70. Veolia shall also commence a PCB Trial Burn in conjunction with Comprehensive Performance Test (CPT) required after the replacement of Secondary Combustion Chamber (SCC).

2. Veolia will ensure sufficient emission sampling data is provided to TCEQ and EPA to conduct a Risk Burn Analysis at the time of the next Combustor NESHAP CPT that must commence on or before September 30, 2027.

3. The total amount of PCBs fed to the incinerator in all waste streams, including liquids, solids, and sludges shall not exceed 1,606 pounds per hour. These PCB feed rates do not limit or prohibit Resource Conservation and Recovery Act (RCRA) hazardous waste from being fed to the incinerator while PCBs are being disposed. The liquid PCB feed rates shall be measured by a continuous flow rate device, and the results recorded and kept on file.

4. The flow of PCBs to the incinerator shall stop automatically under any of the following conditions:

    a. the temperature drops below 1100 degrees C, as measured on an hourly rolling average by the thermocouple located in the "hot duct" leading to the wet scrubber;

    b. the combustion efficiency falls below 99.9% as calculated in 40 CFR §761.70 (a)(2). CO and CO2 CEMs in the incinerator stack, shall be calibrated and maintained to provide the data needed to calculate the combustion efficiency;

    c. the excess oxygen (02) drops below 3.0 percent (calibrate monitor at least once each 24-hour day during PCB incineration by certified zero and span gas with a minimum of 18 hours between calibrations);

    d. there is a loss of primary combustion air to the burner; or

    e. there is a loss of water to the quench.

4. The Facility shall operate the incinerator under negative pressure. Pressure in the combustion zone shall be monitored and recorded on a continuous basis. The PCB waste feed shall cut off automatically if the pressure remains positive for 10 consecutive seconds. The PCBs shall not be reintroduced into the incinerator until the unit returns to negative pressure.

5. Kiln ash from PCB incineration which contains greater than or equal to 2.0 parts per million (ppm) PCBs shall be placed in a RCRA permitted hazardous waste landfill or a TSCA authorized PCB landfill approved to dispose of such wastes. Kiln ash containing >2.0 ppm PCBs shall be reintroduced into the kiln until the PCB concentration is 2.0 ppm or less, or the ash shall be sent to a TSCA authorized PCB landfill. The Facility shall sample and analyze l00 percent of the kiln ash containers receiving PCB ash each day that PCB ash is generated. A sample shall consist of at least three aliquots of ash composited into one sample from each ash container. Emissions from hot ash collection hoppers shall be cham1eled back into the incinerator combustion system.

6. The total particulate emissions shall not exceed the rate allowed by the Hazardous Waste Combustion Maximum Achievable Control Technology (MACT), 40 CFR Part 63, Subpart EEE.

7. The total chlorine feed rate shall not exceed the rate allowed by the current RCRA permit (Table V.H.3 in Permit No. 50212).

8. The Facility shall have in place an operational system to monitor the British Thermal Unit (BTU) value of incinerator liquid waste feed containing PCBs. Liquid PCB wastes shall be fed to the incinerator only from feed lines that are controlled by the PCB automatic trip valves for temperature, excess oxygen, and carbon monoxide. Bulk feed tanks shall be designed to ensure a uniform commingling of container material such that four-hour feed stream sampling for each feed tank does not vary in BTU or chlorine value (by weight) greater than ten (10) percent.

9. The Facility shall measure and record combustion gas flow rate using induced draft fan amperage. Sufficient data shall be collected and recorded whenever liquid PCBs are being disposed that demonstrates that the combustion gases were retained in the secondary combustion zone for equal to or greater than 2.0 seconds during liquid PCB incineration at a temperature equal to or greater than 1,100 degrees C, as measured on an hourly rolling average.

10. Ash shall be removed from the secondary combustion zone and the rotary kiln using the disengaging chamber and/or de-slagger on a continuous basis or removed during routine maintenance.

11. The Facility shall limit the feed rate of the following heavy metals in its PCB waste feed streams: antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, silver, and thallium. The metals feed rates shall not exceed the Facility's RCRA permit limits. The Facility shall-comply with its approved RCRA WAP to ensure compliance with the metals feed rate limits in PCB waste feed streams.

12. The Facility shall not feed PCBs to the rotary kiln if the kiln exit gas temperature is less than the current RCRA permit (Table V.H.2 in Permit No. 50212) or as demonstrated in the recent PCB destruction and removal efficiency (DRE) test, on an hourly rolling average (HRA) basis, whichever ever is more conservative.

IV. STORAGE AREA REQUIREMENTS

A. OPERATING REQUIREMENTS

1. The Facility shall comply with 40 C.F.R. § 761.65 (Storage for disposal).

2. The Facility is responsible for the actions of all employees, agents, contractors, or others involved in commercial storage of PCBs at the Facility. Also, the Facility is responsible for complying with all other applicable federal, state, and local statutes and regulations.

3. The Facility shall store PCBs only in tanks designated in Condition II.B.1., and the areas designated in condition II.B.2- 8.

4. The Facility shall comply with the safety and hygiene procedures presented in the application for approval.

5. The Facility shall maintain a training manual for training its new employees on the proper management of PCBs. New employees shall be trained as specified in the manual prior to entering the storage areas. The manual shall address the regulatory requirements of 40 C.F.R. § 761.65. The training plan shall also include the specifics of the Safety Plan, Contingency Plan, and Emergency Procedures, as well as the Spill Prevention Control and Countermeasure (SPCC) Plan for PCBs. A signature sheet shall be included to verify personnel participation.

6. The Facility shall follow the PCB Contingency Plan whenever there is a release of PCBs. A copy of the Contingency Plan and all revisions to the Contingency Plan shall be maintained at the site.

7. Adequate aisle space shall be maintained to allow for unobstructed access by personnel, fire protection equipment, and decontamination equipment to all PCB Items stored on-site.

8. The Facility shall not exceed the maximum storage inventory of PCBs indicated in Conditions II. B. 2-8. Requests to increase the maximum inventory shall be submitted to EPA in writing and approved prior to storage of PCBs above the current maximum inventory.

B. CLOSURE AND FINANCIAL REQUIREMENTS

1. The Facility shall comply with the closure regulations pursuant to 40 C.F.R. § 761.65 (d)-(g) except for any requirements that are specifically waived in this approval.

2. The closure cost estimate shall be updated to adjust for inflation annually, or within thirty (30) days after EPA approval of any modification to the Closure Plan that increases the expected costs of closure.

3. The Facility shall amend the Closure Plan and current Closure Cost Estimate whenever changes in operating plans or Facility design affect the Closure Plan, or whenever there is a change in the expected year of closure. In the event the Facility becomes aware of information that tends to show that the estimated costs associated with performing closure of the Facility may exceed the current Closure Cost Estimate approved by EPA, the Facility shall modify the Closure Plan and submit any modifications to the Closure Plan to EPA for approval.

4. Financial assurance at least equivalent to that specified in 40 C.F.R. § 761.65(g) and 40 C.F.R. Part 264, Subpart H, shall be maintained by the Facility to provide funding for proper closure. The closure plan shall also provide for the decontamination and/or disposal of PCB contaminated equipment and materials at an EPA approved PCB disposal Facility.

5. Any payment required to establish or continue the financial assurance mechanism used to satisfy the financial requirements shall be made when due. The Facility shall submit documentation of continued financial assurance annually to the EPA Region 6 RCRA Permits and Solid Waste Section.

6. The Facility shall notify the EPA Region 6 RCRA Permits and Solid Waste Section at least 60 days prior to the date closure is expected to begin.

7. Upon termination of PCB storage activities, the Facility shall proceed with closure according to the provisions of the approved Closure Plan. In accordance with 40 C.F.R. 761.65(d)(4)(ii), the requirements of the Closure Plan are incorporated herein.

V. STANDARD APPROVAL CONDITIONS

A. SEVERABILITY

The conditions of this authorization are severable, and if any provision of this authorization, or any application of any provision is held invalid, the remainder of this authorization shall not be affected thereby.

B. DUTY TO COMPLY

During PCB incineration, the Facility shall comply with all Federal, State, and local regulations and agreements, including:

1. permits for the incineration of solid and hazardous wastes during PCB incineration, and

2. the applicable RCRA hazardous waste regulations.

C. PERSONNEL SAFETY

The Facility personnel safety requirements and procedures for PCB handling, storage, transport, and disposal shall comply with Occupational Safety and Health Administration (OSHA) requirements.

D. DUTY TO MITIGATE

The Facility shall correct any adverse impact on the environment resulting from noncompliance with this approval.

E. DUTY TO PROVIDE INFORMATION

The Facility shall provide to the Director, Land, Chemicals and Redevelopment Division, within a reasonable time, any relevant information which may be requested to determine whether cause exists for modifying, revoking, reissuing, or terminating this approval, or to determine compliance with this approval. The Facility shall also provide to EPA, upon request, copies of records required to be kept under the TSCA PCB regulations.

F. INSPECTION AND ENTRY

The Facility shall allow the Regional Administrator, or an authorized representative, upon presentation of credentials and other documents as may be required by law, to:

1. enter the Facility where PCBs and PCB Items are being handled, stored, treated, or disposed;

2. have access to and copy, at reasonable times, any records that shall be kept under TSCA PCB regulations;

3. inspect any units, equipment (including monitoring and control equipment), practices, or operations required under this approval or the TSCA PCB regulations; and

4. sample or monitor for the purposes of assuring that the Facility is operating in compliance with the conditions of this approval and the TSCA PCB regulations.

G. WASTE CHARACTERIZATION AND ACCEPTANCE

1. The Facility shall implement and follow the waste acceptance, characterization, inspection, and verification procedures specified in the facility's WAP (Appendix 1) and the Facility's PCB Incinerator Operators Manual (Appendix 3).

2. The Facility shall take precautions to ensure PCB waste managed on-site are kept separate from wastes which may be incompatible.

H. MONITORING AND RECORDS

1. The Facility shall comply with all applicable monitoring and record keeping requirements as specified in 40 C.F.R. Part 761 for incinerators and commercial storers. All required PCB records, documents, and reports shall be maintained at the Facility, and shall be made available for inspection by authorized EPA representatives. All records required by 40 C.F.R. Part 761 and this approval shall be written in ink, typed, or put into electronic format. Any modification or correction of the records shall be initialed and dated by the supervisor in charge.

2. The Facility shall verify the PCB content of the wastes received for storage and disposal in accordance with the Facility WAP (Appendix 1) and the Facility SDP PCB Sampling and Analytical Requirements (Appendix 2) submitted with the PCB application. Sampling and analytical methods shall conform to EPA accepted practices, procedures, and methods. Results of all analyses shall be recorded and kept on file.

I. NOTICE OF TRANSFER OF OWNERSHIP

The Facility shall notify the Director, Land, Chemicals and Redevelopment Division at least thirty (30) days before transferring ownership of the Facility. The Facility shall also submit to the EPA Regional Administrator at least thirty (30) days before such transfer, a notarized affidavit signed by the transferee stating that the transferee shall abide by all provisions of this PCB disposal and storage approval. After receiving such notification and affidavit, and other such documents as EPA may require, EPA may issue an amended approval substituting the transferee's name, or EPA may require the transferee to apply for a new PCB approval. The transferee shall not store or dispose of PCBs until EPA issues an approval in the transferee's name. The transferor shall maintain financial assurance for the Facility until the transferee's application has been approved and the transferee has demonstrated that it has established financial assurance for closure pursuant to Section 761.65(g).

J. NON-COMPLIANCE

If at any time there is a departure from the conditions of this approval, the Facility shall notify the EPA Region 6 RCRA Permits and Solid Waste Section by telephone within 24 hours and shall submit a written report within five (5) working days.

K. OTHER INFORMATION

When Facility officials become aware that it has omitted any relevant facts in the PCB disposal or commercial storage application, or submitted incorrect information in any report to EPA, this information shall be promptly submitted to the EPA Region 6 RCRA Permits and Solid Waste Section.

L. EMERGENCY COORDINATOR AND EQUIPMENT

The Facility shall maintain an adequately trained emergency coordinator to direct emergency procedures at the Facility. The Facility shall maintain a list identifying the emergency coordinator(s) and their phone numbers on-site at all times. The Facility shall maintain in good working order any equipment used for emergencies.

L. SPILLS

1. Any PCB spills occurring at the Facility, or from any Facility owned PCB transport vehicle, shall be cleaned up according to the PCB Spill Cleanup Policy, 40 C.F.R. Part 761, Subpart G.

2. The EPA may order cessation of PCB disposal at the Facility if spills are not cleaned up to acceptable levels as defined by EPA.

M. PERIODIC RETESTING

1. The EPA may require annual testing or monitoring of the incinerator for PCBs, hydrochloric acid (HCl), metals, residual chlorinated organics, particulates and up to three (3) specific organics identified by EPA. Written reports discussing the results of the testing or monitoring shall be submitted to EPA within 120 days of the test.

2. The results of any incinerator PCB stack emissions risk evaluation on the Facility conducted by the EPA shall be considered relevant information for the evaluation of the impact of the Facility upon human health and the environment from PCB disposal. This information may be used to modify, suspend, or terminate this approval upon proper notice to the Facility.

3. The EPA may require PCB DRE testing to ensure compliance with the incineration performance requirements in 40 CFR §761.70. Due to a lack of high-concentration PCB wastes in the marketplace, DRE shall be demonstrated using 1,2 di-chlorobenzene, a surrogate for PCBs, in combination with both liquid and solid PCB wastes available during testing. During the test, the facility will install, calibrate, and maintain an HC CEM in the incinerator stack. HC CEMs will be complying with HWC MACT EEE requirements. DRE will be calculated by accounting for both PCBs and 1,2 Dichlorobenzene in stack as well as the waste feed and the surrogate. Written reports summarizing the results of the testing shall be submitted to EPA within 120 days of the test.

N. DUTY TO NOTIFY

The Facility shall notify EPA Region 6 RCRA Permits and Solid Waste RCRA Permits and Solid Waste Section in writing at least thirty (30) days prior to any planned physical or operational changes to the incinerator which could alter the emissions of particulates, hydrochloric acid, metals, PCBs, or chlorinated organics. Any changes to the approved units which may result in increased emissions, or changes in types of emissions, may require additional testing, monitoring, or a modification of the approval.

O. CERTIFICATES OF DISPOSAL

The Facility shall maintain copies of the Certificate of Disposal for all PCB Items which are disposed at the Facility. The Certificate of Disposal shall be provided to the generator within thirty (30) days of final disposal of the generator's PCB Items.

P. EFFECTIVE DATE AND RE-AUTHORIZATION

This approval becomes effective on the date of this letter and expires at midnight on the same day and month five years later. Please re-apply for re-authorization approval at least twelve months before the expiration date of this approval.

Q. STATEMENT IN COMPLIANCE WITH 40 CFR 761.65(d)(4)(i)

1. The United States Environmental Protection Agency, Region 6 (EPA) is renewing and modifying a Toxic Substances Control Act (TSCA) Approval issued to Veolia ES Technical Solutions, L.L.C. (Veolia), to continue to operate a commercial storage and disposal facility for non-liquid polychlorinated biphenyls (PCB). Pursuant to 40 C.F.R. 761.65(d)(4)(i), EPA finds that Veolia's application satisfied the criteria at 40 C.F.R. § 761.65(d)(2):

   (i) Veolia, its principals, and its key employees responsible for the establishment or operation of the commercial storage facility are qualified to engage in the business of commercial storage of PCB waste. This finding is based on EPA's evaluation of key personnel and organizational chart information submitted with the Renewal Application.

   (ii) Veolia possesses the capacity to handle the quantity of PCB waste which the facility has estimated will be the maximum quantity of PCB waste that will be handled at any one time at the facility. This finding is based on the information and calculations in Texas Commission of Environmental Quality (TCEQ) Industrial Hazardous Waste Permit 50212 hereby included in Appendix 6.

   (iii) Veolia has certified compliance with the storage facility standards in 40

C.F.R. § 761.65(b) as found in the information provided in the TCEQ Industrial Hazardous Waste Permit 50212, General Engineering Report, January 2019, Appendix 7.

(iv) Veolia has developed a written closure plan for the facility that is deemed acceptable by the Land, Chemicals, and Redevelopment Director under the closure plan standards. This finding is based on EPA's evaluation of Appendix 5 of the Renewal Application, the requirements of which are incorporated into this Approval.

(v) Veolia has included in the application for final approval a demonstration of financial responsibility for closure that meets the financial responsibility standards in the form of a bond that is based on closure cost estimates and inflation.

(vi) Veolia's operation of the storage areas will not pose an unreasonable risk of injury to health or the environment. This finding is based on EPA's evaluation of the Renewal Application and all applicable regulations at 40 C.F.R. § 761, as set forth in this Approval.

(vii) The environmental compliance history of the applicant, its principals, and its key employees does not constitute a sufficient basis for denial of the application. This finding is based on EPA's evaluation of the information contained in the complete Renewal Application and a review of available compliance data. All available information demonstrates that the Facility is in compliance with its current Approval and the TSCA PCB regulations at 40 C.F.R. Section 761, and that the Facility's compliance history evinces no unwillingness or inability to achieve and maintain compliance with the regulations.

END OF APPROVAL CONDITIONS

Appendix 1 Waste Analysis Plan

COOK-JOYCE INC.
ENGINEERING AND CONSULTING
812 WEST ELEVENTH 512-474-9097
AUSTIN, TEXAS 78701
TEXAS REGISTERED ENGINEERING FIRM F-883

ATTACHMENT IV.D

WASTE ANALYSIS PLAN

AUGUST 2014
REVISED NOVEMBER 2016, JUNE 2017,
OCTOBER 2017, JANUARY 2018,
JULY 2018 AND SEPTEMBER 2018

Prepared for:

Veolia ES Technical Solutions, L.L.C.
P.O. Box 2563
Port Arthur, Texas 77643

Prepared by:

Cook-Joyce, Inc.
812 West 11th Street
Austin, Texas 78701

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1.0 INTRODUCTION

The purpose of this Waste Analysis Plan (WAP) is to document the necessary sampling methodologies, analytical techniques, and overall procedures which are undertaken for hazardous wastes (hereinafter "waste") which enter this facility for treatment, storage and/or disposal. Specifically, the plan delineates the following:

- Sampling Methodologies and Equipment that will be used to obtain samples of incoming waste shipments in order to perform any appropriate analyses to identify a waste material.

- Analytical Parameters, Techniques and Rationale that Veolia will utilize to determine or identify certain waste properties (key parameters) to ensure proper management of the waste.

- Pre-Acceptance Procedures to determine the acceptability of a particular waste stream pursuant to facility permit conditions and operating capabilities prior to acceptance of the waste at the facility.

- Incoming Shipment Procedures to establish that the delivered waste matches the accompanying manifest and the conditions of the facility permit.

- Process Operations Procedures to maintain safe and appropriate methods of treatment, storage, disposal or movement of wastes within the facility.

- Quality Control Policy the facility laboratory follows to achieve high quality analytical results.

It is the policy of Veolia that all wastes handled by this facility will be subjected to these procedures. This policy helps ensure compliance with applicable permits and regulations. For the purpose of implementation and performance of this WAP, "Veolia" means any Veolia ES Technical Solutions (Veolia) laboratory, Veolia subsidiary laboratory, or Veolia designated contract laboratory.

The forms shown within this WAP are typical forms currently utilized by this facility. Equivalent or alternate forms may be used. These forms may be updated, based upon changes in regulations, operations, or other needs. Significant changes in form content, rather than format, will be submitted to the Texas Commission on Environmental Quality (TCEQ) for review. Veolia maintains, as part of its WAP-required records, generator-supplied and internally developed information, decisions and forms. This documentation may be received, stored, transmitted, and/or retrieved electronically in addition to, or in lieu of, hard (paper) copy.

"Facility Management" will include the General Manager, or the managers of the major facility functions, such as Laboratory, Technical, Operations, or Environmental and their designees. Individuals may act as a designee under this WAP only as specifically authorized. The facility will maintain a record of each authorized designee, including the specific function(s) the individual may perform as designee, and the experience and training which qualifies the individual to perform the designated function(s).

References are made throughout this plan to regulations promulgated by the EPA regarding waste analysis requirements for hazardous waste management facilities. These requirements are generally found in 40 CFR Part 264 Subpart B, which has been adopted by reference in the rules of the TCEQ (30 *TAC* 335.152(a)(1)). Unless otherwise specified herein, cited federal regulation has been adopted by reference by the TCEQ.

Veolia strives to maintain, at all times, complete compliance with the hazardous waste regulations. Because new testing requirements, such as those promulgated under the land disposal restrictions, often become effective prior to the time WAP revisions can be formally made and approved by all appropriate agencies, it is impossible to have in place an approved WAP meeting all the conditions of the immediately effective requirements.

In light of these facts, the facility will have in place a written protocol specifying the new testing and frequency requirements prior to processing of the regulated waste. The facility may also periodically revise the protocol to reflect scientific advances, additional land ban requirements and/or other pertinent factors. If WAP revisions are necessary because of a new regulatory rule, they will be submitted within 60 days after the effective date of the rule, or as specified in the regulations.

2.0 SAMPLING METHODOLOGY

Sampling is performed by Veolia to identify incoming waste shipments or by the waste generator, or Veolia on behalf of the generator, to make the initial waste determination. Specific sampling procedures are dependent on both the nature of the material and the type of containment. This section presents sampling methodologies to be utilized by Veolia personnel when collecting representative samples for analysis pursuant to 40 CFR §§264.13(a)(1), 264.13(b)(3), and 264.13(c)(2). Waste generators are referred to 40 CFR Part 261, Appendix I for sampling procedures.

When a waste shipment arrives at the facility for treatment, storage, or disposal, a determination has already been made that the waste is one of the following:

- a listed hazardous waste, as defined in Subpart D of 40 CFR Part 261;
- a characteristic hazardous waste, as defined in Subpart C of 40 CFR Part 261; or
- solid waste which is not hazardous waste, as defined by 40 CFR §261.4(b).

The waste characterization on the Wastestream Information Profile (WIP) (typical form shown in Figure 4-1), provides Veolia with information concerning the distribution, as well as the nature of the waste components. Therefore, as described in EPA document SW-846, a sampling approach which is less comprehensive than that used to make the initial waste determination is appropriate (e.g., vertical compositing). The waste shipment is sampled and analyzed to ensure that it matches the overall identity of the waste designated on the accompanying manifest (or shipping paper) and the pre-acceptance paperwork. If examination indicates strata in the waste, then each layer may be composited in proportion to its estimated volume or analyzed separately.

The sampling equipment and procedures described in this WAP represent the facility's recommended sampling protocol for general types of waste material and containment. Specific waste materials or shipments may require different sampling techniques. Therefore, deviations from the recommended protocol do not constitute violations of acceptable sampling practices or conditions of this WAP. All methodologies will be updated and revised as the references are updated and revised. The sample holding times, preservation techniques, and container types recommended in SW-846 will be followed.

2.1 MATERIALS

At a minimum, the methodologies utilized for specific materials correspond to those referenced in 40 CFR Part 261, Appendix I. The sampling methods and the equipment utilized for different materials are presented in Table 2-1.

2.2 TYPES OF CONTAINERS

In addition to EPA and American Society of Testing Materials (ASTM) sampling procedures, Veolia has instituted specific methodologies for taking samples from various types of containers. The type of container may be stationary or transportable, such as drums, tanks, portable transport units (e.g., tote bins, roll-off boxes, lugger boxes), tankers or dump-type trucks. Sampling devices are selected depending on the size and type of the container and on the specific material involved.

Access to a container will influence the location within the container from which samples can be taken. Specific sampling procedures are dependent on both the distribution and the nature of the waste components in the container. Due to these variations, minor modifications may be needed to the recommended sampling procedure in order to obtain a sample.

2.2.1 Containers and Tanks

Sampling of small containers (e.g., drums, cartons, and other small units) varies with the nature of the waste material. For flowable materials, the sampling device of choice is either a Coliwasa unit or tubing (or other device as noted in Table 2-1). For nonflowable wastes, tubing or a trier is used to obtain a representative sample (or other device as noted in Table 2-1).

Large containers and tanks for flowable materials and bulk containers for solid materials may be either stationary or mobile. Liquids are sampled with Coliwasa, tubing, or by weighted bottle or bomb sampler to allow for sampling at various depths. In addition, where tanks do not permit sampling from the top of the tank or where the tank is agitated, sampling may be accomplished through ports or taps located in a vertical plane along the side of the tank or sampling through pumps or fittings at the tank's inlet or outlet. These samples may be composited in equal volume to yield a representative sample. Light, dry powders and granules are sampled with tubing or a thief. Heavier solids are sampled by trier, shovel, or by coring with heavy tubing. Tank sediments are sampled from the bottom sampling valve when not readily sampled from above.

2.3 PROCESS IN-LINE SAMPLING

The variability of the waste stream at any point in a treatment process is first determined from knowledge of the process producing the waste, or from the results of a preliminary investigation of the waste stream. Sampling frequency is based upon sampling from appropriate in-line sampling points in the process stream and potential sample compositing for analysis. The samples can vary in size, depending on the flow rate of the stream.

3.0 ANALYTICAL RATIONALE

A waste characterization is obtained by Veolia on a WIP. Veolia obtains all the information required by 40 CFR §264.13(a)(1) [as outlined in 40 CFR §264.13(a)(2)and comment] to treat, store, or dispose of a waste. Analyses are conducted by Veolia to augment the waste characterization, when necessary, and to identify incoming waste shipments. Analyses are also utilized to provide data necessary for proper waste handling.

Analytical parameters are classified as "Mandatory Analyses" and "Supplemental Analyses."

"Mandatory Analyses" are performed on incoming waste shipment samples, except as noted in Sections 5.1.1, in order to: (1) identify a waste shipment; and (2) ensure that the appropriate waste management technique can be utilized.

"Mandatory Analyses" will also be performed on a representative sample, when necessary for pre-acceptance purposes, if the generator supplied information is not sufficient (See Section 4.0).

"Supplemental Analyses" are performed on incoming waste shipment and in-process samples as specified by this WAP or facility management to:

1. Confirm and/or augment existing information on the waste;
2. Further identify a waste and/or;
3. Further ensure that the appropriate treatment, storage, or disposal process can be utilized and to provide operations information utilized for control of these processes.

"Supplemental Analyses" may also be performed on a representative sample, when necessary for pre-acceptance purposes, if the generator supplied information is not sufficient.

This arrangement allows a tiered approach to waste identification, enabling Veolia to structure the analyses to adequately identify the waste or to define operational parameters for various treatment processes. As a minimum, all wastes, except as noted in Section 5.1.1, are subjected to the "Mandatory Analyses" as a first step in the analytical scheme. "Supplemental Analyses" are performed at the direction of facility management. The parameters which constitute the "Mandatory Analyses" and "Supplemental Analyses" are described below. The methods which may be utilized to determine these parameters are identified in Appendix WAP-A. Parameters described in this section are identified in Appendix WAP-A as either "Veolia-developed" or "standard" (recognized by the U.S.EPA, ASTM or other authoritative sources e.g., AOAC analytical techniques.

A summary of the analytical parameters within each category and their usage is provided herein. Analyses are not necessarily repeated for sequential activities or movement of the same waste within the facility or between Veolia facilities unless required by changes in the waste's character. The Laboratory Manager or Technical Manager may waive specific "Mandatory or Supplemental Analyses" if performing the analysis presents a safety hazard in the laboratory (e.g., organic extraction on an oxidizing waste).

3.1 "MANDATORY ANALYSES"

"Mandatory Analyses" consist of basic screening procedures (key parameters) performed to provide general identification information of the waste. These analyses may be used in conjunction with other waste analyses and information to further identify a waste and/or ensure that the type of treatment, storage and/or disposal chosen is most suitable for that particular waste.

The parameters and associated rationale of the "Mandatory Analyses", are as follows:

1. Physical Description (appearance) is used to determine the general properties of the waste. This facilitates subjective comparison of the sampled waste with prior waste descriptions or samples. It is also used to verify the presence or absence of free liquid, as well as any obvious change in a waste's physical properties.

2. pH Screening is undertaken to indicate the pH and, in general, the corrosive nature of the waste. pH may not apply to certain waste types, (e.g., organic solvent waste, oil waste, or insoluble solid waste).

3. Water Mix Screening (Water Compatibility) is used to determine whether the waste has a potential to vigorously react with water to form gases or other products or to generate significant heat. This testing does not apply to wastes that are already in contact with excess water, or for which sufficient analytical data exist indicating no potential reactivity with water.

4. Flammability Potential Screening is used to indicate the fire-producing potential of the waste. This testing can be applied to all waste liquids, semi-solids or solids. It is used to identify obvious changes in a waste such as flammable waste substituted for an inert solid.

5. Cyanides Screening is used to indicate whether the waste has the potential to produce hydrogen cyanide gas upon acidification below pH 2. It is not required if the pH of the waste is less than 2.0, if the waste is not water-soluble, or if the waste is organic.

6. Sulfides Screening is used to indicate whether the waste has the potential to produce hydrogen sulfide upon acidification below pH 2. It is not required if the pH of the waste is less than 2.0, if the waste is not water-soluble, or if the waste is organic.

7. Heating Value (BTU) or Heat of Combustion is used to evaluate a waste's potential for incineration, establish proper incinerator feed blend characteristics, and develop appropriate incineration packaging requirements. There are no minimum or maximum acceptance limits for incoming waste shipments based on heating value. Heating value of a particular feed blend is controlled by incinerator in-process analyses (see Section 6.2). Testing for heat value may not apply to containers of waste which will be blended prior to incineration; it does not apply to wastes destined for deepwell injection.

8. Chlorine Content (Cl) is used to establish the proper blend characteristics and appropriate container packaging requirements, to evaluate potential impacts on the incinerator and/or pollution control equipment, and to determine PCB feed rates. This testing may not apply to containers of waste which will be blended prior to incineration; it does not apply to wastes destined for deepwell injection.

9. Radioactivity Screening is performed to ensure that radioactive waste is not accepted by the facility. Screening will be conducted on all off-site waste shipments received at the facility using an automatic Gate Monitor equipped with four scintillators installed at the receiving gate. The equipment will be installed, calibrated, operated, and maintained in acceptance with the manufacturer's instructions and specifications.

   The system continually measures background radiation. When a waste delivery vehicle triggers a reading that is 25 microR/hr above background at the detectors, it will set off an alarm. At that point, Veolia waste receiving personnel will be responsible for locating the source of the radiation using a hand held scintillation detector.

   Once the source of the radiation is located, the generator of the waste will be contacted to identify the radioactive isotope and obtain an explanation for its presence. At the generator's instruction, a sample of the waste will be obtained and shipped off-site for gamma spectrometry analysis to identify the isotope and its concentration. The results of the analysis will be utilized to determine if the waste stream is acceptable for treatment at the Veolia facility or must be rejected to the generator or an alternate TSDF that is authorized to manage radioactive wastes.

   During equipment outages due to planned maintenance or system failure, screening will be conducted using a hand held scintillation detector on all incoming waste shipments until the automatic screening system is repaired and placed back into operation.

The system is calibrated by the manufacturer during installation and is inspected and calibrated on an annual basis thereafter. In accordance with the manufacturer's instructions, the system will be function checked with a radioactive source by Veolia personnel on a weekly basis. The monitor is equipped with a data logging system and automatic daily back-up. The results of all calibrations, function checks, and monitoring results will be maintained in the facility's operating record.

10. Oxidizer Screening is used to determine the presence of strong oxidizing agents or peroxides. This testing does not apply to wastes destined for deepwell injection.

3.2 "SUPPLEMENTAL ANALYSES"

"Supplemental Analyses" are performed to further identify wastes and/or to provide process control information, as directed by facility management. The results of these analyses provide an additional level of confidence concerning the proper means of treatment, storage and/or disposal. Most of the parameters which constitute the "Supplemental Analyses" utilize standard analytical techniques recognized by the U.S. EPA, ASTM and other authoritative sources. Others utilize unique procedures and protocol formulated by Veolia which have been developed in the absence of any standard procedures through Veolia's operating experience.

- Filter Time is used to determine filterability of waste for deepwell injection.
- Flash Point further identifies ignitable wastes to establish proper storage mode and conformance with permit conditions.
- Gas Chromatography (GC) Methods are used to separate and identify organic compounds.
- GC/Mass Spectroscopy (MS) Methods are used to separate and identify organic compounds.

- Halogen Content is used to estimate the potential of halogen gas generation during incineration or use as a fuel, or for compliance with feedstream operating limits.

- Qualitative IR Spectroscopy is run to provide a fingerprint spectrum of organic wastes.

- Commingled Waste Compatibility is tested to determine whether liquid wastes to be commingled are compatible.

- Metals Determination is used to establish process operating parameters and to quantify metals content in wastes to be incinerated.

- Organic Content provides a conservative measure of organic carbon in a waste.

- Paint Filter Test and/or Free Liquid Determination is used to indicate if free liquids are present in a solid or semi-solid material.

- PCB Analyses are performed in order to indicate whether PCBs are present in oil-bearing wastes and/or to ascertain their concentration.

- PCB Screening indicates whether or not PCBs are present in a waste and provides a qualitative indication of their concentration.

- Percent Acidity determines the acidity in the waste. It may be determined if the waste is aqueous and below a pH of 7.

- Percent Alkalinity determines the amount of alkalinity in the waste. It may be determined if the waste is aqueous and above a pH of 7.

- Percent Ash is used to determine the ash content in waste feeds to the secondary combustion chamber (SCC). This test is performed on liquid blends intended for injection in the SCC burners.

- Percent Solids by Centrifuge determines the percentage of suspended solids by centrifugation.

- pH provides a more precise measurement of pH and an indication of corrosivity when determining process parameters.

- Soluble Sulfides are analyzed to provide quantitative backup to the reactive sulfides screen.

- Specific Gravity/Density indicates density of the waste.

- Sulfur Content determines the sulfur content of waste to be incinerated and thus its capability to generate SO_2 (SO_x) gases.

- Total Cyanides (Distillation with $MgCl_2$) quantifies the concentration of all free and most complexed cyanides.

- Total Solids quantifies suspended and dissolved solids and moisture content for selected processes.

- Total Sulfides is used to quantify the concentration of total sulfides.

- Toxicity Characteristic Leaching Procedure (TCLP) determines whether a waste or a treated waste residue contains levels of restricted constituents above appropriate treatment standards.

- Viscosity determines the waste pumpability.

- Visual Oil and Grease provides a qualitative assessment of filterability and organic contents.

- Water Content is used to determine the percent of water in liquid, solid or semi-solid samples.

Other standard analytical techniques parameters not listed here may be utilized as required by changes in regulations, company policy, etc. These techniques will be taken from recognized sources (e.g., SW-846, ASTM, AOAC, etc.).

4.0 PRE-ACCEPTANCE PROCEDURES

Veolia has developed a series of control procedures to determine the acceptability of specific wastes for management at the facility. These control procedures are referred to as pre-acceptance procedures. The pre-acceptance procedures dictate what information Veolia must have available in order to determine the acceptability of the waste for treatment, storage, or disposal. At a minimum, Veolia will obtain all the information required by 40 CFR §264.13(a)(1) [as outlined in 40 CFR §264.13(a)(2) and comment].

Pre-acceptance control is the mechanism for deciding to reject or accept a particular type of waste, prior to its acceptance at the facility, based on the conditions or limitations of existing permits, its compatibility with other wastes being treated, stored, or disposed at the facility, its suitability for management using the process options available at the facility, and compliance with the Land Disposal Restrictions, including the impermissible dilution prohibitions in 40 CFR §268.3. The pre-acceptance procedures for this facility may be carried out at this facility, another Veolia facility, or upon receipt of the load prior to its acceptance.

4.1 PROCEDURAL REQUIREMENTS

For each new waste stream that is a candidate for management at the facility, except where noted herein, the following procedures are implemented:

- Veolia will obtain:

  (1) pertinent chemical and physical data and, when appropriate, representative sampling information and certification on the Wastestream Information Profile Sheet (WIP), typical form shown as Figure 4-1.

  (2) a representative sample, if required. A representative sample may not be required by Veolia if facility management determines that the pre-acceptance documentation obtained by Veolia gives sufficient information to maintain compliance with permit and operational constraints and that submittal of a sample for analysis would not aid in the disposal decision process. For example, the wastes identified in Section 5.1.1, including waste from small

volume generators (less than 25 tpy) would not require a pre-acceptance sample.

(3) Land Disposal Restriction Notification/Certification Information and/or Data (40 CFR § 268.7).

(4) other supporting documentation as appropriate, including any information such as additional analytical results, Material Safety Data sheets, product ingredients, etc.

- When necessary, Veolia will perform the Mandatory Analyses and any Supplemental Analyses necessary on a pre-acceptance sample of the waste in order to provide the facility with the information needed to determine if the waste can be managed and/or to determine if the waste material matches the identity of the waste designated on the accompanying pre-acceptance paperwork. The analyses will be done in accordance with the parameters outlined in Section 3.0.

- After evaluating the above information and any other information obtained from the Mandatory Analyses or Supplemental Analyses, Veolia will determine the acceptability of the waste based on:

  1) the permit conditions for the facility;

  2) the availability of the proper waste management techniques; and

  3) the ability of the facility to comply with all applicable Land Disposal Restrictions and the dilution prohibitions of 40 CFR §268.3. Where the presence of one or more of the criteria as identified in 40 CFR § 268.3(c) would permit combustion, the final acceptance of the waste will be conditional on the received waste exhibiting those parameters or characteristics as identified in the pre-acceptance process. (See Figure 4-2)

- Veolia maintains as part of its pre-acceptance information generator-supplied and Veolia-developed information. This information may be accessed electronically or via hard copy.

4.2 "STANDARD PROFILES"

"Standard Profiles" may be used for waste streams which are generated by similar industries or processes and are similar in physical and chemical characteristics, consistent with the USEPA approach of assigning a listed waste code to similar process wastes.

An analytical database with historical analytical data will be developed for each specific “Standard Profile” using Mandatory and Supplemental Analyses conducted on pre-acceptance and/or load samples from previously received waste streams generated from similar industries or processes (e.g. K048 DAF; K169 crude oil storage tank sediments; K023 distillation light ends). As part of each Standard Profile development, an analytical database will be developed from a minimum of 30 analytical reports, selected from the facility’s Mandatory and/or Supplemental Analyses (See section 4.0 and 5.0 of the Waste Analysis Plan), prior to acceptance of any waste using a standard profile. As additional loads are received using a standard profile, the applicable analytical parameters will be added, as necessary, to expand and update the database.

The facility is required to perform a pre-acceptance review of generator provided information to determine if the waste, as generated, meets the physical and chemical criteria established for each Standard Profile. To be a candidate, the specific industry and/or process generating the waste must be similar to the industry or process as identified on the applicable standard profile. The existing analytical database will be compared to the generator provided information on their waste stream to determine if the parameters are similar. Concentration differences of greater than 20% for major constituents (e.g. those that compose at least 30%) and concentration differences greater than 50% for minor constituents (those less than 30%) will disqualify the candidate waste to use a standard profile. Major differences in physical or chemical properties such as an acidic waste showing basic characteristics, will also eliminate the waste from use of a standard profile.

If the waste description and parameters as identified by the generator is consistent with the applicable database for a specific “Standard Profile”, the waste will be managed under the existing disposal decision specific for that "Standard Profile". The analytical database parameters will replace the requirements for a pre-acceptance sample. Incoming load sampling, receiving and evaluation procedures will be conducted in accordance with Table IV.C., *Sampling And Analytical Methods*, and Section 5 of the WAP.

4.3 PRE-ACCEPTANCE EVALUATION

Facility management is responsible for the pre-acceptance evaluation decision (i.e., whether to accept or reject the waste). Figure 4-2 presents an overview of the pre-acceptance process. Samples of waste necessary for consideration for acceptance are subjected to the "Mandatory Analyses" (Section 3.1). Facility management may require "Supplemental Analyses" to screen samples for other contaminants or properties which indicate possible treatment or disposal modes. The basis for requiring these additional analyses are:

- Waste management technique to be used;
- Facility management's experience and judgment;
- Wastestream Information Profile Sheet (WIP) description of the chemical and physical properties of the waste;
- WIP description of the process generating the waste;
- Any additional documentation supplied by the generator, including information that the waste is subject to the Land Disposal Restrictions of 40 CFR Part 268, if appropriate; and
- Results of any "Mandatory Analyses" and any previous "Supplemental Analyses".

The pre-acceptance evaluation is concluded with documentation of the decision regarding the acceptability of the waste and the proposed method of management.

Facility Management's technical disposal decisions are based on:

- Management methods available;
- Conditions or limitations of existing permits and regulations;
- Capability to manage the waste in a safe and environmentally sound manner;
- WIP description of the process generating the waste;
- WIP description of the chemical and physical properties of the waste;
- Any additional documentation supplied by the generator, including information that the waste is subject to a Land Disposal Restriction of 40 CFR Part 268, if appropriate;
- Results of "Mandatory Analyses", if necessary;
- Results of "Supplemental Analyses", as appropriate; and
- Management's technical experience and judgment.

4.4 WASTE PROFILE RE-EVALUATION

In accordance with 40 CFR §264.13, a waste profile re-evaluation will be conducted when one of the following occurs:

- A generator notifies Veolia that the process generating the waste has changed;

- The results of inspection or analysis indicate that the waste received at the facility does not match the identity of the waste designated on the accompanying manifest (or shipping paper) or pre-acceptance documentation, and the difference cannot be resolved (See Section 5.2); or

- A shipment of the profiled waste has not been received for 18 months or more (i.e., no routinely available analytical data exist for the waste).

The re-evaluation will consist of a review of the waste profile information, including the process generating waste, and an analysis of the waste, if required, to determine if the wastestream characteristics have changed. If existing analytical is not sufficient, the generator may be asked to review and update the current waste profile, to supply a new profile, and/or to submit a sample for analysis, or Veolia may utilize a sample obtained from a load of the waste.

5.0 INCOMING WASTE SHIPMENT PROCEDURES

Each shipment of waste will be inspected, sampled and analyzed as defined herein before acceptance, except as noted in Section 5.1.1. This serves two purposes. First, it compares the actual waste identity with that determined in the pre-acceptance phase and that listed on the waste manifest. Second, it further ensures proper disposition of the waste for treatment, storage, and/or disposal. Other Veolia personnel (or Veolia-approved subcontractor) can provide the Mandatory and/or Supplemental Analyses required for acceptance. Waste shipments that have arrived at the facility are considered to be in the receiving process until such time that facility management makes a final decision regarding waste acceptability; at such time the wastes are considered accepted or are rejected.

In addition, all initial waste shipments which are subject to the Land Disposal Restrictions of 40 CFR Part 268 and which have been treated, exempted, varianced or naturally meet the appropriate treatment standard must be accompanied by a one-time, written form from the treater or generator certifying that the treated, exempted, or varianced waste meets the appropriate treatment standard, prohibition exemption, or variance. This form must include the applicable analytical data, when available, as required in the Generator Paperwork Requirements Table presented in 40 CFR §268.7. Furthermore, all initial waste shipments which are subject to the Land Disposal Restrictions of 40 CFR Part 268 and require treatment must be accompanied by a one-time, written form from the generator, notifying the facility of the appropriate treatment standard or prohibition including any applicable data or reference to such data or documentation which must be met in accordance with 40 CFR §268.7. As specified in 40 CFR §268.7, the generator is required to submit a new notification/certification if the waste or the facility change. The pre-acceptance procedures will apply to this “new” waste.

5.1 RECEIVING PROCEDURES

The sampling and analysis of the incoming waste will utilize the appropriate methods described in Sections 2.0 and the parameters identified in Section 3.0. Inspections will be performed as described in this section.

Upon arrival of a waste shipment at a Veolia facility, the accompanying manifest is reviewed for completeness and the shipment is inspected for agreement with the manifest information. Bulk shipments will normally be weighed (gross weight) as a first step to confirm manifest quantity. The empty vehicle will normally be weighed (tare weight) when exiting the facility or the known tare weight of a container may be used. Alternatively, arrangements may be made for use of an on-site scale that is not located at the facility entry point, an off-site scale, or another quantity verification technique. Waste shipments manifested as drums or similar containers will be subjected to a piece count during inspection.

All shipments arriving at the site will be visually inspected. Incoming shipments will be sampled and analyzed for the "Mandatory Analyses" identified in Section 3.1 and any "Supplemental Analyses" specified by facility management, except as noted in Section 5.1.1. All containerized wastes that are stored in container storage areas that do not have secondary containment meeting the criteria specified in 40 CFR §264.175, including waste destined for transshipment, are required to be tested by EPA Method 9095 (Paint Filter Liquids Test) to confirm there are no free liquids present.

Subject to the exceptions identified in Section 5.1.1, all bulk liquid and solid waste deliveries will be sampled and analyzed, except where large volumes of a single waste stream are received from a single generating source and process (e.g., a major site cleanup of contaminated soil or water, or multiple shipments of a large volume, single-source, single-process waste). In such cases, all shipments will be inspected and at least 10 percent of such loads will be sampled and analyzed. Bulk waste may also be sampled and analyzed in an original bulk container (e.g., rail tanker, gondola car, etc.) prior to subsequent transport to the facility as portions of the original shipment.

In the case of shipments of non-bulk containers, at least 10 percent of the containers from each waste stream in the shipment will be sampled, except as provided in Section 5.1.1. Container samples from the same profile may be composited prior to analysis, providing the individual samples are similar. At a minimum, all remaining unopened containers will be visually inspected for container integrity and consistent labeling. If a significant discrepancy in waste type is noted, then the contents of all of the containers for that waste stream will be inspected.

5.1.1 Exceptions

Exceptions to the foregoing requirements include the following:

1. Waste contained in a lab-pack (combination packaging). Combination packaging is defined in 49 CFR §171.8 as "...one or more inner packagings secured in a non-bulk outer packaging" and is subject to the Department of Transportation shipping package requirements of 49 CFR Part 173.

2. Commercial products or chemicals: off-specification, outdated, unused, contaminated or banned. This also includes products voluntarily removed from the market place by a manufacturer or distributor.

3. "Empty" containers of waste materials, commercial products or chemicals. This applies to a portable container which has been emptied, but which may hold residuals of the product or chemical, or to a container containing exclusively empty containers. Examples of containers are: portable tanks, drums, barrels, cans, bags, liners, etc. A container shall be determined "empty" according to the criteria specified at 40 CFR §261.7. These empty containers may be crushed or intact.

4. Residue, soil and debris from cleanup of spills or releases of chemical substances, previously approved wastes, commercial products or a waste which would otherwise qualify as an exception.

5. Waste from a medical practitioner, hospital, medical clinic, nursing home, medical testing laboratory, mortuary, taxidermist, veterinarian, veterinary hospital or animal testing laboratory. These materials include "medical waste" as defined in 30 TAC §330.3(85). ***NOTE:*** *Discarded chemicals from the above facilities should be packaged and handled as provided in subsection 1 above.*

6. Wastes which are visually identifiable through an inspection process. (Examples may include cathode ray tubes, batteries, fluorescent light tubes, filters and filter

cartridges, wire or tubing, paper products, metal sheeting and parts, crushed glass, piping, etc.)

7. Demolition wastes. This consists of waste produced from the demolition or dismantling of industrial process equipment or facilities contaminated with chemicals from the process.

8. Articles, debris, non-RCRA wastes, equipment and clothing containing or contaminated with polychlorinated biphenyls (PCBs). This would include PCB capacitors or transformers, gloves or aprons from draining operations, empty drums that formerly held PCBs, etc.

9. PCB drainings and flushings removed from PCB articles. This would include spent materials (e.g. toluene or unused diesel) used to flush PCB articles.

10. Veolia site generated waste, including hazardous and non-hazardous waste. The facility generating the waste is required to submit the analytical data and/or information required by 40 CFR §264.13(a)(1) [as outlined in 40 CFR §264.13(a)(2) and comment] generally using a WIP.

11. Household hazardous waste and pesticide cleansweep waste. For these exceptions, the generator will supply Veolia with sufficient chemical and physical characteristics information for proper management of the waste.

12. Controlled substances. These are materials regulated by the Federal Government including drugs and/or substances from clandestine labs.

13. Materials designated for storage and transshipment off-site. These materials are received at the facility for storage and subsequent transshipment only and are not processed or commingled with other wastes or materials. If it is determined that the facility will process a waste previously designated for storage and subsequent transshipment, the waste will be sampled and analyzed accordingly, prior to any waste blending or treatment activities.

14. Waste from a remedial project in which the sampling and analysis plan was approved by a federal or state mandated with administration of an environmental regulatory program (e.g., EPA or TCEQ cleanup project).

15. Debris as defined at 40 CFR §268.2. These materials will be visually inspected prior to acceptance in order to ensure that the waste meets the definition of debris.

16. Contaminated personnel protective equipment (PPE) (e.g., gloves, tyveks, respirator cartridges).

17. Containerized gaseous wastes, including bottles, canisters and aerosol cans.

18. Municipal garbage in sealed containers (e.g., expired MRE's (Meals Ready to Eat)).

The sampling and analysis of the above waste materials is not required unless specifically requested by facility management. These materials are not sampled and analyzed because the chemical and physical characteristics of their contents are known in sufficient and reliable detail or have been previously characterized and shipped from a Veolia facility. Inspection of these shipments is sufficient to verify their identity. Veolia will obtain and evaluate all the information required by 40 CFR §264.13(a)(1) [as outlined in 40 CFR §264.13(a)(2) and comment] necessary to characterize, treat, store, or dispose of the waste.

In addition, facility management may waive the incoming waste load sampling and analysis where the pre-acceptance documentation supplies sufficient information to assure compliance with permit conditions and operational constraints of the treatment process; and any one of the following conditions exist:

- Obtaining a representative sample poses an unnecessary hazard of acute or chronic exposure of Veolia employees to carcinogenic, mutagenic, neoplastigenic, teratogenic, or sensitizing materials; or

- The material may react violently with air or moisture; <u>or</u>

- The material's odor poses a public nuisance when sampled; <u>or</u>

- A sample cannot be reasonably obtained, such as filter cartridges, large pieces of contaminated material, or contaminated debris.

In these cases, the shipment will still be inspected for conformance with manifest and pre-acceptance documentation as previously described.

5.2 DECISION EVALUATION LOGIC

An overview of the logic utilized by facility management in deciding whether to accept or reject a particular waste shipment is depicted in Figure 5-1. Major decision points are:

- The need for "Supplemental Analyses";

- The actual waste identification;

- An evaluation of whether a waste is found to be in conformance or non-conformance; and

- An evaluation of whether a waste found to be in non- conformance can still be accepted.

1. <u>The need for additional "Supplemental Analyses"</u>

Facility management decides whether additional "Supplemental Analyses" are required for a particular waste based on the following:

- Results of "Mandatory Analyses" and any previous "Supplemental Analyses";

- Knowledge of generator and/or waste-generating process;

- Results of pre-acceptance evaluation;
- Limitations of the targeted waste management unit; and
- Experience of facility management in determining the need for additional information.

Further testing may be required if the results indicate the unexpected presence or absence of a screen parameter with respect to pre-acceptance information, or if facility management has reason to suspect that the waste composition has changed.

2. <u>The actual waste identification</u>

The effectiveness of the waste identification step is dependent on one or more of the following components:

- Inspection;
- Sampling (where required);
- Analytical results (where required);
- Wastestream Information Profile Sheet;
- Any additional documentation supplied by the generator, such as MSDS, product ingredients, etc.;
- Waste Manifest;
- Appropriate Land Disposal Restriction Notification and/or Certification forms; see Section 5.0;
- Pre-acceptance analytical results (where required); and

- Facility management's judgment.

3. <u>An evaluation of whether a waste is found to be in conformance or non-conformance.</u>

Facility management must classify the waste as being in "non-conformance" if a significant discrepancy is found to exist (in accordance with 40 CFR §264.72). Three major criteria are used to arrive at this decision. They are:

- For bulk wastes, variations greater than 10 percent in weight;
- For batch wastes, (e.g., drums, bags, etc.), any variation in piece count. That is any disagreement between the number of pieces listed in the manifest and the number of pieces on the arriving truck; and
- For all wastes, a determination by inspection and/or analysis of obvious differences in waste type, such as waste solvent substituted for waste acid or toxic constituents not reported on manifest or shipping paper.

In addition, if the waste is significantly different in composition from the information shown in the WIP or pre-acceptance information, facility management must classify the waste as being in "non-conformance".

4. <u>An evaluation of whether a waste found to be in non- conformance can still be accepted.</u>

Wastes found to be in non-conformance may be rejected, or they may be re-evaluated for possible acceptance by the facility, despite the non-conformance. This procedure is intended to prevent the unnecessary movement of a waste material back and forth between the facility and the generator in cases where the material can be readily handled by the facility. By eliminating this unnecessary movement, Veolia is attempting to reduce further possible exposure of this waste to human health or the environment. The re-evaluation procedures are designed to determine whether a waste material, in its form as identified by Veolia (i.e., inconsistent with WIP and/or manifest data), can be handled by the facility, and whether the generator concurs with the Veolia identification. The re-evaluation will be based on any or all of the following criteria:

- Permit authorization;
- Discussions with and/or information from the generator;
- Facility conditions;
- Facility management's judgment; and
- Additional "Supplemental Analyses".

Facility management will discuss and attempt to resolve with the generator a non-conformance between the actual waste and manifest or pre-acceptance information. In addition to the verbal information provided by the generator, the facility may request written documentation from the generator, noting the non-conformance and reasons for the occurrence. If the shipment is accepted, the manifest is amended, as required. In addition, a new waste disposal decision may be initiated for the non-conformance or the non-conformance resolution may be documented on the receiving paperwork.

If a significant discrepancy cannot be resolved within 15 days of shipment receipt, the TCEQ Executive Director will be notified, in writing, of the discrepancy and of attempts to reconcile it, including a copy of the involved manifest.

A waste may be rejected for one of the following reasons:

- The generator's/transporter's paperwork is not in order;
- A manifest discrepancy or other non-conformance cannot be resolved to the generator's or Veolia's satisfaction;
- A bulk liquid shipment is incompatible (fails the liquid waste compatibility test) with waste stored in the bulk liquid storage tanks and no other management method is available;

- Adequate segregated space is not available at the container storage areas for containerized wastes and special handling cannot be used to correct the deficiency; or

- Acceptance would constitute a violation of the facility's permit.

6.0 PROCESS OPERATIONS PROCEDURES

Each movement of a waste within the facility, during which any change in its characteristics may occur, may make the waste subject to additional inspection, sampling and analysis to determine appropriate handling and management of the waste. Many of the analyses needed for the treatment, storage, and/or disposal functions are performed during incoming shipment identification. These are not repeated unless it is known or believed that the waste characteristics may have significantly changed during storage or processing and/or such information is deemed necessary for the safe management of the waste.

Existing and anticipated process operations at the facility, for which current and periodic sampling and analyses are important, include the following:

- Storage, including liquid and containerized storage;
- Treatment, including filtration and incineration; and
- Disposal by deepwell injection.

The analytical procedures for each of these processes are described separately below.

6.1 STORAGE

Before any waste is placed into storage, facility management will assess the compatibility of the waste with wastes already in storage. An overview of the general analytical approach, applicable to all but waste stored for transshipment only, is shown in Figure 6-1. Wastes stored for transshipment only are segregated based on information provided by the generator and basic chemical principles.

6.1.1 Liquid Storage

Liquid wastes which are transferred from containers or tank trucks are generally placed in bulk storage tanks prior to further treatment, although a waste may be fed directly to the designated treatment unit. When an incoming load of liquid waste arrives, it will be subjected to the appropriate analyses in accordance with Table IV.C and Section 3.0 to identify the wastes (except as provided in Section 5.1.1), and a commingled waste compatibility test will be performed, if appropriate, to assure safe storage of the liquid in storage tanks. If a liquid load is exempted from sampling, as described in Section 5.1.1, the waste will be segregated from other waste materials based on facility management's technical assessment of the waste, e.g., compatibility class.

6.1.2 Containerized Storage

Stored containerized wastes are segregated with respect to ignitability and compatibility. Appendix V of 40 CFR Part 264 (examples of Potentially Incompatible Waste) or other appropriate reference information (e.g., DOT regulations in 49 CFR Part 177, Subpart C- Segregation and Separation Chart of Hazardous Materials) will be employed for the initial determination of compatibility. Using the predominant hazard classification on incoming containerized waste, the proper storage area will be designated to insure separation of stored incompatible waste.

Based on the initial hazard determination made by the generator on the WIP and the final identification of the waste shipment, the containerized waste will typically be segregated in the following manner: Flammable, corrosive, and oxidizing waste materials will be separated from incompatible materials by storage in separate areas. The wastes are maintained in the segregated storage areas until they are treated, transferred (off-site), or disposed.

6.2 TREATMENT OPERATIONS

The treatment sampling/ analysis program may be divided into three segments, each with a specific purpose:

- Pre-treatment analyses confirm that the waste falls within the selected process design and allow adjustment of the process operational conditions during treatment;

- In-process analyses are performed to monitor treatment progress; and

- Post-treatment analyses confirm successful treatment and that the characteristics of the process effluent are such that it can be sent to the next step (further treatment or disposal), based upon permit or process constraints. Residues resulting from the on-site treatment of land disposal restricted wastes will be analyzed and/or evaluated, as needed, against the appropriate treatment standards or prohibitions. Any residues or waste sent offsite for disposal or further treatment/storage will have the appropriate notification and/or certification form in accordance with 40 CFR Part 268.

6.2.1 Filtration

In this process, solids-laden liquid wastes with high suspended solids loading are passed through a filter. This results in a filtrate with acceptably low suspended solids and a filter cake. An overview of the general analytical approach is shown in Figure 6-2.

The feed to the filter must be evaluated with respect to filter time and visual oil and grease content. Excessive concentrations oil and waste and/or excessively slow filter times may result in shortened filter runs and excessive solids in the effluent. Measurement of the waste pH is also required for equipment protection.

The parameter regularly checked in order to monitor the operation is filter time of the waste. If this is not within acceptable ranges, then the filter operation requires adjustment and the waste may be reprocessed.

Post-treatment analyses consist of tests necessary to ensure that the filtrate meets the required criteria for further treatment or direct disposal.

6.2.2 Incineration

In this process, liquid, semi-solid, gas, and solid wastes are destroyed by high-temperature thermal oxidation. The resulting streams include ash and combustion gases that are scrubbed to remove HCl (and other acid gases) and particulates.

Wastes fed to the incinerator may be blended/batched to meet permit constraints and to maintain steady state (normal) operation of the incinerator. Liquid waste, except direct injection liquid, is blended in bulk tanks to produce appropriate waste feed for the incinerator. Prior to incineration, a sample is drawn from the tank containing the waste feed blend and analyzed for the following parameters:

1. Heat Value - Heat value is measured to control the feed rates of waste fed into the incinerators. The maximum heat value which can be burned per hour is established in the operating permit.

2. Ash Content - Ash content is measured to control percent ash of waste fed into the secondary combustion chamber (SCC) burners. The maximum ash content for waste fed into the SCC is established in the operating permit. Where the permit has not established a limit, this analysis will not be performed.

3. Total Chlorine Content - Chlorine content is measured to control the quantity of chlorine in the waste feed to the incinerator. It may also be used to determine PCB content. The maximum chlorine feed rate to the incinerator is established in the operating permit.

4. pH Screen is used to protect the integrity of tank farm materials of construction and provide management data for proper blending.

5. Sulfur Content is measured to estimate the amount of acid gas generated during the combustion process.

6. Metals Determination is conducted to quantify and, as required by the permit, limit the feed rate of metals to the incinerator. Sampling and analysis of actual incoming waste shipments and/or waste inventory will be performed to conduct the pre-incineration metals determination. If the waste is to be commingled prior to incineration, the determination may be conducted after commingling is complete. Metals determination for a commingled waste blend may consist of direct laboratory measurements on a sample of the blend, or of mass balance calculations based on analytical data for incoming shipment or in-process samples of each of the waste blend components. Where the permit has not established a limit, the determination will not be performed. Metals determination is also performed on fuels that may contain metals (i.e., fuel oil) as necessary to comply with permit limitations on total metals feed rates.

In instances where the same wastestream is stored in a dedicated tank and no blending of different wastes occur, the results of the sampling conducted upon receipt may be used to satisfy the pretreatment analysis requirements. Similarly, for metals only, when multiple shipments are destined for the same tank, a composite sample representative of respective blended volumes may be prepared from the incoming shipment samples and analyzed to satisfy the pretreatment analysis.

Permit operating values have been established through trial burn/performance testing. These values may be changed if trial burn/performance testing demonstrates that revised operating values will allow the incinerator to operate at a steady state (normal) conditions within permit constraints.

Facility management will review the blend analyses to assure permit compliance and to assure that the blend will allow steady state (normal) operation of the incinerator. The blend will be readjusted whenever necessary to meet all permit specifications. This is accomplished through tank-to-tank blending with additional wastes. Compatibility testing will be performed prior to all tank-to-tank transfers of liquid waste. This new blend is then tested for the blend parameters, which are used to determine optimum blend characteristics as mentioned in the previous paragraph.

Containerized waste is sequenced for incineration through careful evaluation of container feed. The parameters necessary for selection of proper feed sequence (Heat Value, Chlorine Content) are evaluated based on analytical data. For the materials identified in Section 5.1.1, the values of the above parameters are categorized based on physical and chemical composition information obtained per Section 4.1 and 5.1. Container feed sequences reflect an ongoing evaluation of operating experience.

Bulk solids are blended prior to incineration. Feed rates of regulated constituents (e.g., chlorine and metals with feed rate restrictions established by permit) are calculated based on analytical data for incoming shipment and/or in-storage samples of bulk waste containers and relative quantities of the wastes blended.

All wastes scheduled for incineration will be evaluated to ensure compatibility with system design and operating parameters. This procedure screens wastes that are not acceptable.

Post-treatment analyses and evaluation (see Section 6.2.2.1) will confirm successful treatment and that the characteristics of the process effluent are such that it can be sent to the next step (discharge, disposal or further treatment) based on permit or process constraints.

An overview of the analytical procedure is schematically presented in Figure 6-3.

6.2.2.1 *Incineration Residuals*

The residues generated from treatment of Land Disposal Restricted wastes will be analyzed and/or evaluated as needed against the appropriate prohibitions and/or treatment standards in accordance with 40 CFR §268.7 and as described in Appendix WAP-B.

To comply with the mixture and derived from rules, incinerator residues (i.e., ash, slag, and filter cake) generated by the combustion process are assigned all facility permitted waste codes as identified in Table IV.B, with the exception of those codes that have a specified technology standard other than CMBST, such as STABL, or a treatment standard that cannot be met by the combustion process.

For waste codes with the specified technology treatment standard of STABL, the facility's waste tracking system is utilized to ensure the incineration residuals generated from the combustion of the waste bear that code. First, the facility reviews the LDR forms submitted by generators for each shipment received. When the accompanying LDR form indicates the presence of a waste code that requires stabilization of incineration residues, the receipt record for that waste receipt is flagged with a "stabilization required" field when the receipt data is transferred from the receiving software program into the facility's waste tracking system.

The incinerator's Distributed Control System (DCS) utilizes the waste stream record in the electronic waste tracking system to track the movement and incineration of the waste so that all affected residuals can be identified with those codes requiring stabilization prior to landfill. After daily incineration records have been generated, a report is available to indicate which, if any, stabilization codes were incinerated on that day. The presence of a stabilization code for any of the wastes incinerated on a particular day results in the application of that code to all residuals generated on that day. In addition, the codes will be carried through to the residuals until the waste residence time of the kiln, SCC, and air pollution control train has been attained. This approach ensures that all residuals generated by the combustion process comply with the mixture and derived from rules.

6.3 Deepwell Injection

A sampling/analyses program is an integral part of this phase of operation. The results of this program serve to evaluate compliance with site permit constraints, confirm disposal method selection, and determine safety constraints. Incoming load analyses for wastes to be deepwell injected include:

- Physical description;
- pH
- Flammability Potential Screen;
- Cyanide Screen;
- Sulfide Screen; and
- Radioactivity Screen.

A Commingled Waste Compatibility is performed prior to off-loading incoming loads for deepwell injection.

In this disposal method, liquid wastes are pressure-injected down a deepwell into an isolated, porous stratum. Wastes are composited in batch tanks and then pH-adjusted, filtered and equilibrated as necessary prior to injection.

The major concerns with deepwell injection are compatibility with and plugging prevention of the well or receiving stratum. Pre-disposal analyses attempt to identify those wastes that would have the potential to cause solids precipitation, swelling, or plugging problems, and to screen out those that cannot be injected until after additional treatment. Samples are taken of all wastes prior to their compositing in batch tanks for this purpose.

When the batch tanks are filled, they are pH-adjusted as necessary and allowed to equilibrate. Certain parameters, such as filterable and non-filterable residue, may be checked as a measure of equilibrium. The waste is then filtered, pumped to a day tank and again equilibrated. At various intervals, several in-process analyses may be performed on the day tank to check suitability for injection. When it is determined that the waste to be injected is sufficiently equilibrated and compatible with the deepwell system, it is passed through a final filter and pressure injected down the well. An overview of the general analytical approach is shown in Figure 6-4.

7.0 QUALITY ASSURANCE/QUALITY CONTROL

The following quality assurance/quality control (QA/QC or "quality") information for this facility is being provided as required by 40 CFR §270.30(e) and in accordance with the following EPA guidance documents:

- Handbook for Analytical Quality Control in Water and Wastewater Laboratories, EPA 600/4-79-019, March 1979, U.S. Environmental Protection Agency (U.S. EPA), Environmental Monitoring and Support Laboratory (EMSL), Cincinnati, OH, March 1979.

- Test Methods for Evaluating Solid Waste: Physical/ Chemical Methods, SW-846, Third Edition, Final Update I, U.S. EPA, Office of Solid Waste, Washington, DC, July 1992, Chapter One.

Quality procedures are applicable to both sampling procedures and analytical techniques. This section does not provide specific performance standards of quality procedures for individual sampling and analysis techniques. Such specifics are defined on a corporate-wide basis for all company facilities. The specific performance standards are dynamic and are revised as warranted to reflect technological advances in sampling and analytical techniques. These performance standards are described in corporate policies, which are maintained and used at this facility and which are available for regulatory review. Portions of these policies have been summarized in the following sections.

7.1 SAMPLING PROGRAM

Sampling procedures for facility operations are described in Section 2.0 and Table 2-1 of this WAP. The selection of the sample collection device depends on the type of sample, the sample container, the sampling location and the nature and distribution of the waste components. In general, the methodologies used for specific materials correspond to those referenced in 40 CFR Part 261, Appendix I. The selection and use of the sampling device is supervised or performed by a person thoroughly familiar with the sampling requirements.

Sampling equipment is constructed of nonreactive materials such as glass, PVC plastic, aluminum, or stainless steel. Care is taken in the selection of the sampling device to prevent contamination of the sample and to ensure compatibility of materials. For example, glass bottles are not used to collect hydrofluoric acid wastes.

With some exceptions, all bulk and containerized waste shipments are sampled (see Section 5.1.1 of this WAP). Individual container samples may be composited prior to analysis.

7.2 ANALYTICAL PROGRAM

The company has developed a program of analytical quality practices and procedures to ensure that precision and accuracy are maintained throughout its laboratories. These programs may include use of control standards, duplicates, spikes, and blanks, in accordance with company policies. Company facility laboratories are required to participate in this program. Non-company laboratories employed by the company demonstrate quality control practices that are comparable to the company's program.

Good laboratory practices which encompass sampling, sample handling, housekeeping and safety are maintained at all laboratories.

7.3 CONCLUSION

The aforementioned sampling and analytical quality practices help ensure that the data obtained are precise and accurate for the waste stream being sampled. The analytical results are used by facility management to decide whether or not to accept a particular waste and, upon acceptance, to determine the appropriate method of treatment, storage, and disposal. Results are also important to ensure that wastes are managed properly by the facility and that incompatible wastes are not inadvertently combined. The quality of these results is as important as the results themselves. Thus, the quality of the analytical data, and the thoroughness and care with which the sampling and analyses are performed and reported, provides an important basis for day-to-day operational decisions.

TABLES

TABLE 2-1
SAMPLING METHODS AND EQUIPMENT

MATERIAL	METHOD	EQUIPMENT
Extremely viscous liquid	ASTM E300	Tubing, thief or Coliwasa
Crushed or powdered material	ASTM E300[a]	Tubing, trier, auger, scoop or shovel
Soil-like material	ASTM E300[a]	Tubing, trier, auger, scoop or shovel
Fly ash-like material	ASTM E300[a]	Tubing, trier, auger, scoop or shovel
Containerized liquids	SW-846[b]	Coliwasa, tubing, weighted bottle, bomb or tank sampling port

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a Annual Book of ASTM Standards, American Society for Testing and Materials (ASTM), 1993, or more recent edition or revision (available from 1916 Race Street, Philadelphia, PA 19013).

b Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, Washington, DC, September 1986, as amended by Final Updates I, II, IIA, IIB, III, IIIA, IIIB, IVA, and IVB or more recent edition, update or revision, available on EPA's website at http://www.epa.gov/SW-846.

Table IV.A. - Waste Management Information
Capacity Expansion for Tanks, Container Storage and Miscellaneous Units

Waste	Source	Volume (tons/year)
Containerized Wastes	Chemical Plants, Petrochemical Plants, Refineries, Pulp & Paper Mills, Commercial Manufacturing, Semiconductor Facilities, Pharmaceutical Facilities, Pipeline Companies, Transportation and Shipping Facilities, Automotive Manufacturing, Electric Generation and Utilities, Remediation Sites, Drilling and Service Companies, Universities, Hospitals, Various Service Sectors, Federal, State and Local Agencies	37,000 to 74,000
Bulk Non-pumpable Wastes	Chemical Plants, Petrochemical Plants, Refineries, Pulp & Paper Mills, Commercial Manufacturing, Semiconductor Facilities, Pharmaceutical Facilities, Pipeline Companies, Transportation and Shipping Facilities, Automotive Manufacturing, Electric Generation and Utilities, Remediation Sites, Drilling and Service Companies, Universities, Hospitals, Various Service Sectors, Federal, State and Local Agencies	37,000 to 74,000
Energetic Pumpable Wastes	Chemical Plants, Petrochemical Plants, Refineries, Pulp & Paper Mills, Commercial Manufacturing, Semiconductor Facilities, Pharmaceutical Facilities, Pipeline Companies, Transportation and Shipping Facilities, Automotive Manufacturing, Electric Generation and Utilities, Remediation Sites, Drilling and Service Companies, Universities, Hospitals, Various Service Sectors, Federal, State and Local Agencies	25,000 to 100,000

Table IV.A. - Waste Management Information
Capacity Expansion for Tanks, Container Storage and Miscellaneous Units

Waste	Source	Volume (tons/year)
Aqueous Wastes	Chemical Plants, Petrochemical Plants, Refineries, Pulp & Paper Mills, Commercial Manufacturing, Semiconductor Facilities, Pharmaceutical Facilities, Pipeline Companies, Transportation and Shipping Facilities, Automotive Manufacturing, Electric Generation and Utilities, Remediation Sites, Drilling and Service Companies, Universities, Hospitals, Various Service Sectors, Federal, State and Local Agencies	25,000 to 100,000
Containerized Putrescible Wastes	Pharmaceutical Manufacturing and Distribution, Wholesale and Retail Pharmaceutical Sales Facilities, Food Manufacturing and Distribution Facilities, Animal Food Manufacturing and Distribution Facilities, Federal, State and Local Agencies, Hospitals, Universities	5,000 to 50,000
Containerized Medical Wastes	Hospitals, Universities, Medical Service Companies	5,000 to 50,000
Listed Dioxin/Furan Wastes	Universities, Electrical Transmission and Utilities, Wood Treating Facilities, Remediation Sites	2.72
DOT Class 1 explosives that do not exhibit the reactive properties of 40 CFR 261.23(a)(6) or 40 CFR 261.23(a)(7) as may be authorized by the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF)	Federal, State and Local Agencies	5,000 to 50,000

TABLE IV.B. WASTES MANAGED IN PERMITTED UNITS

No.	Waste	EPA Waste Codes	TCEQ Waste Form and Classification Codes[1]
1	Pumpable Energetic Wastes	D001 D002 D003 D004 D005 D006 D007 D008 D009 D010 D011 D012 D013 D014 D015 D016 D017 D018 D019 D020 D021 D022 D023 D024 D025 D026 D027 D028 D029 D030 D031 D032 D033 D034 D035 D036 D037 D038 D039 D040 D041 D042 D043 F001 F002 F003 F004 F005 F006 F007 F008 F009 F010 F011 F012 F019 F024 F025 F028 F029 F032 F034 F035 F037 F038 F039 K001 K002 K003 K004 K005 K006 K007 K008 K009 K010 K011 K013 K014 K015 K016 K017 K018 K019 K020 K021 K022 K023 K024 K025 K026 K027 K028 K029 K030 K031 K032 K033 K034 K035 K036 K037 K038 K039 K040 K041 K042 K043 K044 K045 K046 K047 K048 K049 K050 K051 K052 K060 K061 K062 K069 K071 K073 K083 K084 K085 K086 K087 K088 K093 K094 K095 K096 K097 K098 K099 K100 K101 K102 K103 K104 K105 K106 K107 K108 K109 K110 K111 K112 K113 K114 K115 K116 K117 K118 K123 K124 K125 K126 K131 K132 K136 K141 K142 K143 K144 K145 K147 K148 K149 K150 K151 K156 K157 K158 K159 K161 K169 K170 K171 K172 K174 K175 K176 K177 K178 K181 P001 P002 P003 P004 P005 P006 P007 P008 P009 P010 P011 P012 P013 P014 P015 P016 P017 P018 P020 P021 P022 P023 P024 P026 P027 P028 P029 P030 P031 P033 P034 P036 P037 P038 P039 P040 P041 P042 P043 P044 P045 P046 P047 P048 P049 P050 P051 P054 P056 P057 P058 P059 P060 P062 P063 P064 P065 P066 P067 P068 P069 P070 P071 P072 P073 P074 P075 P076 P077 P078 P081 P082 P084 P085 P087 P088 P089 P092 P093 P094 P095 P096 P097 P098 P099 P101 P102 P103 P104 P105 P106 P108 P109 P110 P111 P112 P113 P114 P115 P116 P118 P119 P120 P121 P122 P123 P127 P128 P185 P188 P189 P190 P191 P192 P194 P196 P197 P198 P199 P201 P202 P203 P204 P205 U001 U002 U003 U004 U005 U006 U007 U008 U009 U010 U011 U012 U014 U015 U016 U017 U018 U019 U020 U021 U022 U023 U024 U025 U026 U027 U028 U029 U030 U031 U032 U033 U034 U035 U036 U037 U038 U039 U041 U042 U043 U044 U045 U046 U047 U048 U049 U050 U051 U052 U053 U055 U056 U057 U058 U059 U060 U061 U062 U063 U064 U066 U067 U068 U069 U070 U071 U072 U073 U074 U075 U076 U077 U078 U079 U080 U081 U082 U083 U084 U085 U086 U087 U088 U089 U090 U091 U092 U093 U094 U095 U096 U097 U098 U099 U101 U102 U103 U105 U106 U107 U108 U109 U110 U111 U112 U113 U114 U115 U116 U117 U118 U119 U120 U121 U122 U123 U124 U125 U126 U127 U128 U129 U130 U131 U132 U133 U134 U135 U136 U137 U138 U140 U141 U142 U143 U144 U145 U146 U147 U148 U149 U150 U151 U152 U153 U154 U155 U156 U157 U158 U159 U160 U161 U162 U163 U164 U165 U166 U167 U168 U169 U170 U171 U172 U173 U174 U176 U177 U178 U179 U180 U181 U182 U183 U184 U185 U186 U187 U188 U189 U190 U191 U192 U193 U194 U196 U197 U200 U201 U203 U204 U205 U206 U207 U208 U209 U210 U211 U213 U214 U215 U216 U217 U218 U219 U220 U221 U222 U223 U225 U226 U227 U228 U234 U235 U236 U237 U238 U239 U240 U243 U244 U246 U247 U248 U249 U271 U278 U279 U280 U328 U353 U359 U364 U367 U372 U373 U387 U389 U394 U395 U404 U409 U410 U411	2011, 201H, 2021, 202H, 2031, 203H, 2041, 204H, 2051, 205H, 2061, 206H, 2071, 207H, 2081, 208H, 2091, 209H, 2101, 210H, 2111, 211H, 2121, 212H, 2191, 219H, 2961, 296H, 2971, 2981, 2991, 6011, 601H, 6021, 602H, 6031, 603H, 6041, 604H, 6051, 605H, 6061, 606H, 6071, 607H, 6081, 608H, 6091, 609H, 6951, 695H, 6961, 696H, 6971, 697H, 6981, 6991

TABLE IV.B. WASTES MANAGED IN PERMITTED UNITS

No.	Waste	EPA Waste Codes	TCEQ Waste Form and Classification Codes[1]
2	Non-pumpable Wastes	See EPA waste code list above.	4011, 401H, 4021, 402H, 4031, 403H, 4041, 404H, 4051, 405H, 4061, 406H, 4071, 407H, 4091, 409H, 4881, 488H, 4891, 489H, 4901, 490H, 4911, 491H, 4921, 492H, 4931, 493H, 4941, 494H, 4951, 495H, 4961, 496H, 4971, 497H, 4981, 498H, 4991, 499H, 3011, 301H, 3021, 302H, 3031, 303H, 3041, 304H, 3051, 305H, 3061, 306H, 3071, 307H, 3081, 308H, 3091, 309H, 3101, 310H, 3111, 311H, 3121, 312H, 3131, 313H, 3141, 314H, 3151, 315H, 3161, 316H, 3191, 319H, 3881, 388H, 3891, 3901, 3911, 3921, 3931, 393H, 3941, 3951, 3961, 3971, 3981, 3991
3	Aqueous Wastes	See EPA waste code list above.	1011, 101H, 1021, 102H, 1031, 103H, 1041, 104H, 1051, 105H, 1061, 106H,1071, 107H, 1081, 108H, 1091, 109H, 1101, 110H, 1111, 111H, 1121, 112H, 1131, 113H, 1141, 114H, 1151, 115H, 1161, 116H, 1171, 117H, 1191, 119H, 1981, 1991, 199H, 5011, 501H, 5021, 502H, 5031, 503H, 5041, 504H, 5051, 505H, 5061, 506H, 5071, 507H, 5081, 508H, 5091, 509H, 5101, 510H, 5111, 511H, 5121, 512H, 5131, 513H, 5141, 514H, 5151, 515H, 5161, 516H, 5191, 519H, 5971, 597H, 5981, 5991
4	Containerized Wastes	See EPA waste code list above.	0011, 001H, 0021, 002H, 0031, 003H, 004H, 0091, 009H, 4011, 401H, 4021, 402H, 4031, 403H, 4041, 404H, 4051, 405H, 4061, 406H, 4071, 407H, 4091, 409H, 4881, 488H, 4891, 489H, 4901, 490H, 4911, 491H, 4921, 492H, 4931, 493H, 4941, 494H, 4951, 495H 4961, 496H, 4971, 497H, 4981, 498H, 4991, 499H, 3011, 301H, 3021, 302H, 3031, 303H, 3041, 304H, 3051, 305H, 3061, 306H, 3071, 307H, 3081, 308H, 3091, 309H, 3101, 310H, 3111, 311H, 3121, 312H, 3131, 313H, 3141, 314H, 3151, 315H, 3161, 316H, 3191, 319H, 3881, 388H, 3891, 3901, 3911, 3921, 3931, 393H, 3941, 3951, 3961, 3971, 3981, 3991, 1011, 101H, 1021, 102H, 1031, 103H, 1041, 104H, 1051, 105H, 1061, 106H, 1071, 107H, 1081, 108H, 1091, 109H, 1101, 110H, 1111, 111H, 1131, 1121, 112H, 113H, 1141, 114H, 1151, 115H, 1161, 116H, 1171, 117H, 1191, 119H, 1981, 1991, 199H, 2011, 201H, 2021, 202H, 2031,203H, 2041, 204H, 2051, 205H, 2061, 206H, 2071, 207H, 2081, 208H, 2091, 209H, 2101, 210H, 2111, 211H, 2121, 212H, 2191, 219H, 2961, 296H, 2971, 2981, 2991, 5011, 501H, 5021, 502H, 5031, 503H, 5041, 504H, 5051, 505H, 5061, 506H, 5071, 507H, 5081, 508H, 5091, 509H, 5101, 510H, 5111, 511H, 5121, 512H, 5131, 513H, 5141, 514H, 5151, 515H, 5161, 516H, 5191, 519H, 5971, 597H, 5981, 5991

TABLE IV.B. WASTES MANAGED IN PERMITTED UNITS

No.	Waste	EPA Waste Codes	TCEQ Waste Form and Classification Codes[1]
5	Gaseous Wastes	See EPA waste code list above.	7011, 701H, 8011, 801H
6	Site-generated Wastes	See EPA waste code list above. Also, wastes generated on-site from the thermal treatment of incoming, listed dioxin/furan wastes will carry these codes (F020 F021 F022 F023 F026 F027).	001H, 003H, 105H, ***110H***, 1131, ***115H***, 116H, ***119H***, 1191, 1991, 202H, 206H, 2061, 219H, 2961, ***301H***, ***303H***, 307H, 3081, 309H, ***310H***, ***319H***, 3191, 3891, 3902, ***404H***, 4042, 494H, 495H, 501H, 519H, 5192, , 6082, 701H, 801H, 9992
7	D/F Wastes	F020 F021 F022 F023 F026 F027; may also carry any of the codes listed above.	001H, 002H,003H,009H, 102H, 113H, 114H, 119H, 201H, 207H, 219H, 301H, 308H, 319H, 388H, 401H, 406H, 409H, 488H, 503H, 504H, 512H, 601H, 607H, 608H, 609H

[1]All current and applicable TCEQ waste form and classification codes, including non-hazardous codes, are listed for Waste Nos. 1 through 5. TCEQ waste form and classification codes applicable to Waste No. 6 are those identified on the NOR dated 08/04/2017; codes that are shown in bold, italicized font are applicable to wastes generated on-site from the thermal treatment of incoming, listed dioxin/furan wastes.

TABLE IV.C. SAMPLING AND ANALYTICAL METHODS

Waste No.[1]	Sampling Location	Sampling Method[2]	Frequency[3]	Parameter[4]	Test Method[2]	Desired Accuracy Level
1, 3	Sample rack, container storage buildings, storage tanks	Coliwasa, tank sampling port	Initial and once per shipment or batch/blend, unless exempted by WAP	**Mandatory Analyses (pre-acceptance and fingerprint,):**		
				Physical description	ASTM D 4979	Results match profile
				pH screen	ASTM D 4980	Std + 1.0 Standard Unit (S.U.)
				Water compatibility	ASTM D 5058C	Results match profile
				Flammability potential	ASTM D 4982	Duplicate samples must have same reaction
				Cyanide screen	ASTM D 5049 B, C	Duplicate samples must have same reaction
				Sulfide screen	ASTM D 4978	Duplicate samples must have same reaction
				Chlorine content	EPA Method 300.0	Instrument Performance Parameters (IPP) Std ± 3 Std. Dev. of Mean
				Radioactivity screen	Manufacturer's Specifications ASTM D 5928	Source check must meet manufacturer specifications
				Oxidizer screen	ASTM D 4981	Duplicate samples must have same reaction
				Process analyses for incineration:		
				Chlorine content	EPA Method 300.0	Duplicate samples must have Relative Standard Deviation (RSD) of <40%
				BTUs	ASTM D 240, D 129, D 808, D 2015, D 5468	IPP Std ± 2.73%
				Percent ash[5]	SDP-3154 ASTM D 2974, D 482	Duplicate sample must have RSD of <40%, Matrix Spike (MS) Recovery of ± 20%
				Metals[6]	SW 846 Method 6010 B SW 846 Method 7471	MS Recovery ± 20% MS Recovery ± 20%

TABLE IV.C. SAMPLING AND ANALYTICAL METHODS

Waste No.[1]	Sampling Location	Sampling Method[2]	Frequency[3]	Parameter[4]	Test Method[2]	Desired Accuracy Level
(1, 3, cont.)				**Supplemental Analyses:**		
				Filter time	SDP #3169	Duplicate samples must have RSD of <40%
				Flash point	SW846-1010, ASTM D 93	Duplicate samples must have RSD of <40%
				Halogen content	EPA Method 300.0	IPP Std ± 3 Std. Dev. of Mean
				Compatibility	ASTM D 5058	National Institute of Standards and Testing (NIST) Traceable Thermometer is used
				Organic content	SDP #3155	Calculation based upon results of Methods WM 97-96 and CWM 91-95
				PCBs	SW846 Method 8082A ASTM D 6160	MS Recovery within Method Limits
				Percent Acidity/Alkalinity	ASTM D 1067	QC Check ± 0.2 pH units
				Specific gravity	ASTM D 5057, D 1429	Duplicate samples must have RSD of <40%
				Total solids	Method 2540B	MS Recovery ± 20%
				Viscosity	ASTM D 2196	Duplicate samples must have RSD of <40%
				Water content	ASTM E 203	MS Recovery of ± 20%

TABLE IV.C. SAMPLING AND ANALYTICAL METHODS

Waste No.[1]	Sampling Location	Sampling Method[2]	Frequency[3]	Parameter[4]	Test Method[2]	Desired Accuracy Level
2	Sample rack, storage buildings	Scoop, tier, shovel	Initial and once per shipment or batch/blend, unless exempted by WAP	**Mandatory Analyses (pre-acceptance and fingerprint):**		
				Physical description	ASTM D 4979	Results match profile
				pH screen	ASTM D 4980	Std + 1.0 Standard Unit (S.U.)
				Water compatibility	ASTM D 5058C	Results match profile
				Flammability potential	ASTM D 4982	Duplicate samples must have same reaction
				Cyanide screen	ASTM D 5049 B, C	Duplicate samples must have same reaction
				Sulfide screen	ASTM D 4978	Duplicate samples must have same reaction
				Chlorine content	EPA Method 300.0	IPP Std ± 3 Std. Dev. of Mean
				Radioactivity screen	Manufacturer's Specifications ASTM D 5928	Source check must meet manufacturer specifications
				Oxidizer screen	ASTM D 4981-	Duplicate samples must have same reaction
				Process analyses for incineration:		
				Chlorine content	EPA Method 300.0	Duplicate samples must have RSD of <40%
				BTUs	ASTM D 240, D 129, D 808, D 2015, D 5468	IPP Std ± 2.73%
				Percent ash[5]	SDP-3154 ASTM D 2974, D 482	Duplicate sample must have RSD of <40%, MS Recovery of ± 20%
				Metals[6]	SW 846 Method 6010 B SW 846 Method 7471	MS Recovery ± 20% MS Recovery ± 20%

TABLE IV.C. SAMPLING AND ANALYTICAL METHODS

Waste No.[1]	Sampling Location	Sampling Method[2]	Frequency[3]	Parameter[4]	Test Method[2]	Desired Accuracy Level
2, cont.				**Supplemental Analyses:**		
				Flash point	SW846-1010, ASTM D 93	Duplicate samples must have RSD of <40%
				Halogen content	EPA Method 300.0	IPP Std ± 3 Std. Dev. of Mean
				Compatibility	ASTM D 5058	NIST Traceable Thermometer is used
				Organic content	SDP #3155	Calculation based upon results of Methods WM 97-96 and CWM 91-95
				Paint filter	SW846 Method 9095	Duplicate samples must have same reaction
				PCBs	SW846 Method 8082A, ASTM D 6160	MS Recovery within Method Limits
				Water content	ASTM E 203	MS Recovery of ± 20%

TABLE IV.C. SAMPLING AND ANALYTICAL METHODS

Waste No.[1]	Sampling Location	Sampling Method[2]	Frequency[3]	Parameter[4]	Test Method[2]	Desired Accuracy Level
4	Container Storage Buildings	Scoop, Coliwasa	Initial and 10% (min) by profile per shipment, or per batch/blend, unless exempted by WAP	**Mandatory Analyses (pre-acceptance and fingerprint):**		
				Physical Description	ASTM D 4979	Results match profile
				pH screen	ASTM D 4980	Std + 1.0 Standard Unit (S.U.)
				Water compatibility	ASTM D 5058C	Results match profile
				Flammability potential	ASTM D 4982	Duplicate samples must have same reaction
				Cyanide screen	ASTM D 5049B, C	Duplicate samples must have same reaction
				Sulfide screen	ASTM D 4978	Duplicate samples must have same reaction
				Chlorine content	EPA Method 300.0	IPP Std ± 3 Std. Dev. of Mean
				Radioactivity Screen	Manufacturer's Specifications	Source check must meet manufacturer specifications
				Oxidizer screen	ASTM D 4981	Duplicate samples must have same reaction
				Process analyses for incineration:		
				Chlorine content	EPA Method 300.0	Duplicate samples must have RSD of <40%
				BTUs	ASTM D 240, D 129, D 808, D 2015, D 5468	IPP Std ± 2.73%
				Percent ash[5]	SDP-3154 ASTM D 2974, D 482	Duplicate sample must have RSD of <40%, MS Recovery of ± 20%
				Metals[6]	SW 846 Method 6010 B SW 846 Method 7471	MS Recovery ± 20% MS Recovery ± 20%

TABLE IV.C. SAMPLING AND ANALYTICAL METHODS

Waste No.[1]	Sampling Location	Sampling Method[2]	Frequency[3]	Parameter[4]	Test Method[2]	Desired Accuracy Level
4 cont.				**Supplemental Analyses:**		
				Filter time	SDP # 3169	Duplicate samples must have RSD of <40%
				Flash point	SW846-1010, ASTM D 93	Duplicate samples must have RSD of <40%
				Halogens content	EPA Method 300.0	IPP Std ± 3 Std. Dev. of Mean
				Compatibility	ASTM D 5058	NIST Traceable Thermometer is used
				Organic content	SDP #3155	Calculation based upon results of Methods WM 97-96 and CWM 91-95
				Paint filter	SW846 Method 9095A	Duplicate samples must have same reaction
				PCBs	SW846 Method 8082A ASTM D 6160	MS Recovery within Method Limits
				Percent Acidity/Alkalinity	ASTM D 1067	QC Check ± 0.2 pH units
				Specific gravity	ASTM D 5057, D 1429	Duplicate samples must have RSD of <40%
				Total solids	Method 2540B	MS Recovery ± 20%
				Viscosity	ASTM D 2196	Duplicate samples must have RSD of <40%
				Water content	ASTM E 203	MS Recovery of ± 20%

TABLE IV.C. SAMPLING AND ANALYTICAL METHODS

Waste No.[1]	Sampling Location	Sampling Method[2]	Frequency[3]	Parameter[4]	Test Method[2]	Desired Accuracy Level
6	Ash, slag, filter cake drop out, bin storage areas	Scoop, trier, shovel	Each Bin	PCBs	SW846 Method 8082A, ASTM D 6160	MS Recovery with Method Limits
			Quarterly	**Full Organic Analyses:**		
				TCLP Methanol	SW846 Method 8015	Contract laboratory
				VOA's	SW846 Method 8260	MS Recovery with Method Limits
				Pesticides	SW846 Method 8081	MS Recovery with Method Limits
				Herbicides	SW846 Method 8151	MS Recovery with Method Limits
				Base/Neutral Organic Analytes	SW846 Method 8270	MS Recovery with Method Limits
				Carbamates	SW846 Method 8321	MS Recovery with Method Limits
				Dithiocarbamates	EPA Method 630	MS Recovery with Method Limits
				PCDDs and PCDFs	EPA Method 8280 EPA Method 8290	MS Recovery with Method Limits
				Supplemental Analyses:		
				TCLP Metals	SW846 Method 6010B SW846 Method 7471	MS Recovery ± 25%

TABLE IV.C. SAMPLING AND ANALYTICAL METHODS

Waste No.[1]	Sampling Location	Sampling Method[2]	Frequency[3]	Parameter[4]	Test Method[2]	Desired Accuracy Level
7	Container Storage Buildings	Scoop, Coliwasa	Initial and 10% (min) by profile per shipment, or per batch/blend, unless exempted by WAP	**Mandatory Analyses (pre-acceptance and fingerprint):**		
				Physical Description	ASTM D 4979	Results match profile
				pH screen	ASTM D 4980	Std + 1.0 Standard Unit (S.U.)
				Water compatibility	ASTM D 5058C	Results match profile
				Flammability potential	ASTM D 4982	Duplicate samples must have same reaction
				Cyanide screen	ASTM D 5049B, C	Duplicate samples must have same reaction
				Sulfide screen	ASTM D 4978	Duplicate samples must have same reaction
				Chlorine content	EPA Method 300.0	IPP Std ± 3 Std. Dev. of Mean
				Radioactivity Screen	Manufacturer's Specifications ASTM D 5928	Source check must meet manufacturer specifications
				Oxidizer screen	ASTM D 4981	Duplicate samples must have same reaction
				Process analyses for incineration:		
				Chlorine content	EPA Method 300.0	Duplicate samples must have RSD of <40%
				BTUs	ASTM D 240, D 129, D 808, D 2015. D 5468	IPP Std ± 2.73%
				Percent ash[5]	SDP-3154 ASTM D 2974, D 482	Duplicate sample must have RSD of <40%, MS Recovery of ± 20%
				Metals[6]	SW 846 Method 6010 B SW 846 Method 7471	MS Recovery ± 20% MS Recovery ± 20%
				PCDDs and PCDFs	EPA Method 8280 EPA Method 8290	MS Recovery with Method Limits

TABLE IV.C. SAMPLING AND ANALYTICAL METHODS

Waste No.[1]	Sampling Location	Sampling Method[2]	Frequency[3]	Parameter[4]	Test Method[2]	Desired Accuracy Level
7 cont.				**Supplemental Analyses:**		
				Filter time	SDP # 3169	Duplicate samples must have RSD of <40%
				Flash point	SW846-1010, ASTM D 93	Duplicate samples must have RSD of <40%
				Halogens content	EPA Method 300.0	IPP Std ± 3 Std. Dev. of Mean
				Compatibility	ASTM D 5058	NIST Traceable Thermometer is used
				Organic content	SDP #3155	Calculation based upon results of Methods WM 97-96 and CWM 91-95
				Paint filter	SW846 Method 9095A	Duplicate samples must have same reaction
				PCBs	SW846 Method 8082A ASTM D 6160	MS Recovery within Method Limits
				Percent Acidity/Alkalinity	ASTM D 1067	QC Check ± 0.2 pH units
				Specific gravity	ASTM D 5057, D 1429	Duplicate samples must have RSD of <40%
				Total solids	Method 2540B	MS Recovery ± 20%
				Viscosity	ASTM D 2196	Duplicate samples must have RSD of <40%
				Water content	ASTM E 203	MS Recovery of ± 20%

[1]From Column 1 of Table IV.B

[2]See WAP for additional methods.

[3] Frequencies shown are generalized for purposes of presentation in this table; see WAP for specifics

[4]Not all parameters apply to each sample. See WAP for specifics.

[5]Percent ash – For direct inject liquids to the SCC only

[6]Metals – Silver, Arsenic, Barium, Beryllium, Cadmium, Chromium, Mercury, Nickel, Lead, Antimony, Selenium, Thallium

FIGURES

FIGURE 4-1 (PAGE 1 OF 4)

VEOLIA ENVIRONMENTAL SERVICES

WASTESTREAM INFORMATION PROFILE

☐ Recertification

Disposal Code ____________

Veolia ES LOCATION

☐ Invoice Address — ADDRESS — CITY — ST

☐ Manifest from – blank if direct

Veolia ES TSDF requested ____ Technology requested ____ Generator No. ____ **Generator EPA ID No.** ____

1. **Generator Name** ____________ **Generator State No.** ______ ______

Address ____________ **State Wastestream No.** _____

City ____________ **State** ____ **Country** ____ **ZIP** ________

NAICS (SIC) Code ______ ____ ____ **Source** ____ **Origin** ____ **Form** ____ **System Type** ____

2. **Waste Name** ____________ **Lab or Waste Area** ______
3. **Process Generating Waste** ____________
4. **Shipping Name** ____________

Hazard Class ____ **UN/NA No.** ____ **PG** ____ **RQ amt** ____ **lb**

RQ Desc:	1.	2.
DOT Desc:	1.	2.

5. **Waste Codes** ____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____ ____

Wastewater ☐ **Non Wastewater** ☐ **Sub Category** ____

6. **Physical and chemical properties** (*check all that apply*)

pH	**Specific Gravity**	**Flash Point (F)**	**Solids**	
a ☐ < 2	a ☐ < .8	a ☐ < 80	_____ % suspended	_____ % ash
b ☐ 2 - 5	b ☐ .8 - 1.0	b ☐ 80 - 100	_____ % settleable	_____ water solubility
c ☐ 5 - 9	c ☐ 1.0	c ☐ 101 - 140	_____ % dissolved	_____ BTU/lb
d ☐ 9 - 12.5	d ☐ 1.0 - 1.2	d ☐ 141 - 200		
e ☐ > 12.5	e ☐ > 1.2	e ☐ > 200		
_____ exact	_______ exact	f ☐ no flash _____ exact	Free Liquid Range ____ to ____ %	

Physical State	**Hazardous Characteristics**		**Odor**
s ☐ solid	a ☐ air reactive	r ☐ radioactive or NRC regulated	a none ☐
m ☐ semi-solid	w ☐ water reactive	s ☐ shock sensitive	b mild ☐
l ☐ liquid	c ☐ cyanide reactive	t ☐ temp sensitive	c strong ☐
p ☐ pumpable semi-solid	f ☐ sulfide reactive	m ☐ polymerization/monomer	describe ____
f ☐ flowable powder	e ☐ explosive	n ☐ OSHA carcinogen	**Halogens**
g ☐ gas	o ☐ oxidizing acid	I ☐ infectious	Br ___ % Bromine
a ☐ aerosol	p ☐ peroxide former	h ☐ inhalation hazard Zone: _	Cl ___ % Chlorine
r ☐ pressurized liquid			F ___ % Fluorine
d ☐ debris per 40 CFR 268.45			I ___ % Iodine
h ☐ sharps			

Layers:	a ☐ **multilayered:**	b ☐ **bi-layered:**	c ☐ **single phase:**	**Color**
	Top Layer	Second Layer	Bottom Layer	
Viscosity by Layer:	☐ high (syrup)	☐ high (syrup)	☐ high (syrup)	________
	☐ medium (oil)	☐ medium (oil)	☐ medium (oil)	________
	☐ low (water)	☐ low (water)	☐ low (water)	____
	☐ solid	☐ solid	☐ solid	

Used oil y/n ____ **HOC <1000 ppm** ☐ **or > 1000 ppm** ☐

page 1 of 2

WIP No. ________

WIP 2007

FIGURE 4-1 (PAGE 2 OF 4)

7. **Chemical Composition** [**M** = Marine Pollutant, **S** - Severe Marine Pollutant, O = Ozone Depleting Substance, U = Underlying Hazardous Constituent, **B** = Benzene NESHAP, **T** = TRI Chemical, **C** = **OSHA** Carcinogen]

	Constituents	Range	Units		Constituents	Range	Units

Total Composition Must Equal or Exceed 100%

Other:

8. Is the wastestream being imported into the USA? Yes☐ No ☐
9. Does the wastestream contain PCBs regulated by 40CFR? Yes☐ No ☐
   PCB concentration _____ppm
10. Is the wastestream subject to the Marine Pollutant Regulations? Yes☐ No ☐
11. Is the wastestream from an industry regulated under Benzene NESHAP? Yes☐ No ☐
    If yes, is the wastestream subject to Notification and Control Requirements? Yes☐ No ☐
    Benzene concentration _____ ppm
    Does it contain >= 10% water? Yes☐ No ☐
    What is the TAB at your facility? _____ Mg/Yr
12. Is the wastestream subject to RCRA subpart CC controls? Yes ☐ No ☐
    Volatile organic concentration, if known _____ ppmw
    CC approved analytical method ☐ Generator Knowledge ☐
13. Is the wastestream from a CERCLA or state mandated cleanup? Yes ☐ No ☐

---

14. **Container Information** (*Identify UN container marking if known*)

Packaging: **Bulk Solid** ☐ Type/Size: _____ **Bulk Liquid** ☐ Type/Size: _____ **Drum** ☐Type/Size: ___________

Other _____

Shipping Frequency: Units ___ Per Month ☐ Quarter ☐ Year ☐ One Time ☐ Other _____

---

15. **Additional Information**: _____

_____

_____

_____

Is analytical or an MSDS available that describes the waste? Yes ☐ No ☐ If yes, please attach.

---

16. Product Reclaim

Does Generator want material back (TOLL)? Yes ☐ No ☐

Chemical Component Description	Range	Units

APHA Color Other

Is the waste Grain ☐ or Synthetic ☐ Ethanol? SDA Formula: ☐

Have TTB taxes been paid on the container ethanol and eligible for rebate? ☐

Transportation Provided By: ☐ Veolia ☐ Generator ☐ Other

Returned in: ☐ Bulk(☐ T/T ☐ T/C ☐ ISO) ☐ Drums ☐ Other

WIP 2007

Describe the application for the solvent:

Additional Information:

GENERATOR CERTIFICATION

I hereby certify that all information submitted in this and all attached documents contains true and accurate descriptions of this waste. Any sample submitted is representative as defined in 40 CFR 261 - Appendix I or by using an equivalent method. All relevant information regarding known or suspected hazards in the possession of the generator has been disclosed. I authorize sampling of any waste shipment for purposes of recertification.

NAME (PRINT OR TYPE)	PHONE	DATE

SIGNATURE	TITLE

FACILITY NOTIFICATION

If approved for management, Veolia ES has all the necessary permits and licenses for the waste that has been characterized and identified by this profile.

TSDF PROCESSING USE ONLY: PPE REQUIRED No _____ Yes _____ Describe ______________________________

PAGE 2 OF 2

WIP No. ____

VEOLIA ENVIRONMENTAL SERVICES
WIP INSTRUCTIONS

Veolia ES requires completion of all sections of the Wastestream Information Profile (WIP). Sections not applicable to the wastestream must have N/A written in the space provided.

Documented WIP information is used to comply with TSDF Waste Analysis Plans, RCRA and DOT regulations, Emergency Planning and Community Right-to-Know Act (EPCRA), Pollution Prevention Act, Toxic Release Inventory Report and other regulatory and generator requirements.

MARINE POLLUTANT

- The wastestream is subject to the Marine Pollutant Regulations if:
  1. it is a bulk (>119 gallons) packaging with Marine Pollutant concentration ≥ 10% or Severe Marine Pollutant concentration ≥ 1%

     or
  2. it is non-bulk Marine Pollutant shipped by vessel (boat) in packages larger than 5 liters (liquid) or 5 kg (solid)

     or
  3. it is a non-bulk Severe Marine Pollutant, shipped by vessel (boat) in packages larger than 0.5 liters (liquid) or 0.5 kg (solid).

  Refer to the list of Marine Pollutants.

OZONE DEPLETING SUBSTANCE (ODS)

Refer to the list of Ozone Depleting Substances.

UNDERLYING HAZARDOUS CONSTITUENT (UHC)

Refer to the list of Underlying Hazardous Constituents (40 CFR 268.48)

BENZENE NESHAP

- The wastestream is subject to Benzene NESHAP notification and control requirements if it:
  1. contains > 10 ppm benzene, **and**
  2. is generated by a chemical manufacturing plant, petroleum refinery or coke by-product recovery plant, **and**
  3. the generator's Total Annual Benzene (TAB) is ≥ 10 Mg/yr

TRI CHEMICAL

- The wastestream is subject to Toxic Release Inventory Reporting if it contains a Section 313 Toxic Chemical and meets Qualifier requirements.

OSHA CARCINOGEN

- OSHA promulgated standards in 1974 to regulate the industrial use of 13 chemicals identified as occupational carcinogens. Exposures are to be controlled through the required use of engineering controls, work practices, and personal protective equipment, including respirators.
  See 29 CFR 1910.1003-1910.1016 for specific details.

RCRA SUB-PART CC CONTROLS

- Subpart CC Air Emission Control requirements apply to large quantity hazardous waste generators and to treatment, storage, and disposal facilities.
- Waste in containers greater than 0.1 cubic meters (i.e., 26.4 gallons) with greater than 500 ppm volatile organics are subject to this rule., unless otherwise exempted. Allowable controls include DOT approved containers, containers with an adequate cover and closure devices, and containers which operate with no detectable emissions (less than 500 ppm).

FIGURE 4-2
OVERVIEW OF THE PRE-ACCEPTANCE PROCESS

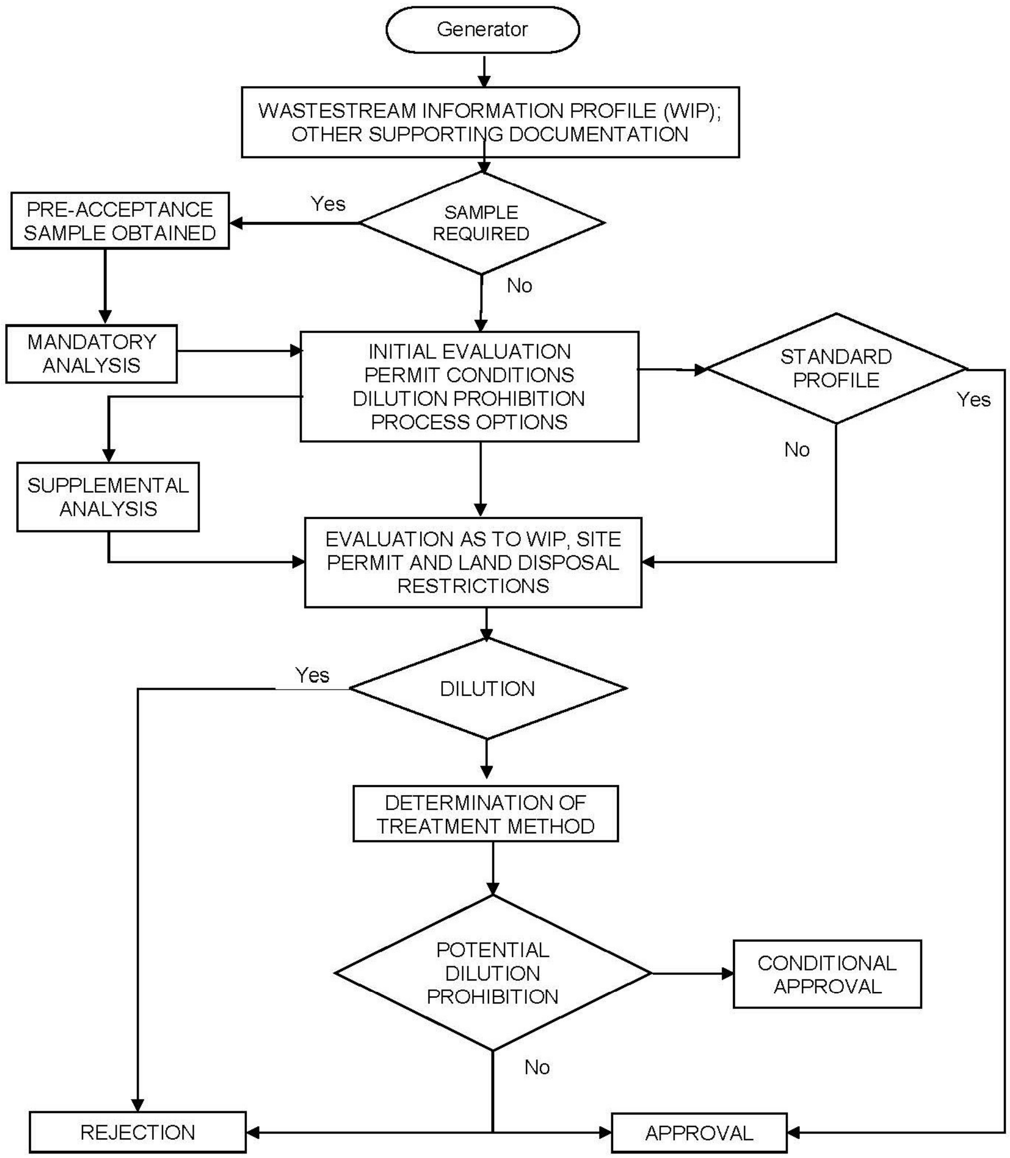


FIGURE 5-1
OVERVIEW OF INCOMING LOAD IDENTIFICATION PROCESS

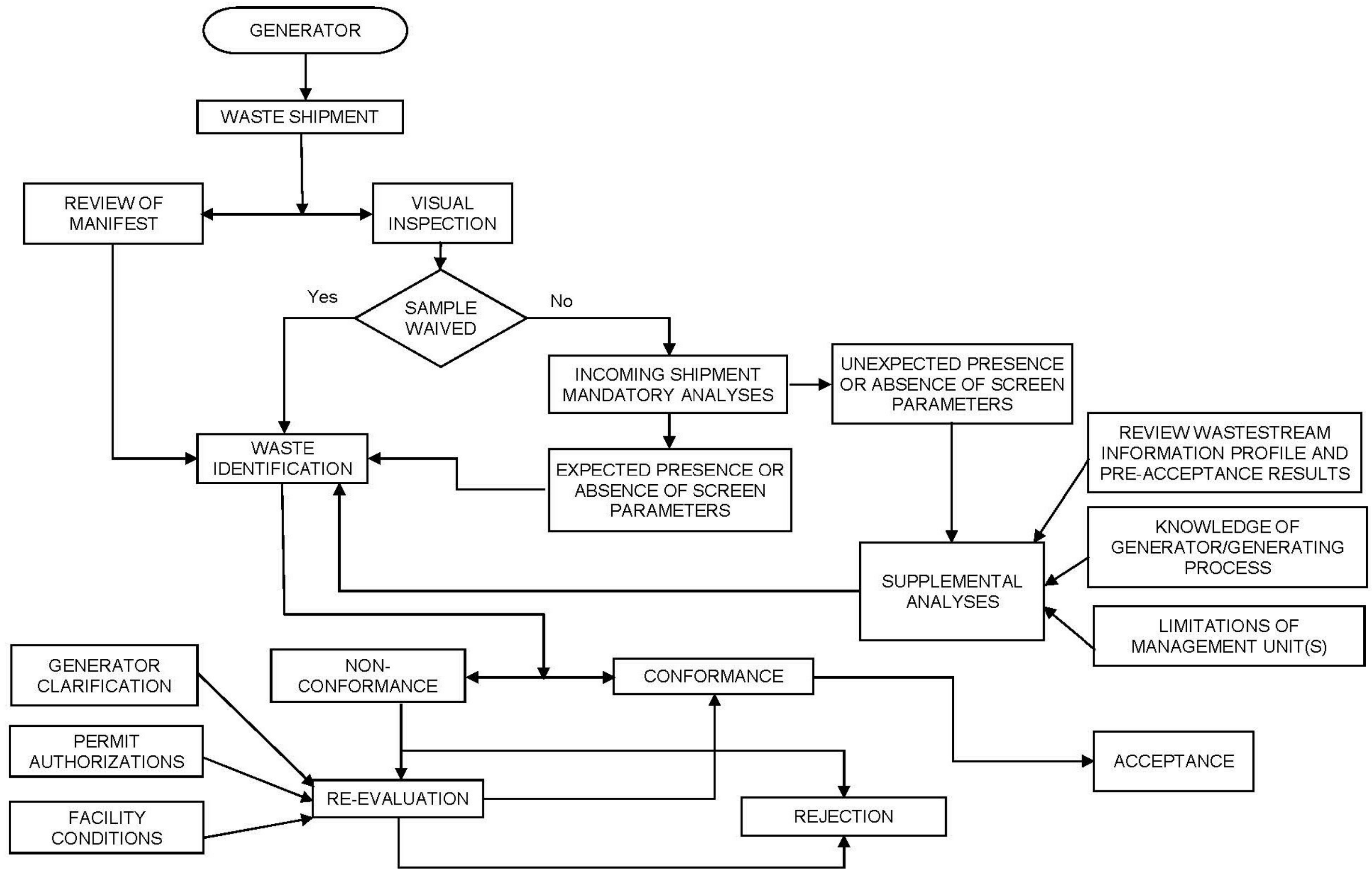


FIGURE 6-1
STORAGE

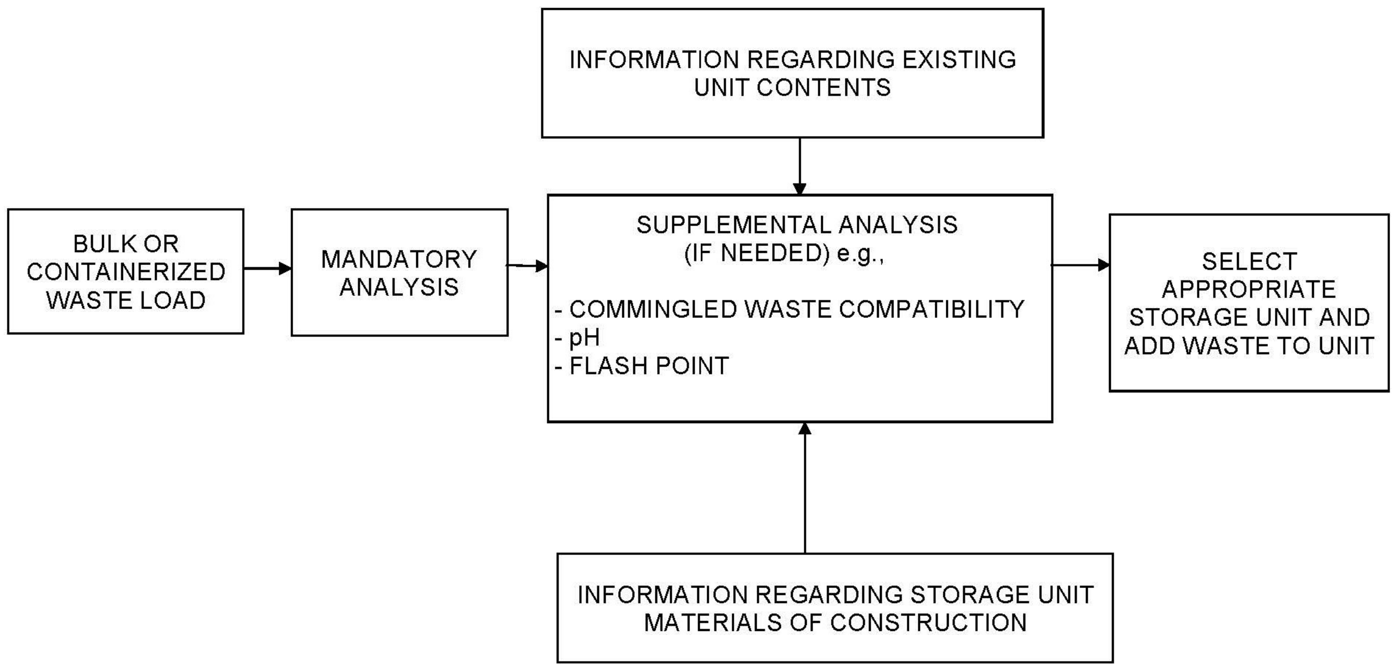


FIGURE 6-2
FILTRATION

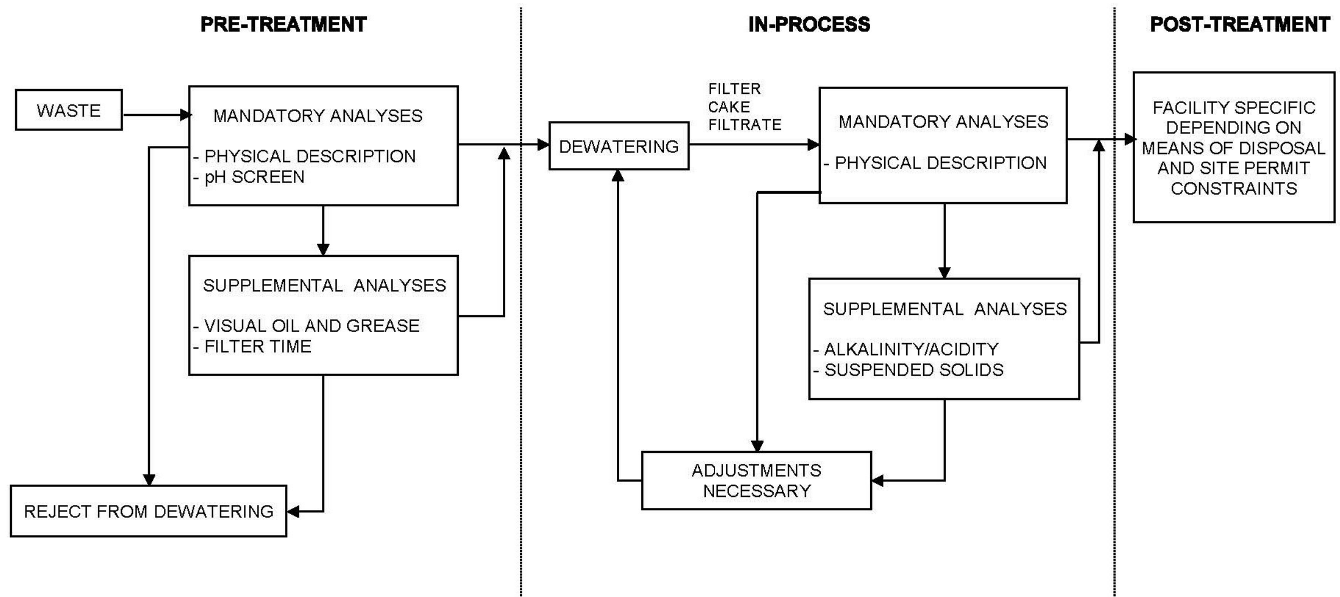


FIGURE 6-3
INCINERATION

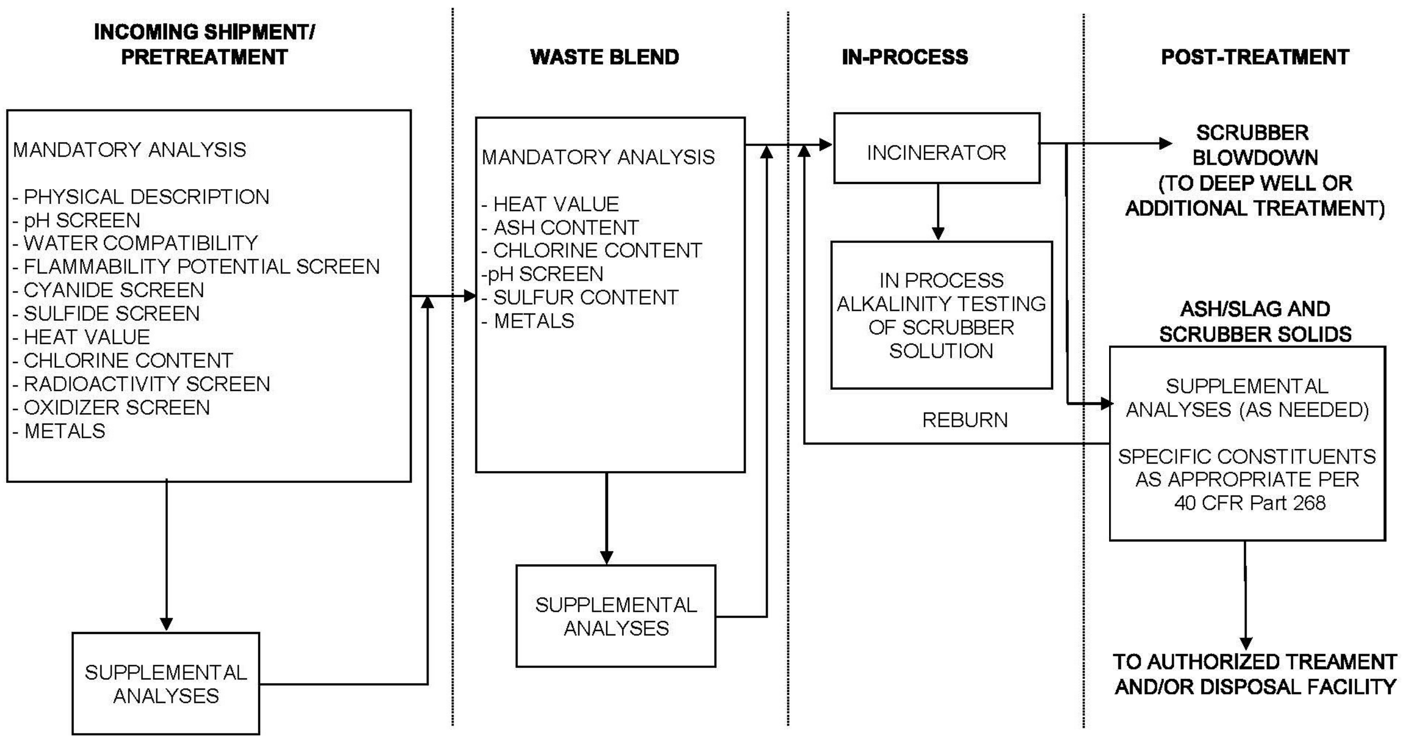
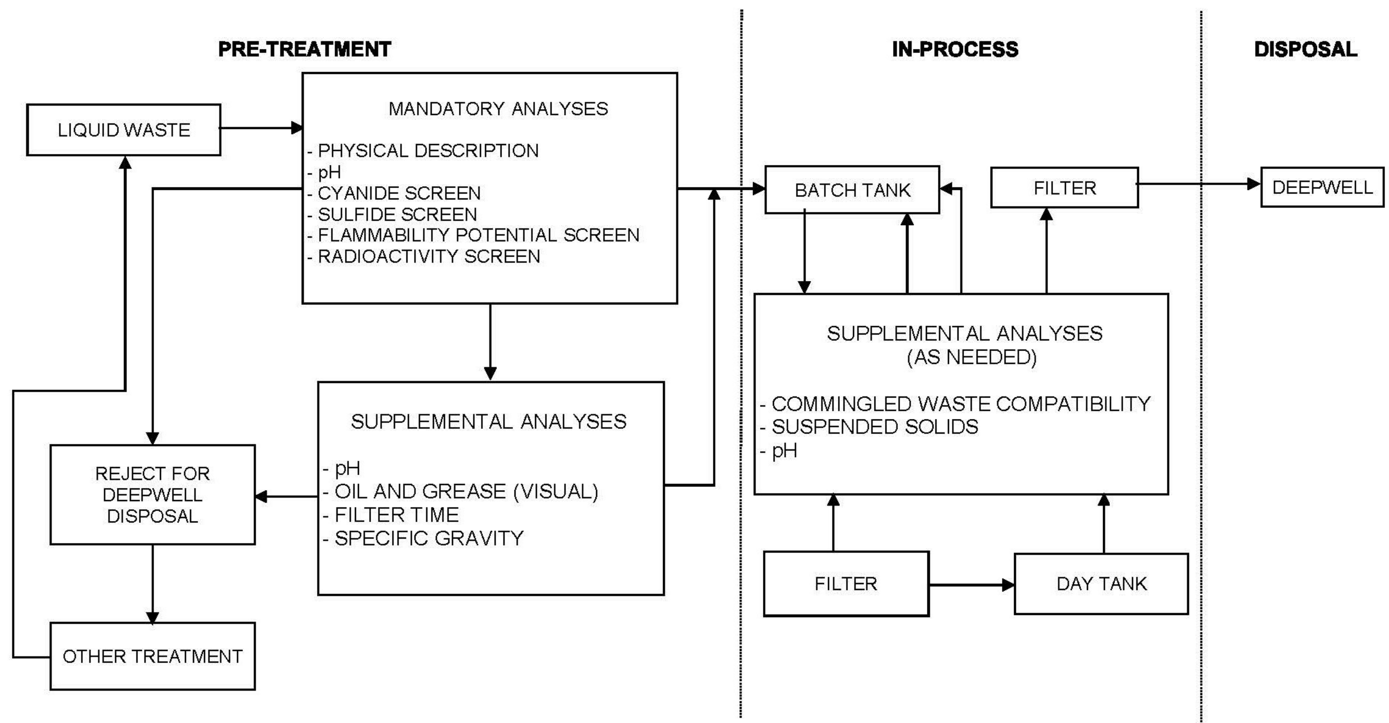


FIGURE 6-4
DEEPWELL INJECTION



APPENDICES

APPENDIX WAP-A

ANALYTICAL PROCEDURES

APPENDIX WAP-A
ANALYTICAL PROCEDURES

The following analytical procedures are designed to identify or screen waste. They are used by Veolia, based upon its operating experience, as rapid but effective means for establishing key decision parameters pertinent to proper waste management. Analytical procedures, not listed in the sections below, may be added as necessary and will be taken from the references listed at the end of this appendix or other authoritative sources, or will be developed by Veolia and meet Veolia performance standards.

It should be noted that the information presented in this appendix is generic in character. Therefore, certain test methods are discussed which may pertain to treatment or disposal processes that are excluded from the facility for which the foregoing waste analysis plan is presented.

I. VEOLIA DEVELOPED ANALYTICAL PROCEDURES

The following Veolia-developed analytical procedures have been found by Veolia to provide important information pertinent to certain processes. In some cases, these tests provide information not available from standard analytical procedures found in Section II, which follows. The methods described below are based on ASTM standards or standard procedures recognized by EPA or are based on procedures and protocol formulated by Veolia and meet Veolia performance standards. These tests provide important operational information.

Chlorophenoxy Herbicides by High Performance Liquid Chromatography (HPLC) - This method can be used for the analysis of 2,4-dichlorophenoxyacetic acid (2,4-D), 2,4,5-trichlorophenoxyacetic acid (2,4,5-T), and 2,4,5-trichlorophenoxypropionic acid (Silvex) in liquids and solids using HPLC/UV. The chlorophenoxy acids and esters are hydrolyzed to their respective salts by heating and stirring the sample with aqueous alkali. The salts are then converted to their respective acids by the addition of HCl. The aqueous solutions of the free acids are then analyzed using HPLC using ultraviolet detection.

Dissolved Sulfides - An aliquot of waste is mixed with distilled water. The solution/slurry is filtered through filter paper and the resultant filtrate is then analyzed for sulfide. Antimony potassium tartrate and hydrochloric acid are added and the color produced is visually compared with standards.

Filter Time - Filter an aliquot of sample through a vacuum filter system and record the volume and time.

Heat Value by Near Infrared Reflectance (NIR) Spectroscopy - Heat of combustion is determined by Near Infrared spectroscopy in a diffuse reflectance mode by placing a properly mixed sample in a diffuse reflectance cell. The instrument produces NIR absorbance spectrum which are converted to a heat of combustion value using a previously defined calibration curve. The method first screens for samples to extract qualitative spectroscopic features from the NIR spectra and then produces quantitative data for heat of combustion using multivariate calibrations.

Indirect Heat Value Determination - It is known that heat value may be determined semi-quantitatively based upon water content of the waste. A correlation will be developed between water content within a waste matrix and BTU values from Parr bomb data.

Metals Screen by X-Ray Fluorescence (XRF) - Waste samples may be prepared, if necessary, by grinding to a specified mesh size. The prepared sample is placed in a sample holder and positioned for reading. Instrument output identifies the presence of several metals for screening purposes. Semi-quantification of selected metals is then possible relative to matrix matched standards.

Microwave-aided Digestion - A portion of sample is weighed into an appropriate microwave digestion vessel and digested using an acid or acid mixture. The vessel is heated in a microwave oven. After cooling, the contents are diluted to volume, filtered and analyzed by appropriate methods.

Organic Content - Percent water is determined by Karl Fisher or Dean Starks methods. Organic content is conservatively determined by difference of water and ash from 100 percent.

Organic Screen by Immunoassay - A portion of the waste sample is prepared for immunoassay by using appropriate separation procedures (e.g., extraction, filtration, and/or thin layer chromatography). The extract is then mixed and incubated in a step-wise process inside antibody-coated tubes. The mechanics of mixing, incubating and measuring takes about 30 minutes and results in a color change in each tube. The color development is inversely proportional to the concentration of the antibody-specific analyte(s) of interest, e.g., herbicides, pentachlorophenol (PCP), pesticides, polyaromatic hydrocarbons (PAHs), or total petroleum hydrocarbons (TPHs).

PCBs by Immunoassay - A portion of the waste sample is prepared for immunoassay by using appropriate procedures (e.g., solvent extraction, filtration, and/or thin layer chromatography). The extract is then mixed and incubated in a step-wise process inside antibody-coated tubes. The mechanics of mixing, incubating and measuring takes about 30 minutes and results in a color change in each tube. The color development is inversely proportional to the concentration of PCBs.

Percent Acidity - Percent acidity is determined based on "Standard Methods for the Examination of Water and Wastewater," Method 402(d) by titration to a pH of 7 usually using 1N NaOH as a titrant. Results are reported as a percent of the specific acidic species (e.g., H_2SO_4).

Percent Alkalinity - Percent alkalinity is determined based on "Standard Methods for the Examination of Water and Wastewater," Method 403(d) using a back titration technique usually using 1N HCl as a titrant. Results are reported as a percent of the specific alkaline species (e.g., NaOH).

Percent Solids by Centrifuge - Place an aliquot of sample in a graduated centrifuge tube and centrifuge for approximately 5 minutes. Read the solids content off the tube and record the percentage.

Visual Oil and Grease - An aliquot of sample is placed in graduated cylinder and visually examined. Presence of a separate organic layer or sheen is indicated, along with an estimate of its percentage.

Peroxide Screen - Peroxide test strips are used to determine the presence of organic peroxides or other oxygen donors (oxidizers) in solvent and aqueous wastes.

Radioactivity Screen - Screening will be conducted on all off-site waste shipments received at the facility using an automatic Gate Monitor installed at the receiving gate. During equipment outages due to planned maintenance or system failure, screening will be conducted using a hand held scintillation detector on all incoming waste shipments until the automatic screening system is repaired and placed back into operation.

Radioactive levels 25 microR/hr above background are noted, recorded and investigated.

Specific Gravity - A portion of the liquid sample is poured into an appropriate container and, by using an appropriate hydrometer, the specific gravity is determined (modification of ASTM D2111).

Specific Gravity by Pycnometer - A weighted bottle of known volume is filled with liquid waste. The full bottle is reweighed and the specific gravity calculated.

Sulfate Screen - To an aliquot of sample, hydrochloric acid is added to adjust pH to below pH 2. Then $BaCl_2$ solution is added. Formation of any precipitate is noted.

Bulk Density - A graduated cylinder containing a predetermined quantity of water is weighed. A quantity of waste is added. The cylinder is weighed again and the change in volume measured. Density is calculated using the change in volume and the change in weight.

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II. STANDARD ANALYTICAL PROCEDURES

PARAMETER/METHOD .... REFERENCE

Sample Work-Up Techniques

General Extractions

Extraction Procedure (EP) Toxicity Test Method 1/1310A
and Structural Integrity Test

Toxicity Characteristic Leaching Procedure (TCLP) 1/1311

Acid Digestions for Metals

For flame atomic absorption spectroscopy or.. 1/3005A; 3010A
inductively coupled plasma spectroscopy

Microwave assisted .... 1/3015, 3051, 3052; 3/D4309, D 5258

For graphite furnace atomic absorption spectroscopy 1/3020A

Of sediments, sludges, and soils 1/3050B

Organic Extractions and Cleanups

Separatory funnel liquid-liquid extraction 1/3510C

Continuous liquid-liquid extraction 1/3520C

Solid Phase Extraction (SPE) 1/3535A

Soxhlet extraction 1/3540C, 3541

Ultrasonic extraction 1/3550C

Waste dilution 1/3580A, 3585

Alumina cleanup 1/3610B, 3611B

Florisil cleanup 1/3620C

Silica gel cleanup 1/3630C

Gel-permeation cleanup 1/3640A

Acid-base partition cleanup 1/3650B

Sulfur cleanup 1/3660B

Sulfuric acid/permanganate cleanup 1/3665A

Elemental Analytical Methods

Inductively coupled plasma atomic emission 1/6010B
spectroscopy (ICP)

Antimony

Atomic absorption, direct aspiration method 1/7040; 4/204.1

Atomic absorption, furnace technique 1/7041; 4/204.2

Arsenic

Atomic absorption, furnace technique 1/706OA; 4/206.2

Atomic absorption, gaseous hydride method 1/7061A; 4/206.3

PARAMETER/METHOD	REFERENCE
Barium	
Atomic absorption, direct aspiration method	1/7080A; 4/208.1
Atomic absorption, furnace technique	1/7081; 4/208.2
Beryllium	
Atomic absorption, direct aspiration method	1/7090; 4/210.1
Atomic absorption, furnace technique	1/7091; 4/210.2
Cadmium	
Atomic absorption, direct aspiration method	1/7130; 4/213.1
Atomic absorption, furnace technique	1/7131A; 4/213.2
Calcium	
Atomic absorption, direct aspiration method	1/7140; 4/215.1
Atomic absorption, furnace technique	4/215.2
Chromium	
Atomic absorption, direct aspiration method	1/7190; 4/218.1
Atomic absorption, furnace technique	1/7191; 4/218.2
Hexavalent chromium: Co/precipitation	1/7195
Hexavalent chromium: Colorimetric	1/7196A; 2/3500CrD
Hexavalent chromium: Chelation/extraction	1/7197; 4/218.4
Hexavalent chromium: Ion Chromatography	2/3500CrE
Copper	
Atomic absorption, direct aspiration method	1/7210; 4/220.1
Atomic absorption, furnace technique	1/7211; 4/220.2
Iron	
Atomic absorption, direct aspiration method	1/7380; 4/236.1
Atomic absorption, furnace technique	1/7381; 4/236.2
Phenanthroline method (ferrous)	2/3500FeD
Lead	
Atomic absorption, direct aspiration method	1/7420; 4/239.1
Atomic absorption, furnace technique	1/7421; 4/239.2
Magnesium	
Atomic absorption, direct aspiration method	1/7450; 4/242.1
Manganese	
Atomic absorption, direct aspiration method	1/7460; 4/243.1
Atomic absorption, furnace technique	1/7461; 4/243.2
Mercury (manual cold/vapor technique)	
In liquid waste	1/7470A
In solid or semisolid waste	1/7471A
Nickel	
Atomic absorption, direct aspiration method	1/7520; 4/249.1
Atomic absorption, furnace technique	1/7521; 4/249.2
Selenium	
Atomic absorption, furnace technique	1/7740; 4/270.2
Atomic absorption, gaseous hydride method	1/7741A; 4/270.3

PARAMETER/METHOD	REFERENCE
Silver	
Atomic absorption, direct aspiration method	1/7760A; 4/272.1
Atomic absorption, furnace technique	1/7761; 4/272.2
Thallium	
Atomic absorption, direct aspiration method	1/7840; 4/279.1
Atomic absorption, furnace technique	1/7841; 4/279.2
Zinc	
Atomic absorption, direct aspiration method	1/7950; 4/289.1
Atomic absorption, furnace technique	1/7951; 4/289.2

Organic Analytical Methods

PARAMETER/METHOD	REFERENCE
Gas Chromatography Methods	
Halogenated volatile organics	1/8021B
Nonhalogenated volatile organics	1/8015B
Aromatic volatile organics	1/8021B
Phenols	1/ 8041
Phthalate esters	1/ 8061A
Nitrosamines	1/8070A
Polychlorinated biphenyls (PCBs)	1/ 8082A
Organochlorine pesticides	1/ 8081A
Nitroaromatics and cyclic ketones	1/ 8091
Polynuclear aromatic hydrocarbons	1/8100
Haloethers	1/ 8111
Chlorinated hydrocarbons	1/ 8121
Organophosphorous pesticides	1/ 8141A
Chlorinated herbicides	1/ 8151A
Gas Chromatography/Mass Spectroscopy Methods	
Volatile organics	1/ 8260B; 7/624
Semi-volatile organics	1/ 8270D; 7/625
Other Organic Methods	
Qualitative infrared (IR) spectroscopy	1/8410, 8430, 8440; 3/D2621, D4053;
GC/FTIR method	1/8410
Heat of combustion, bomb calorimeter	1/5050; 3/D240, D2015
Halogen and sulfur content	
Chlorine content	3/D808, D2361, D4327
Halogen content	3/D808, D2361, D4327
Sulfur content	3/D129, D3177, D4327
Oil and grease	1/4030, 9070A, 9071B; 2/5520; 4/413.1, 413.2, 1664B
Petroleum hydrocarbons, total recoverable	2/5520F
Phenolics	1/9065, 9066, 9067; 2/5530, 6420; 4/420.1
Solvent Distillation	3/D86, D1078
Total organic carbon	9060A, 5310B

PARAMETER/METHOD	REFERENCE
Screening Methods	
Physical description	3/D4979
Flammability potential screen	3/D4982
Water compatibility	3/D5058C
Oxidizer screen	3/D4981
pH screen	3/D4980
Sulfide screen	3/D4978
Cyanide screen	3/D5049
Commingled waste compatibility	3/D5058A
Polymerization potential	3/D5058B
Paint filter liquids test	1/9095A
Bulk density and apparent specific gravity screen	3/D5057
Polychlorinated biphenyls (PCBs) screen	1/4020, 9078

Miscellaneous Analytical Methods

Acidity	2/2310
Alkalinity	2/2320
Ammonia	2/4500NH3; 4/350.3
Anions	
By ion chromatography	1/9056; 3/D4327; 4/300.0
Chlorides	1/9250, 9251, 9253; 2/4500Cl-; 4/300.0, 325.3
Sulfates	1/9035, 9036, 9038; 2/4500SO42-; 4/300.0, 375.3
Nitrates	1/9210; 2/4500NO3-; 4/300.0, 352.1, 353.2
Fluoride	1/9214; 2/4500F; 4/300.0, 340.2, 340.3
Bromides	1/9211; 2/4500Br-; 4/300.0, 320.1
Phosphates	2/4500P; 4/300.0, 365.1
Ash content	3/D482, D3174
Conductivity/specific conductance	1/9050A; 3/D1125; 4/120.1
Cyanides	
Total and amenable cyanides	1/9010B, 9012A, 9013; 2/4500CN+C,G; 4/335.1
Dissociable cyanides	1/9213; 2/4500CN-I
Flash point	
Pensky-Martens closed-cup method	1/1010; 3/D93
Setaflash closed-cup method	1/1020A; 3/D3278
Cleveland open-cup method	3/D92
Oxidation/reduction (redox) potential (ORP)	3/D1498
pH measurement	1/9040B, 9041A, 9045C; 2/4500H+; 3/E70; 4/150.1
Solids	
Total (TS) at 103/105°C	2/2540B; 4/160.3
Dissolved (TDS) at 180°C	2/2540C; 4/160.1
Total suspended (TSS) at 103/105°C	2/2540D; 4/160.2
Fixed and volatile at 500°C	2/2540E, 2540G; 4/160.4
Specific gravity	2/2710F; 3/D70, D891, D1217, D1429

PARAMETER/METHOD .... REFERENCE

Sulfides
- Extractable sulfides 1/9031
- Potentiometric Determination of Sulfide in Aqueous Samples 1/9215; 2/4500S2-
  (Soluble sulfides)
- Acid-Soluble and Acid-Insoluble Sulfides(Total sulfides) 1/9030B; 2/4500S2-

Toxicity Characteristic Leaching Procedure (TCLP) 1/1311
Viscosity 3/D88, D446, D2983, D2196
Water content 3/D95, D3173, D4006, E203

The leading digit of the reference numbers above are keyed to the numbered publications below.

1/ Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, Washington, DC, September 1986, as amended by Final Updates I, II, IIA, IIB, III, IIIA, IIIB, IVA, and IVB or more recent edition, update or revision, available on EPA's website at http://www.epa.gov/SW-846.

2/ Standard Methods for the Examination of Water and Wastewater, 18th Edition, American Public Health Association (APHA), American Water Works Association, Water Environment Federation, 1992, and 18th Edition Supplement, 1994, or more recent edition or update.

3/ Annual Book of ASTM Standards, American Society for Testing and Materials (ASTM), 1995, or more recent edition or revision.

4/ Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio, 1979, as revised March 1983, or more recent revision or technical addition.

5/ "Infrared Analysis Method" in IERL-RTP Procedures Manual: Level 1 Environmental Assessment, Second Edition, EPA-600/7-78-201, October 1978, or more recent edition.

6/ "Acid Digestion Bombs", Bulletin 4745, Parr Instrument Company (Moline, IL 61265), or more recent bulletin.

7/ "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater", Title 40, Part 136, Appendix A, Code of Federal Regulations, U. S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory/Cincinnati, as amended June 1986, or more recent revision.

8/ Bellar, T. A., and Lichtenberg, J. J., "The Determination of Polychlorinated Biphenyls in Transformer Fluid and Waste Oils", EPA-600/4-81-045, U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio, 1982.

Standard analytical procedures not listed here, which may be needed, will be taken from the above-referenced sources or other authoritative sources.

APPENDIX WAP-B

LAND DISPOSAL RESTRICTION SAMPLING

APPENDIX WAP-B
ASH, SLAG, AND FILTER CAKE SAMPLING PROTOCOL

1.0 PURPOSE

The Port Arthur incinerator destroys hazardous wastes in high temperature thermal oxidation processes. This procedure provides assurance that a proper sample of the incinerator residues is collected for analysis to ensure compliance with the LDR standards.

2.0 SAMPLING

2.1 Sample Collection

2.1.1 Each residue is sampled, analyzed and evaluated at a minimum on a quarterly basis to ensure the residues meet the LDR treatment standards.

2.1.2 A total of six grab samples from each ash and slag residue stream will be collected as the bins are produced to demonstrate compliance with the LDR treatment standards. Two samples will be collected from the first third of the run, two from the middle and two from the last third of the run. These will be composited for analysis in accordance with Table IV.C. The filter cake will have four samples pulled from each filter press drop during the certification process. All samples will be composited for analysis in accordance with Table IV.C. An auger is typically used to obtain a sample of each residual type.

2.1.3 Trained operations personnel will collect the samples and deliver to the laboratory for analysis as soon as practicable. Standard preservation techniques will be employed to assure sample integrity.

3.0 SAMPLE ANALYSIS

3.1 Each sample will be analyzed by a qualified laboratory for analysis of LDR constituents by the appropriate method, in accordance with 40 CFR §§268.7(b)(1) and (2). Specific analytical methods are referenced in Appendix WAP-A.

4.0 DISPOSITION OF RESIDUES

4.1 Any container of residue that was sampled for testing in accordance with the appropriate treatment standard or prohibition, will be retained by the facility until results are available for evaluation.

4.2 The analysis results are evaluated against the LDR treatment standards for the codes in the container. The container is released if all treatment standards are met.

4.3 When compliance with the LDR treatment standards has been demonstrated, the residues will be transported to an approved hazardous waste management facility for further treatment and/or disposal, as appropriate. The manifest and LDR certification will be completed prior to shipment for disposal.

Appendix 2 Standard Division Practice (SDP) PCB Sampling and Analytical Requirements

STANDARD DIVISION PRACTICE
VEOLIA NORTH AMERICA
PORT ARTHUR DIVISION

Title: PCB Sampling and Analytical Requirements	PCB SDP: 1 R1
Department: Technical	Effective Date: 04/21/21
Section: Laboratory	Page: 1 of 7
Approval: [signature]	Supersedes: 1 Date: 06/28/12
Approver's Title: Plant Manager / Laboratory Manger	Review Date: 4/21/21

1. **Purpose:**
   1.1 This procedure outlines the sampling and analytical requirements for all types of PCB wastes.

2. **Scope:**
   2.1 This procedure covers the PCB approval specific sampling and analytical requirements for both incoming and site-generated PCB wastes. All other pre-acceptance and fingerprint analysis requirements are outlined in the Waste Analysis Plan and other existing SDPs.

3. **User(s):**
   3.1 Laboratory Supervisor
   3.2 Laboratory Chemists
   3.3 Laboratory Technicians
   3.4 Sampling Personnel
   3.5 Tank Farm Operators
   3.6 Filter Press Operators
   3.7 Area Supervisors and Managers

4. **Documentation/Forms:**
   4.1 Lab Analysis Report (Attachment A)
   4.2 Analytical Request Form (Attachment B)
   4.3 Lab Analysis Report (Attachment C)
   4.4 General Transfer Log
   4.5 Bulk Disposal Ticket
   4.6 Waste Tracking Logs

5. **Additional Protective Equipment:**
   5.1 Laboratory uniform
   5.2 Safety glasses
   5.3 Safety shoes
   5.4 Varies, refer to Waste Information Profile or Waste Approval Summary

6. **Specialized Equipment, Tools, Supplies:**
   6.1 None

7. **Procedures:**

7.1 **Incoming PCB Waste Drums:**

7.1.1 Perform sampling on 10% of the incoming PCB waste solid drums for each profile received and 100% of the incoming PCB waste liquid drums for each profile received.

7.1.2 Consider the PCB concentration for drums containing only shredded PCB capacitors to be 35% of the total weight of the drum. Waive sampling in this case.

7.1.3 Label all sample containers with a PCB label.

7.1.4 The sampler must complete the Lab Analysis Report for each profile. (Attachment A).

7.1.5 Deliver samples to the laboratory.

7.1.6 Composite the samples from each specific profile if able.

7.1.7 Analyze each composite sample for PCB concentration in accordance with the existing Waste Analysis Plan Section 3.

7.1.8 Handle samples in accordance with other existing procedures (i.e., other analytical, documentation, storage, and disposal procedures).

7.1.9 Either decontaminate sampling equipment in accordance with PCB SDP 4 PCB Equipment and Container Decontamination or dispose of it as a PCB waste.

7.2 **Incoming Bulk Solid PCB Wastes: (not PSM)**

7.2.1 Sample and analyze each container of PCB bulk solids for PCB concentration. For bulk solids, the sample must consist of at least 3 aliquots.

7.2.2 Label all sample containers with a PCB label.

7.2.3 The sampler must complete the Lab Analysis Report (Attachment C) for each profile.

7.2.4 Deliver samples and forms to laboratory.

7.2.5 Analyze each sample for PCB concentration in accordance with the existing Waste Analysis Plan Section 3.

7.2.6 Handle the samples in accordance with other existing procedures (i.e., other analytical, documentation, storage, and disposal procedures).

7.2.7 Either decontaminate sampling equipment in accordance with PCB SDP 4 PCB Equipment and Container Decontamination or dispose of it as a PCB waste.

7.3 **Incoming Bulk Liquid PCB Wastes:**

7.3.1 Sample and analyze each tanker of PCB bulk liquid for PCB concentration.

7.3.2 Label all sample containers with a PCB label.

7.3.3 The sampler must complete the Lab Analysis Report (Attachment C) for each profile.
7.3.4 Deliver samples and forms to laboratory.
7.3.5 Analyze each sample for PCB concentration in accordance with the existing Waste Analysis Plan Section 3.
7.3.6 Handle samples in accordance with existing procedures for PCB wastes (i.e., other analytical, documentation, storage and disposal procedures).
7.3.7 Either decontaminate sampling equipment in accordance with PCB SDP 4 PCB Equipment and Container Decontamination or dispose of it as a PCB waste.

7.4 **Tank Blend PCB Wastes:**
7.4.1 Sample and analyze each tank blend containing PCBs from each liquid/sludge feed tank for PCB concentration.
7.4.2 Label all sample containers with a PCB label.
7.4.3 Tank Farm operator must complete the Analytical Request Form (Attachment B) each profile.
7.4.4 Deliver the samples and forms to the laboratory.
7.4.5 Analyze each sample for PCB concentration in accordance with the existing Waste Analysis Plan Section 3.
7.4.6 Handle the samples in accordance with existing procedures for PCB wastes (i.e., other analytical, documentation, storage and disposal procedures).
7.4.7 Either decontaminate sampling equipment in accordance with PCB SDP 4 PCB Equipment and Container Decontamination or dispose of it as a PCB waste.

7.5 **Site Generated PCB Wastes:**
7.5.1 Site Generated PCB Waste Drums
7.5.1.1 Identify site drums in inventory that need to be sampled according to waste approvals.
7.5.1.2 Sort site drums that need to be sampled by profile to generate a list.
7.5.1.3 Using sorted list, identify and complete the following on the PCB Site Waste Drum Sampling and Analysis Request Form:
7.5.1.3.1 Profile numbers
7.5.1.3.2 Number of drums for each profile
7.5.1.3.3 Location of the drum
NOTE: Use additional PCB Site Waste Drum Sampling and Analysis Request Forms if sorted list generated in step 7.5.1.3 contains more than three profiles.
7.5.1.4 Select 100% of site waste drums for each profile for sampling.

7.5.1.5 The sampler must complete the Analytical Request Form (Attachment B) for each profile.
7.5.1.6 Sample and mark as sampled for future reference the 100% drums selected for sampling.
7.5.1.7 Label all sample containers with a PCB label.
7.5.1.8 Deliver samples and forms to laboratory.
7.5.1.9 Composite samples from each profile if able.
7.5.1.10 Analyze each composite sample PCB concentration in accordance with existing Waste Analysis Plan Section 3.
7.5.1.11 Handle samples in accordance with other existing procedures (i.e., other analytical, documentation, storage, and disposal procedures).
7.5.1.12 Either decontaminate sampling equipment in accordance with PCB SDP 4 PCB Equipment and Container Decontamination or dispose of it as a PCB waste.

7.5.2 Kiln Ash, Slag, and Filter Cake Solids:
7.5.2.1 As roll-off boxes are removed from service prior to shipment off-site, sample and analyze 100% of all kiln ash, slag, and filter cake waste for PCB concentration.
7.5.2.2 Ensure that each sample of ash and slag consists of three aliquots composited into one sample for each container.
7.5.2.3 Ensure each filter cake sample consists of one aliquot per filter cake drop (may be three to five drops) composited in one sample jar.
7.5.2.4 Label all sample containers with a PCB label.
7.5.2.5 Filter Press operator must complete the Analytical Request Form (Attachment B) for each profile.
7.5.2.6 Deliver samples and forms to laboratory.
7.5.2.7 Analyze each sample for PCB concentration in accordance with existing Waste Analysis Plan Section 3.
7.5.2.8 If the waste is less than 2 ppm PCBs, the waste can be sent to a RCRA landfill.
7.5.2.9 If the waste is greater than or equal to 2 ppm PCBs and less than 10 ppm, the waste will be sent to a a TSCA approved PCB landfill or it will be reburn in the incinerator.
7.5.2.10 Handle samples in accordance with other existing procedures (i.e., other analytical, documentation, storage, and disposal procedures).

7.5.2.11 Either decontaminate sampling equipment in accordance with PCB SDP 4 PCB Equipment and Container Decontamination or dispose of it as a PCB waste.

7.5.3 Incinerator Scrubber Water:

7.5.3.1 Sample and analyze incinerator scrubber blowdown water for PCB contamination daily for first three months of operation. Then analyze scrubber blowdown on a weekly basis to verify no detectable PCBs are present.

7.5.3.2 Collect samples at incinerator scrubber blowdown sample point or at individual tank(s).

7.5.3.3 Label all sample containers with a PCB label.

7.5.3.4 The sampler must complete Analytical Request Form (Attachment B).

7.5.3.5 Deliver samples and forms to laboratory.

7.5.3.6 Analyze each sample for PCB concentration in accordance with existing Waste Analysis Plan Section 3.

7.5.3.7 If the PCB concentration in the scrubber blowdown water is less than 50 ppm, the wastewater will be managed in the facility's class 1 injection wells.

7.5.3.8 If the PCB concentration is greater than or equal to 50 ppm PCBs, then the wastewater will be incinerator.

7.5.3.9 If the PCB concentration in the scrubber blowdown water exceeds 50 ppm, an investigation will be initiated to determine the cause.

7.5.3.10 Handle samples in accordance with other existing procedures (i.e., other analytical, documentation, storage, and disposal procedures).

7.5.3.11 Based on data that verifies scrubber water contains detectable PCBs, either decontaminate sampling equipment in accordance with PCB SDP 4 PCB Equipment and Container Decontamination or dispose of it as a PCB waste.

7.5.4 Laboratory Generated PCB Wastes:

7.5.4.1 Either decontaminate laboratory wastes, including samples, PPE and equipment contaminated with PCBs, in accordance with PCB SDP 4 PCB Equipment & Container Decontamination or lab pack and dispose of them.

7.5.4.2 Individually weight-average calculate PCB concentration for labpacks containing PCB samples. Waive sampling in this case.

7.5.5 Miscellaneous Site Generated Wastes:

7.5.5.1 Sample and analyze all site generated wastes, such as spent carbon, tellerettes, restricted trash, truck wash solids, etc., for PCB concentration.

7.5.5.2 Label all sample containers with a PCB label.

7.5.5.3 Sampler must complete Analytical Request Form (Attachment B) for each profile.

7.5.5.4 Deliver samples and forms to laboratory.

7.5.5.5 Analyze each sample for PCB concentration in accordance with existing Waste Analysis Plan Section 3.

7.5.5.6 Handle samples in accordance with other existing procedures (i.e., other analytical, documentation, storage, and disposal procedures).

7.5.5.7 Either decontaminate sampling equipment in accordance with PCB SDP 4 PCB Equipment and Container Decontamination or dispose of it as a PCB waste.

7.6 **PCB Analytical Tests:**

7.6.1 Complete all PCB tests using EPA SW846 Method 8080 or any other subsequently approved method.

7.6.2 PCB analysis consists of determining and reporting PCB concentration as an aroclor.

7.7 **PCB Spill Clean-up:**

7.7.1 Clean up all PCB spills in accordance with PCB SDP 6 PCB Spill Cleanup and 40 CFR 761, Subpart G.

7.8 **Equipment/Container Decontamination:**

7.8.1 Manage any equipment or containers that require decontamination in accordance with PCB SDP 4 and 40 CFR 761.79.

7.9 **Lab Results/Waste Tracking Paperwork:**

7.9.1 Veolia Port Arthur will use existing sample management forms to manage PCB waste laboratory samples

7.10 **Lab Sample/Waste Containers:**

7.10.1 Manage all laboratory samples and waste containers in accordance with PCB SDP 2 PCB Container and Tank Management and 40 CFR 761.60 and 761.65.

8. **User Responsibilities**

8.1 Area Supervisors and Managers are responsible for ensuring that all PCB waste sampling and analytical procedures are implemented at the facility.

9. **User Performance Criteria:**
   9.1 All users should comply with requirements of this procedure.

10. **Cross References:**
    10.1 PCB SDP 6 - PCB Spill Clean-Up
    10.2 PCB SDP 4 - PCB Equipment and Container Decontamination
    10.3 PCB SDP 2 - PCB Container and Tank Management
    10.4 Veolia Waste Analysis Plan Section 3 – Analytical Rationale

11. **Regulatory/Permit Requirements:**
    11.1 June 1, 1992 TSCA PCB Approval, (Section III.B. 2, 3, and 4) - PCB Waste Sampling
    11.2 40 CFR 761, PCB Regulations

12. **Glossary of Terms:**
    12.1 None

Lab Analysis Report

Port Arthur, Texas

88180802

Generator Name:	VEOLIA ES TECHNICAL SOLUTIONS			**Load Received Date:**	01/20/2021
Rcvg Ticket #:	881808-02			**Manifest Number:**	001885458VES
WPS #:	PTA383523	**WIP #:**	383523	**WPS Expiration Date:**	07/15/2021
Waste Name :	HPLC WASTE WITH METHANOL AND ACETIC ACID			**PCB Reg by 40CFR :**	No

Test Parameter	Profile Ranges	Results	Results	Conforms		Date	Analyst
				Yes	No		
PCB's							
Radiation	[redacted]						
Color	VAR						
Incidental Odor							
Number of Layers	Single						
Physical State	L						
Physical Appearance Tackiness or Turbidity	Top: Low(Water)						
Free Liquids %	0 - 0						
pH Screen	- 2.0						
ph by Meter	"N/A"						
Water Reactivity	[redacted]						
Water Soluable	0 - 0						
Flam Potential Scr	100 - 200						
Cyanide Scr mg/L	N						
Sulfide Scr mg/L	N						
Specific Gravity	0.0 - 1.0						
BTU/lb	450 - 7900						
% Fluorine (Total)	0 - 1						
% Chlorine (Total)	0 - 19						
% Bromine (Total)	0 - 1						
% Sulfur (Total)	0 - 1000 PPM						
% Ash (Total)	0 - 5						
% Water (Total)							
Oxidizer Screen	[redacted]						
CCFP							

ACCEPT/REJECT ______________________

Comments ______________________

VEOLIA
ENVIRONMENTAL SERVICES
ANALYTICAL REQUEST FORM

PART 1: TO BE COMPLETED BY SAMPLER.

GENERATOR: ______

PROFILE: ______

RECEIVING TICKET # : ______

DRUM COUNT: ______

SGWT # : ______

NUMBER OF SAMPLES: ______

TYPE OF SAMPLE CONTAINER: ______

SAMPLE SOURCE / DESCRIPTION: ______

SAMPLED BY: ______

SAMPLER'S SIGNATURE: ______

DATE / TIME SAMPLED: ______

ANALYSIS REQUESTED BY:

NAME: ______

DEPT: ______ PHONE # : ______

☐ PLEASE CALL WITH RESULTS:

☐ PLACE HARD COPY OF RESULTS IN DEPARTMENT'S BIN.

PLEASE FORWARD RESULTS TO:

NAME: ______

DEPT: ______ PHONE # : ______

☐ PLEASE CALL WITH RESULTS:

☐ PLACE HARD COPY OF RESULTS IN DEPARTMENT'S BIN.

TESTS REQUESTED FOR SAMPLE: (CHECK BOX)

☐ COMPATIBILITY WITH

☐ DRUMS FOR INCINERATION

☐ FINGERPRINT SCREENS

☐ INCINERATOR FULL BLEND PANEL (FBPA)

☐ INCINERATOR RECEIVING LOAD
(Bulk solid or Bulk liquid)

☐ PCB ANALYSIS: Indicate LOQ: ______

☐ OUT GOING BOX
BOX # ______ LOC # ______
Ash Slag Filtercake (circle one)

☐ OUTFALL / BASIN WATER FOR TPDES Discharge:
OUTFALL / BASIN NAME: ______
pH: ____ @ ____ °C
Analyst: ______

☐ RAIN WATER FROM SUMPS - TPDES DISCHARGE:
NPDES DISCHARGE: (pH and TOC only)
SUMP I. D. #: ______
pH: ____ @ ____ °C
Analyst: ______

☐ TOTAL METALS:

☐ OTHER: ______

PART 2: TO BE COMPLETED BY LABORATORY

RECEIVED INTO LAB BY: ______

LABORATORY I. D.# : ______

RELEASED FROM LAB BY: ______

DATE/TIME IN LAB ______

DATE/TIME OUT OF LAB ______

882184

Lab Analysis Report
Port Arthur, Texas

Generator Name	AXIALL, LLC	Load Received Date	1/25/2021
Rcvg Ticket #	882184	Manifest #	015909877FLE
WPS #	PTA435066 WIP # 435066	WPS Expiration Date	1/1/2022
Waste Name	HEAVY ENDS (EDC/VCM) TARS SPILL	PCB's Reg by 40 CFR	N

Test Parameter	Profile Ranges	Results	Results	Conforms		Date	Analyst
				Yes	No		
PCB's	0						
Radiation	[redacted]						
Color	BLK						
Incidental Odor	None						
Number of Layers	Single						
Physical State	L						
Physical Appearance -- TACKINESS or TURBIDITY	Top Layer: Low (Water): ;						
Free Liquids (%)	75 - 100						
pH Screen	5 - 9						
pH By Meter	N/A						
Water Reactivity	[redacted]						
Water Soluble	0 - 0						
Flam Potential Screen	100 - 140						
Cyanide Screen mg/L	N						
Sulfide Screen mg/L	N						
Specific Gravity	1.000 - 4.000						
BTU/Lb	5000 - 7500						
% Fluorine (Total)	0 - 2						
% Chlorine (Total)	0 - 90						
% Bromine (Total)	0 - 1						
% Sulfur (Total)	0 - 1000 PPM						
% Ash (Total)	0 - 5						
% Water (Total)							
Oxidizer Screen	[redacted]						
CCFP							

ACCEPT/REJECT

Comments

Appendix 3 PCB Incinerator Operators Manual

VEOLIA ES TECHNICAL SOLUTIONS, L.L.C.

PORT ARTHUR, TEXAS

PCB INCINERATOR OPERATORS MANUAL

Revision Date: March 30, 2021

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I. GENERAL OVERVIEW

In accordance with Section III.A.6. of the USEPA TSCA authorization dated January 27, 2004, Veolia Environmental Services, L.L.C. - Port Arthur facility (Veolia) has developed this PCB Incinerator Operators Manual. The authorization of this incinerator unit is based on the information submitted for the March 14-25, 1990, Trial Burn, the March 18, 1991, Supplemental Trial Burn, and the PCB Storage application and subsequent modifications dated August 1990, November 7, 1990, May 22, 1991, May 31, 1991, June 3, 1991, June 25, 1991, and January 27, 2004.

In accordance with the renewed TSCA Authorization dated February 2, 2018, the Veolia facility is authorized to operate a RCRA incineration facility, pursuant to TCEQ Permit No. HW-50212-001, issued on November 17, 1993, and subsequent renewals, and two underground injection control deepwells, pursuant to TCEQ Permit Nos. WDW-160 and WDW-358 and the USEPA-No Migration Petition dated December 17, 2004. The PCB Incinerator Operators Manual addresses procedures the Veolia facility will use to comply with both the USEPA, September 13, 1994, and subsequent PCB autorizations, and Texas Commission on Environmental Quality (TCEQ) requirements. In addition, Veolia has developed six PCB Standard Division Practices (PCB-SDPs) that outline specific procedures that Veolia will implement to ensure compliance with all PCB waste management requirements. See Attachment No. 1 for a list of specific PCB-SDPs the facility has developed.

The Veolia facility incinerates all PCB wastes in accordance with 40 CFR Part 761 regulations. The PCB Operators Manual outlines the procedures that Veolia will use to accept, manage, and dispose of customer and site generated PCB wastes.

II. PCB WASTE ACCEPTANCE/ANALYSIS

A. General PCB Waste Analysis

Veolia will perform pre-acceptance and fingerprint analysis on incoming PCB wastes as outlined in the most current Waste Analysis Plan and USEPA TSCA approval. Specifically, each batch of PCB contaminated wastes from each liquid/sludge feed tank, each batch of PCB contaminated bulk solids, and at least ten percent of containers of PCB waste will be analyzed for PCB concentration prior to incineration. The results of all analysis will be maintained on file in accordance with the TSCA approval. Additional procedures for the sampling and analytical requirements for all PCB wastes are outlined in PCB-SDP No. 1.

B. Site-Generated Wastes

Veolia will perform PCB analysis on 100% of the kiln ash, deslagger residuals, and filtercake waste generated each operating day. Kiln ash, deslagger residuals, and filtercake wastes that contain less than 2 ppm PCBs will be shipped to a regulated RCRA hazardous waste landfill for disposal. Kiln ash, deslagger residuals, and filtercake wastes containing greater than or equal to 2 and less than 10 ppm PCBs will either be reintroduced into the kiln or shipped to an approved PCB landfill. Kiln ash, deslagger residuals and filtercake wastes that contain > 10 ppm PCBs will be reintroduced into the kiln for further treatment.

Veolia will assess the PCB concentration in the scrubber blowdown water routed to the injection wells on a weekly basis.

Veolia will manage site generated laboratory and spill clean-up PCB wastes in accordance with applicable requirements.

NOTE: See PCB-SDP No.1for specific procedures that Veolia implements to ensure compliance with the PCB sampling and analytical requirements.

III. PCB WASTE STORAGE/HANDLING

A. Markings

All PCB waste containers and articles accepted at the Veolia facility will be properly marked in accordance with 40 CFR §761.40 and §761.45. All PCB containers and articles will be visually inspected to ensure compliance with these requirements upon receipt. In addition, all PCB waste storage areas will be marked as required.

B. PCB Containerized Wastes

Veolia receives PCB wastes in a variety of different types of containers. (e.g., drums, roll-offs, etc.)

PCB container storage is limited to 2040 fifty-five gallon drum equivalents in the Container Storage Area (Building #87), 720 cubic yards in the truck and container storage area (ADA), (Building #3) 1360 cubic yards in the Ash and Stabilization Building Container Storage Areas (Building #35 and #2) 2500 cubic yards in Building 46 and the other approved storage areas (See PCB Approval dated January 27, 2004).

C. Bulk Liquid PCB Wastes

Veolia receives bulk liquid PCB wastes which are offloaded into a series of hazardous waste tanks or fed directly to the incinerator through a direct feed line. PCB tank storage is limited to 746,300 gallons of capacity in Tank No.'s 501-516, 521-524, 535-536, and 550-553, and any other subsequently approved storage tanks. (See Table No.'s 1 & 2 for individual tank volumes.) All PCB waste storage tanks are managed and marked in accordance with the requirements of 40 CFR Part 761.

NOTE: See PCB-SDP No. 2 for standard procedures that Veolia implements to ensure compliance with PCB waste storage and handling requirements.

IV. RECORDKEEPING/REPORTING REQUIREMENTS

A. Manifests

Veolia reviews all incoming/outgoing PCB waste manifest packages to ensure compliance with the manifesting requirements in 40 CFR §761.207 and §761.211. All manifest discrepancies will be resolved prior to final treatment of the PCB wastes.

B. Exception Reporting

Veolia has a procedure in place to comply with the exception reporting requirements outlined in 40 CFR §761.215.

C. Certificates of Disposal

Veolia will issue certificates of disposal for all PCB wastes that have been treated at the facility. The certificates of disposal will be sent within 30 days of the date of PCB waste disposal and will include all of the information required by 40 CFR §761.218. Copies of all documentation will be maintained as required.

D. PCB Annual Report and Annual Document Log

Veolia will maintain all of the appropriate information to prepare the annual report and annual document log as outlined in 40 CFR §761.180 (b).

E. PCB Incinerator General Recordkeeping Requirements

Veolia will maintain all of the required monitoring and recordkeeping information for 5 years as outlined in 40 CFR §761.180 (c) and all other documents required by 40 CFR §761.180(f). Any modification or correction of the records will be initialed and dated by the supervisor in charge.

NOTE: See PCB-SDP No. 5 for specific procedures that Veolia implements to ensure compliance with all PCB recordkeeping and reporting requirements.

V. INCINERATOR OPERATIONS

A. General Operations

PCB waste incinerator operations at the Veolia facility are conducted in conjunction with operations governed by the TCEQ RCRA Part B Permit No. HW-50212-001. The PCB Incinerator Operators Manual only addresses the specific operating requirements associated with the incineration of PCB wastes.

B. Maximum PCB Waste Feed Rates

In accordance with the TSCA Authorization, Veolia will limit PCB waste feed rates to 1606 pounds per hour PCBs when feeding liquid and non-liquid PCB wastes. The PCB feed rates will be measured and recorded as outlined in 40 CFR 761.70 and the aforementioned Approval.

C. Incinerator Emissions

1) Carbon Dioxide

Veolia will monitor the CO_2 emission rate as outlined in the USEPA approval while incinerating PCB wastes.

2) <u>Particulate</u>

Total particulate emissions will not exceed 0.03 grains per dry standard cubic feet when corrected to oxygen in the stack gas.

Veolia has documented compliance with all emission limits during previous stack testing. Veolia will conduct additional testing as required by the USEPA and TCEQ.

D. Automatic Waste Feed Cut-offs

The flow of PCBs to the incinerator will stop automatically under any of the following conditions:

(i) The temperature drops below 1100°C (2012 °F) as measured by the thermocouple located in the "hot duct" leading to the quench tower.

(ii) The carbon monoxide (CO) in parts per million (ppm) exceeds 10 times the percent CO_2 concentration in the exit duct gases or 100 parts per million maximum (the monitors will be calibrated at least once each 24-hour day during PCB incineration by certified zero and span gas). There will be a minimum of 18 hours between calibration events.

(iii) The excess oxygen (O_2) drops below 3 percent (monitor will be calibrated once each 24-hour day by certified zero and span gas). There will be a minimum of 18 hours between calibration events.

(iv) There is a loss of primary combustion air to the burner.

(v) There is a loss of water to the quench.

(vi) Veolia will operate the incinerator under negative pressure. Pressure in the combustion zone will be monitored and recorded on a continuous basis. The PCB waste feed will be automatically cut off if the pressure remains positive for 10 consecutive seconds.

(vii) The temperature in the rotary kiln drops below 1300°F.

(viii) The established chlorine, antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, silver, thallium, and PCB waste feed limits are exceeded.

(ix) Retention time in the secondary combustion chamber falls below 2 seconds.

Liquid PCB wastes will only be fed to the incinerator from feed lines that are controlled by the automatic waste feed cut-off valves. Bulk feed tanks will be designed to ensure a uniform commingling of container material such that 4-hour feed stream sampling for each tank shall not vary in BTU or chlorine value (by weight) greater than ten percent.

NOTE: See PCB-SDP No. 3 for specific procedures that Veolia implements to ensure compliance with PCB incinerator operating requirements.

E. PCB Equipment and Container Decontamination

1.) PCB Containers (Tankers/Roll-Offs/Drums)

PCB Containers will be decontaminated by flushing the internal surfaces of the container three times with a solvent containing less than 50 ppm PCB. The solubility of PCBs in the solvent must be five percent or more by weight. Each rinse will use a volume of the normal diluent equal to approximately ten (10) percent of the PCB Container capacity. The solvent may be reused for decontamination until it contains 50 ppm PCB. The solvent will then be disposed of in accordance with §761.60 (a).

2) Equipment in Storage Areas (e.g., forklifts, pumps, valves, etc.)

Movable equipment used in storage areas shall be decontaminated by washing surfaces that have contacted PCBs with a solvent meeting the criteria of paragraph (1) of this section.

NOTE: See PCB-SDP No. 4 for specific procedures Veolia implements to ensure compliance with PCB equipment and container decontamination requirements.

F. PCB Spill Clean-Up

Veolia will manage all PCB spills in accordance with the Spill Clean-up Policy, 40 CFR Part 761, Subpart G. Veolia has a written Standard Division Practice which addresses how PCB spills will be cleaned up. All appropriate Veolia employees will be trained using this procedure.

PCB spills of quantities estimated to be greater than 1 gallon of liquid PCBs occurring outside of PCB storage areas, PCB feed staging areas, or from Veolia owned PCB transport vehicles will be reported as soon as possible and no longer than 24 hours to the Chief of the RCRA Permits Branch, EPA Region 6.

NOTE: See PCB-SDP No. 6 for specific procedures Veolia implements to ensure compliance with all PCB spill clean-up requirements.

VI. CONTINGENCY, SAFETY, AND EMERGENCY PLAN AND SPCC PLAN

A. Contingency, Safety, and Emergency (CSE) Plan

Veolia has developed a Contingency/Safety/Emergency (CSE) Plan to address all potential emergency response scenarios at the facility.

In addition, the safety portion of the plan outlines how Veolia will comply with personnel safety requirements and procedures for PCB handling, storage, transport, and disposal as outlined in OSHA requirements.

Training on the CSE and SPCC Plan will be conducted for all personnel associated with PCB waste management operations.

B. SPCC Plan

Veolia has updated the site specific SPCC Plan to address all PCB waste storage areas.

VII. **TRAINING PLAN**

Veolia has a written PCB Training Plan that describes how the facility will train all personnel associated with PCB waste operations.

ATTACHMENT A

VEOLIA ES TECHNICAL SOLUTIONS, L.L.C. - PORT ARTHUR FACILITY

PCB WASTE MANAGEMENT
STANDARD DIVISION PRACTICES

PCB - SDP'S

PCB-SDP NO. 1 . . . . PCB SAMPLING AND ANALYTICAL REQUIREMENTS

PCB-SDP NO. 2 . . . . PCB CONTAINER AND TANK MANAGEMENT

PCB-SDP NO. 3 . . . . PCB/TSCA INCINERATOR OPERATING REQUIREMENTS

PCB-SDP NO. 4 . . . . PCB EQUIPMENT & CONTAINER DECONTAMINATION PROCEDURES

PCB-SDP NO. 5 . . . . PCB RECORDKEEPING AND REPORTING

PCB-SDP NO. 6 . . . . PCB SPILL CLEAN-UP

VEOLIA ES TECHNICAL SOLUTIONS, L.L.C.

PORT ARTHUR, TEXAS

PCB INCINERATOR TRAINING MANUAL

Revision Date: March 30, 2021

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I. **Introduction/Overview**

II. **PCB Training Plan Implementation**

A. Initial Training

B. Annual Refresher Training

III. **Standard Division Practices (SDP) Training Modules**

A. General Overview of Each Training Module

1. SDP No. 1 - PCB Sampling and Analytical Requirements

2. SDP No. 2 - PCB Container and Tank Management

3. SDP No. 3 - PCB Incinerator Operating Requirements

4. SDP No. 4 - PCB Equipment and Container Decontamination Procedures

5. SDP No. 5 - PCB Recordkeeping and Reporting

6. SDP No. 6 - PCB Spill Clean-Up

7. Contingency, Safety, and Emergency Plan and SPCC Plan

VEOLIA ES TECHNICAL SOLUTIONS, L.L.C.
PORT ARTHUR, TEXAS

PCB INCINERATOR TRAINING MANUAL

I. INTRODUCTION/OVERVIEW

In accordance with section IV.A.5. of the USEPA Conditions for Disposal and Commercial Storage of Liquid and Solid PCBs, Veolia ES Technical Solutions, L.L.C. - Port Arthur Facility (Veolia) has developed this PCB Incinerator Training Manual. The authorization of the incinerator unit is based on the information submitted for the March 14-25, 1990, Trial Burn, the March 18, 1991, Supplemental Trial Burn, and the PCB Storage application and subsequent modifications dated August 1990, November 7, 1990, May 22, 1991, May 31, 1991, June 3, 1991, June 25, 1991, and January 27, 2004.

The Veolia facility is currently authorized to operate a RCRA incineration facility, pursuant to TCEQ Permit No. HW-50212-001, issued on August 20, 2004 and subsequent modifications, and two underground injection control facilities, pursuant to TCEQ Permit Nos. WDW-160 and WDW-358 and the USEPA-No Migration Petition dated December 17, 2004. The PCB Incinerator Training Manual describes how the facility will comply with both the USEPA, January 27, 2004 approval and TCEQ requirements.

The Veolia facility incinerates all approved PCB wastes in accordance with 40 CFR Part 761 regulations. This PCB Training Manual outlines the procedures that Veolia will use to ensure that all personnel that manage PCB wastes will be adequately trained prior to handling PCB wastes.

II. PCB TRAINING PLAN IMPLEMENTATION

A. Initial PCB Training

Veolia provides comprehensive training for all facility employees that manage TSCA regulated PCB wastes. This training program ensures that all employees that manage TSCA regulated PCB wastes are familiarized with all of the requirements of the 40 CFR 761, PCB Regulations, and the January 27, 2004 USEPA TSCA PCB Approval.

Veolia provides training on the specific PCB Standard Division Practices outlined in Section III of this Training Manual.

Documentation of all PCB waste management training will be maintained as part of the facility's operating record.

B. Annual Refresher Training

Each employee at the Veolia facility will be provided with annual refresher training in accordance with existing RCRA and OSHA requirements. This training has been expanded to include an overview of the TSCA PCB waste management requirements. This training will also be documented and maintained as part of the facility's operating record.

III. STANDARD DIVISION PRACTICE (SDP) TRAINING MODULES

A. General Overview of Each Training Module

1. SDP No. 1 - PCB Sampling and Analytical Requirements

   This training module provides a description of the sampling and analytical requirements for managing PCB wastes. Requirements for the management of incoming as well as site-generated PCB wastes are described in this standard division practice. (See Attachment A)

2. SDP No. 2 - PCB Container and Tank Management

   This training module provides a description of the marking and management requirements for tanks and containers used to manage PCB wastes. Requirements for the management of incoming and site-generated PCB waste containers and tanks are described in this standard division practice. (See Attachment A)

3. SDP No. 3 - PCB Incinerator Operating Requirements

   This training module provides a description of the facility's PCB specific incinerator operating requirements. (See Attachment A)

4. SDP No. 4 - PCB Equipment and Container Decontamination Procedures

   This training module provides a description of the decontamination procedures that must be implemented when PCB contaminated equipment and containers are decontaminated. (See Attachment A)

5. SDP No. 5 - PCB Recordkeeping and Reporting

   This training module provides a description of the manifesting, exception reporting, certificate of disposal, and annual reporting procedures that are implemented for PCB waste management. (See Attachment A)

6. SDP No. 6 - PCB Spill Clean-Up

   This training module provides a description of the facility's procedures that will be implemented whenever there is a spill of PCB wastes. (See Attachment A)

7. Contingency, Safety, and Emergency and Spill Prevention Control and Countermeasure Plans

This training module provides a description of the procedures in place at Veolia to respond to any type of emergency: spills, personnel injuries, site evacuations, etc. (See Attachment B)

PCB/TSCA
FIELD ACTIVITY HANDOUT
===

WHAT ARE PCB's?

PCB'S are part of a broad family of organic chemicals known as Chlorinated hydrocarbons (Polychlorinated biphenyls).

WHY ARE THEY A PROBLEM?

PCB's were widely manufactured and used in the U.S. from 1929 through 1977 as a low electrical conductivity liquid in transformers, capacitors, etc. The EPA banned the manufacture of PCB's and mandated the destruction of all existing PCB's except for limited circumstances. There are only three commercial incinerators permitted to destroy PCB's in the United States.

PCB's are a very stable chemical that can be hazardous to health and the environment. PCB's are not very volatile but will bioaccumulate in living organisms. The concentration of PCB's in a living organism will continue to accumulate. PCB's usually accumulate when they are consumed by humans (contaminated fish, shellfish, crabs, etc.) Provided the site follows the PPE requirements in the PCB SDP's, PCB's should not represent a problem for any individual.

WHAT TYPES OF PPE SHOULD WE USE AND WHEN SHOULD WE USE IT?

The following PPE should be worn if an employee is cleaning up a spill or decontaminating a piece of PCB contaminated equipment:

<u>Respiratory Protection</u> - Air purifying respirator with organic vapor cartridge when conditions warrant.

<u>Body, Arm, & Leg</u> - Saranex suit - cuffs taped

<u>Foot</u> - Rubber boots - cuffs taped

<u>Hand</u> - Nitrile Gloves, inner liners

<u>Face</u> - Goggles or full face respirator, only if face and eye hazard

PCB CONTAMINATED EQUIPMENT/CONTAINER DECONTAMINATION

DEFINITIONS:

Approved solvent: **The approved solvent for decontaminating PCB Equipment and spill areas is currently diesel fuel.**

In general, PCB contaminated equipment must be decontaminated before it is worked on by an employee and returned to service.

Example # 1: Removing a pump from service for repair.

1) Remove pump from service

2) Put pump into a plastic bag and place into a container for transport to a specified decontamination station.

3) The plastic bag must be disposed of as PCB waste, and if the bag was torn at all, the container must be triple rinsed with an approved solvent.

4) In order to be considered decontaminated, the piece of equipment must be wiped down with an approved solvent (not water) with no visible traces of waste left on the equipment.

5) Once the equipment is decontaminated, it can be worked on and repaired (all pieces of equipment that will not be reused **ie, gaskets, nuts, bolts, etc.** must be discarded as PCB waste)

6) Separate containers should be used to collect PCB decontamination rinsate and discarded PCB contaminated solids (transport bags, gaskets, nuts, etc.) These PCB containers must be labeled with a PCB mark and an accumulation start date, they must be placed into permitted storage within 30 days and disposed of within one year from the accumulation start date.

7) Complete the PCB equipment/container decontamination form.

8) Return piece of equipment back into service. If there is reason to believe that the exterior has been re-contaminated with PCB's, then the exterior of the piece of equipment should be wiped down with an approved solvent prior to reinstallation.

IMPORTANT NOTE:

Proper PPE must always be worn when handling PCB contaminated equipment and waste.

Example #2: Cleaning out a basket strainer for a pump.

In this situation, the cleaning out of a strainer does not require decontamination (so water can be used to rinse the strainer). However, the rinsate collected from washing out the strainer must be considered a PCB waste and the operator must take great care not to spill any liquids on the ground or on the exterior of any other equipment. If PCB waste is spilled, then the residues must be handled as PCB waste and the spill must be cleaned up using an approved solvent in accordance with PCB SDP #6.

PCB/TSCA TRAINING

FIELD ACTIVITY - SPILL SCENARIOS

Veolia ES Technical Solutions, L.L.C.
Port Arthur, Texas Facility

Insert flow diagram

Insert SDP Number 6: PCB Spill Cleanup

SCENARIO 1

1. A receiving technician was sampling a tanker truck loaded with 65 ppm PCB contaminated oil. While he was descending the sampling rack, he dropped the 1 pint sample jar. When the jar hit the asphalt, it burst, splashing its contents on the sampling rack access ladder, the asphalt, and the tires of the trailer.

Group leader: ______________ Date:_________

Group member:______________ Group member:______________
Group member:______________ Group member:______________
Group member:______________ Group member:______________
Group member:______________ Group member:______________

Describe the steps needed to respond to this incident. You may use the flow chart for reference.

PPE requirements: ______________________________

Reporting requirements ______________________________

SCENARIO 2

2. While unloading a truck of liquid PCB at the tank farm, the hose connection at the rear of the truck began to leak. Even though a drip pan was used, the liquid sprayed outside the drip pan and into the sump. The liquid also sprayed the rear of the trucks trailer. The material contains 35 ppm PCB's.

Group leader:_______________ Date:_________

Group member:______________ Group member:______________
Group member:______________ Group member:______________
Group member:______________ Group member:______________
Group member:______________ Group member:______________

Describe the steps needed to respond to this incident. You may use the flow chart for reference.

____
____
____
____
____
____
____
____
____
____
____

PPE requirements: ____

Reporting requirements: ____
____
____

SCENARIO 3

3. While doing a routine incinerator walk-through the area operator noticed that a bleeder on a feed line was dripping onto the pavement inside secondary containment. The line normally contains PCBs.

Group leader:______________	Date:______________
Group member:_____________	Group member:_____________
Group member:_____________	Group member:_____________
Group member:_____________	Group member:_____________
Group member:_____________	Group member:_____________

Describe the steps needed to respond to this incident. You may use the flow chart for reference.

____
____
____
____
____
____
____
____
____
____
____

PPE requirements: ____

Reporting requirements: ____
____
____

SCENARIO 4

4. While transporting drums from the ADA Building to the BHMB, a 55 gallon drum of PCB contaminated soil fell off the pallet and landed on the asphalt. The lid popped off the drum and its contents emptied out. Approximately 150 pounds of soil containing 50 ppm PCBs was spilled.

Group leader:_______________ Date:_______________

Group member:_____________ Group member:_____________
Group member:_____________ Group member:_____________
Group member:_____________ Group member:_____________
Group member:_____________ Group member:_____________

Describe the steps needed to respond to this incident. You may use the facility plan for reference.

____
____
____
____
____
____
____
____
____
____
____

PPE requirements:____

Reporting requirements: ____
____
____

Purpose

This training is designed to teach employees how to correctly manage a PCB Spill. This includes the methods for decontaminating a spill area, post-cleanup sampling and management of the spill cleanup wastes. Notification requirements are detailed in PCB SDP 6.

What is a PCB Spill?

Any uncontrolled discharge, leak or release of materials containing 50 ppm or greater of PCBs is a spill. Spills can be generated from leaking pumps, valves, tank trucks, tanks, sampling procedures, etc.

Many Types of PCB Spills are Regulated

Spills of low-concentration waste (containing less than 500 ppm PCBs) involving less than one pound of PCBs by weight are regulated. This means the weight of the PCBs contained in the waste, not the total weight of the waste.

Spills of low-concentration waste involving more than one pound, or any quantity of high-concentration waste (containing 500 ppm PCBs or greater), are regulated.

Spills of any quantity of any PCB waste that contaminate one of the following are regulated:

- Surface water
- Sewers or sewage treatment plants
- Private or public drinking water supplies
- Animal grazing lands
- Vegetable gardens

These spills will be referred to as "exceptional spills" throughout this document.

How is a PCB Spill Managed?

The person identifying the spill must isolate the area and notify the area supervisor.

All designated responding personnel should wear appropriate PPE.

The spill must be contained as soon as possible.

Pre-cleanup sampling must be conducted, if necessary.

Spilled material should be placed into containers and properly managed.

The spill area should be properly decontaminated as soon as possible.

Post-cleanup sampling must be conducted if required.

Documentation of all steps taken must be recorded by area supervisor.

Cleanup activities should be initiated as soon as possible, but no later than 24 hours and completed within 48 hours.

Make notification, if required, to the proper authorities as detailed in SDP 6.

How is a PCB Spill Isolated?

Cordon off the area with barrier tape and/or exclusion zone tape. The area cordoned off should be at least 3 feet outside of any visible traces of contamination.

If the spill is uncontrollable, the emergency coordinator must be notified and the emergency response plan must be activated.

What is Proper PPE?

The area supervisor must specify required equipment. In general, a barrier suit and gloves must be worn to prevent skin contact with waste. Respiratory protection will depend upon the type of waste to be cleaned and the location of the spill.

When is Pre-cleanup Sampling Required?
Pre-cleanup sampling is required whenever visible traces of the spill are not sufficient to determine boundaries of the spill. It is assumed that on solid surfaces (such as concrete, metal, asphalt, etc…) that visible traces will be sufficient to determine the spill boundaries. On soil this is not always the case.

How is Pre-cleanup Sampling Conducted?
The regulations are not specific. However, they do require that the following conditions are met.

-sampling must be sufficient to determine area of spill contamination
-analytical results must be retained

In addition, a record of the location of the samples taken must be kept. Based on review of the analytical results, the final boundaries should be marked and recorded prior to cleanup activities.

How is the Cleanup to be Conducted?
Spilled materials and any absorbents should be placed into approved containers and managed as PCB wastes. If the spill was onto soil and the spill boundaries are obvious, the soil within the boundaries of the spill should be excavated. An additional one foot lateral buffer of soil should be excavated around the perimeter of the spill. If the spill boundaries are not obvious, the area supervisor must specify how much soil to excavate.

How is Decontamination to be Conducted?
In the case of spills involving less than one pound of low-concentration PCB waste:

Solid surfaces (such as cement, asphalt, metal) must be cleaned using the double wash/rinse method. This method requires the use of an approved solvent. Enough solvent to completely cover the contaminated area must be used in each wash. The simple spreading of solvent over the surface or a once-over wipe with soaked cloth is not sufficient.

Contaminated soil is not decontaminated, but is excavated.
Excavation is based on the variables explained above.

In the case of spills involving one pound or more of low-concentration PCB waste or any quantity of high-concentration PCB waste:

High-contact indoor solid surfaces (control panels, countertops, hand tools, etc…) must be cleaned to 10 ug/100 cm^2. Low contact outdoor surfaces (roadways, container building floors) must be cleaned to 100 ug/100 cm^2.

Contaminated soil is not decontaminated but is excavated. Excavation is based on the variables explained previously.

Unlike spills for less than one pound of low-concentration waste, only a performance standard (final PCB concentration) is specified rather than a cleanup method. For cleaning all solid surfaces the double wash/rinse method is recommended.

If post-cleanup sampling indicates PCB levels above the standard, additional cleaning must be done.

When is Post-Cleanup Sampling Required?
In the case of a spill involving less than one pound of low concentration PCB waste, such sampling is only required if there is doubt as to complete removal of contaminated material.

In the case of a spill involving more than one pound of low-concentration PCB waste or any quantity of high-concentration waste, post clean-up sampling is required. Solid surfaces must be sampled using standard wipe tests. Soil samples will be grabbed. Sampling must meet the following requirements:

-area to be sampled consists of contaminated area plus 1 foot boundary
-number of samples must ensure that all 2 foot radius areas are sampled
-minimum number of samples is 3
-maximum number of samples is 40

What Documentation is Required?
For all spills:

-source of spill
-date and time of spill
-date and time cleanup completed
-if cleanup delayed because of emergency, explanation must be recorded
-brief description of spill area and nature of materials contaminated
-pre-cleanup sampling data or other method used to determine spill contamination boundaries
-all sampling techniques, including type of sample and location
-brief description of solid surfaces cleaned and how decontaminated
-depth and quantity of soil excavated along with location of same
-signed certification as specified in SDP
-post-cleanup sampling data, if applicable

When is Notification Required?
Spill notification requirements are outlined in PCB SDP 6. The reportable quantity for PCBs is 1 pound.

Any spill listed above as an "exceptional spill" must be reported as soon as possible, but no later than 24 hours after the discovery of the spill.

PCB TEST

==

PRINT NAME:	SIGN NAME:	DATE:
For Administrative Use Only SCORE: _____/35 (32 = 90%)		

PCB CONTAINER & TANK MANAGEMENT

MULTIPLE CHOICE: Circle the letter of the best answer.

1. PCB waste storage areas need to be marked with:

   a. the words "HAZARDOUS WASTE".

   b. a small PCB mark.

   c. a large PCB mark.

   d. no special markings.

2. Veolia - PA site-generated PCB waste can be stored temporarily in containers up to:

   a. 10 days.

   b. 30 days.

   c. 90 days.

   d. no limit.

3. All PCB wastes must be disposed of within:

   a. 30 days from OSD (out of service date).

   b. 3 months from OSD.

   c. 9 months from OSD.

   d. 1 year from OSD.

4. All PCB tanks must have an M_L PCB mark:

   a. on the top of the tank.

   b. on each quarter arc of the tank.

   c. on each half of the tank.

   d. on each third of the tank.

5. All waste removed from a tank that has contained PCB waste is considered to be PCB waste until:

a. the tank has been properly decontaminated or closed.

b. three months since the last PCB wastes were removed.

c. non-PCB waste is loaded into the tank.

d. there is < 50 ppm of PCB waste remaining in the tank.

6. The following categories of PCB waste containers may be temporarily stored:

a. None can be temporarily stored.

b. Liquid PCB waste => 50 ppm.

c. Non-liquid PCB waste.

d. b and c.

7. A liquid PCB waste container being temporarily stored must be marked to indicate:

a. the date PCB waste was first placed into the container.

b. that the PCB liquids contain <500 ppm.

c. that the PCB liquids contain => 500 ppm.

d. that the PCB liquids have been sampled.

8. PCB drip pan requirements include:

a. an M_L PCB mark (or an M_S mark if the M_L mark is too large).

b. must be emptied immediately after use.

c. must be decontaminated at least every 30 days.

d. all of the above.

9. PCB wastes must be placed into permitted storage areas within _______days from removal from service (accumulation start date).

a. 10 days.

b. 30 days.

c. 90 days.

d. 180 days.

MATCHING: Match the letter of each term with the correct phrase.

A. First-in first-out
B. drip pan use

C. drip pans attached to pumps, tanks, etc.
D. OSD
E. truck staging, generator areas

10. ___ NOT managed as PCB containers; considered to be part of the equipment.

11. ___ The generator's date for incoming waste, and the date when PCB waste is first placed into containers for Veolia - PA generated waste.

12. ___ Veolia - PA areas authorized for temporary storage.

13. ___ Waste tracking rationale used to ensure waste disposal of within one year of OSD.

14. ___ Actively catching leaks or spillage.

PCB SPILL RESPONSE PROCEDURES

TRUE-FALSE: Circle "T" if the statement is TRUE; circle "F" if the statement is FALSE

15. T F If less than one pound of low-concentration PCB wastes are spilled onto a solid surface the spill surface must be double washed/rinsed.

16. T F Water can be used when cleaning up with the double wash/rinse method.

17. T F Swabs used to double wash/rinse solid surfaces can be placed in any trash can.

18. T F Pre-cleanup sampling is required if there is doubt about the boundaries of the spill area.

19. T F Post-cleanup sampling is done only on solid surfaces.

20. T F Documentation of the spill cleanup is not required in secondary containment areas.

21. T F A transfer pump found leaking a small amount of waste onto the ground is not considered a spill.

22. T F The Emergency Coordinator should be contacted immediately if a spill is uncontrollable.

23. T F Documentation includes only the date and time of the cleanup.

24. T F Cleanups should be completed as soon as possible, unless it is a weekend or holiday.

DECONTAMINATION

25. T F Decontamination is a legal requirement, with criminal penalties possible for those purposely not doing.

26. T F Water can be used to triple rinse a PCB Container when decontaminating.

27.	T	F	Swabs used to decontaminate equipment can be placed in any trash can.
28.	T	F	Sample containers that contact PCB's do not require decontamination if being re-used.
29.	T	F	Documentation of the decontamination has to be created by person(s) decontaminating a pump.
30.	T	F	A transfer pump found leaking small amount of waste can be left unrepaired until operations personnel discover it during daily inspection of area.
31.	T	F	Rainwater, which has come in contact with a leaking valve, and fallen into secondary containment must be disposed as waste.
32.	T	F	The date a container is finally filled and closed must be placed on the outside.

Appendix 4 Spill Prevention Control and Countermeasures Plan

SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN

FOR

VEOLIA ES TECHNICAL SOLUTIONS, L.L.C.

PORT ARTHUR, TEXAS THERMAL TREATMENT FACILITY

Updated April 2020

(Note that the revisions did not involve changes in facility design, construction, operation, or maintenance that would materially affect the facility's potential to discharge pollutants to navigable waters; instead the revisions involved changes in personnel and associated contact information).

VEOLIA
ENVIRONMENTAL
SERVICES

SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN

40 CFR PART 112

VEOLIA ES TECHNICAL SOLUTIONS, L.L.C.
PORT ARTHUR, TX

SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN

Name of Facility: Port Arthur Thermal Treatment Facility

Owner and Operator: Veolia ES Technical Solutions, L.L.C.

Location: Port Arthur, Texas

Management Approval

The following is in accordance with Federal Environmental Protection Agency Regulations, 40 CFR Part 112, Spill Prevention Control and Countermeasure (SPCC) Plans and will be implemented as described herein. By signature below, I am certifying that on behalf of the owner and operator (Veolia ES Technical Solutions, L.L.C.), I have approved the Plan, am responsible for discharge prevention, and have the authority to commit the necessary personnel and equipment resources to respond to a discharge at the facility within the appropriate response time.

Signature: [signature]

Name: James M. Osborne

Title: General Manager

Certification

I hereby certify that I am familiar with the requirements of 40 CFR Part 112, have visited and examined the facility, or supervised the examination of the facility by appropriately qualified personnel. I attest that this Spill Prevention, Control, and Countermeasure Plan has been prepared in accordance with good engineering practices, including the consideration of applicable industry standards and the requirements of 40 CFR 112; that procedures for required inspections and testing have been established; and that this Plan is adequate for the facility.

Date: 1-12-16

Seal: WISCONSIN PROFESSIONAL ENGINEER KEVIN D. MC GRATH E-30493 Wauwatosa, WI

30493-6
Registration Number

KEVIN D. MCGRATH
Printed Name of Registered Professional Engineer

[signature]
Signature of Registered Professional Engineer

WISCONSIN
State

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SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN
VEOLIA ES TECHNCIAL SOLUTIONS, L.L.C.
PORT ARTHUR, TEXAS FACILITY

1.0 INTRODUCTION

Veolia ES Technical Solutions, L.L.C. has prepared a Spill Prevention, Control and Countermeasures (SPCC) Plan in accordance with the Environmental Protection Agency's Oil Pollution Prevention Regulations, 40 CFR Part 112. This plan is designed to complement existing laws and regulations pertaining to safety standards, fire prevention, and pollution prevention rules, and to form a comprehensive balanced Federal/State Spill Prevention and Corrective Action Plan.

This plan describes the actions company personnel will take in response to leaks, spills, or discharges of oils and other petroleum products, hazardous waste, and polychlorinated biphenyl (PCB) wastes.[1]

This plan identifies the type and quantity of materials handled at the facility; spill preventive measures taken; emergency response procedures; designated emergency coordinators and corresponding responsibilities; evacuation plan; spill incident reporting procedures; and arrangements with local emergency response teams.

2.0 GENERAL FACILITY DESCRIPTION

Veolia ES Technical Solutions, L.L.C. (Veolia), a wholly owned subsidiary of Veolia Environmental Services, L.L.C. operates a RCRA hazardous waste treatment, storage and disposal (TSD) facility in Jefferson County, Texas, near the city of Port Arthur. The TSD facility is designed to treat, store, and dispose of solid, semi-solid and liquid hazardous wastes, and PCB wastes. The facility is located on Highway 73, 3.5 miles west of Taylor Bayou.

The Veolia site is divided into geographically contiguous parcels by Highway 73. The south parcel consists of approximately 160 acres and contains the developed waste treatment and disposal facilities. Included is a hazardous waste incinerator, tank farm, container storage buildings, and two injection wells with surface facilities for waste injection. The north parcel contains an inactive clay excavation area, which has subsequently filled with rainwater and serves as a water source for the facility's drinking water plant.

The Port Arthur facility currently manages oils, hazardous wastes, and PCB wastes in aboveground tank and container storage areas. Because the aboveground storage of oil at the facility exceeds 1,320 gallons, Veolia has prepared an SPCC Plan to address the storage and management of these products and wastes.

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[1] Portions of the SPCC Plan that concern hazardous waste and PCB waste that do not meet the definition of oil in 40 CFR §112.2 are included as best management practices and are not necessarily subject to the requirements of 40 CFR Part 112.

3.0 PAST SPILL HISTORY

There have been no spill incidents meeting the criteria in 40 CFR §112.4 since the facility was opened in 1975.

4.0 PONTENTIAL SPILL PREDICTION

All oil, hazardous waste, and PCB waste storage facilities are contained within perimeter containment levees and provided with secondary containment structures that meet or exceed regulatory requirements. Stormwater that accumulates within the perimeter containment levees is discharged in accordance with a state approved discharge (i.e., TPDES) permit. The stormwater flows under Highway 73 into natural drainage, then north into Taylor Bayou, and ultimately into the Gulf of Mexico.

Generally, minor spills or leaks will be contained within diked areas. Incidents involving spills and leaks most often involve the movement and storage of containers, and less frequently, pipe and pump leaks. A much less likely, but not impossible, spill event would be the complete failure of a tank, however, all tanks are provided with sufficient secondary containment to contain 100% of their contents. All oil loading/unloading and waste processing and storage areas are equipped with concrete curbs and dikes that preclude any oil or wastes escaping from the secondary containment structures. In addition, hazardous waste tanks are ultrasonic thickness tested every two years and internally inspected every five years.

Spill prevention measures include the following:

1. All transfers of oil, gasoline, hazardous waste and PCB wastes are relatively small (less than 5000 gallons) and are manually controlled. Thus, the potential for overflows is minimal since the available volume in the tank or tanker being transferred into is known before the transfer takes place. The personnel performing the transfer remain in the area during the transfer to monitor the operation, checking for any pipe, valve or pump leaks or overflows.

2. Tanks are operated near atmospheric pressure under a nitrogen blanket which reduces the likelihood of a failure.

3. Piping is confined to an area in which vehicular travel is not allowed. Pipes are valved at the tanks, pumps, and unloading/loading stations.

4. Pumps, valves, and discharge tank piping is located in containment areas.

5. Containers, tanks, pumps, valves and piping are regularly inspected for evidence of leakage, and if a leak or spill is detected, it is promptly remediated.

The storage of oil, hazardous waste, and PCB waste occurs in the following tanks and storage areas:

1. Three 500-gallon horizontal tanks containing engine oil, waste oil, and hydraulic fluid located inside the heavy equipment building (secondary containment = 78 cu. ft.)
2. Approximately five to ten 55-gallon drums containing antifreeze and lubricants located inside the heavy equipment building (secondary containment = 78 cu.ft.).
3. One 18,260 gallon vertical cylindrical tank containing fuel oil located in the incinerator tank farm (secondary containment = 3,323 cu.ft.).
4. One 8,000 gallon horizontal cylindrical tank containing diesel fuel located west of the heavy equipment building (secondary containment = 1,572 cu.ft.).
5. One 2,000 gallon horizontal cylindrical tank containing gasoline located west of the heavy equipment building (secondary containment = 1,572 cu. ft.).
6. One 500 gallon trailer-mounted horizontal cylindrical tank containing diesel fuel located adjacent to the fuel storage tanks (secondary containment = 1,503 cu. ft.).
7. Approximately five 55 gallon drums containing various grades of oil stored in the maintenance storage building located adjacent to the Ash Storage Building (secondary containment - 139 cu. ft.).
8. Approximately 75-100 55 gallon drums containing various grades of oil stored under cover adjacent to the pole barn east of the Heavy Equipment Building (secondary containment - 288 cu. ft).
9. Tank T-501, 10,200-gallon energetic sludge storage tank for hazardous and PCB waste within 20,967-gallon secondary containment area.
10. Tank T-502, 10,200-gallon energetic sludge storage tank for hazardous and PCB waste within 20,967-gallon secondary containment area.
11. Tank T-503, 10,200-gallon energetic sludge storage tank for hazardous and PCB waste within 20,967-gallon secondary containment area.
12. Tank T-504, 10,200-gallon energetic sludge storage tank for hazardous and PCB waste within 20,967-gallon secondary containment area.
13. Tank T-505, 10,200-gallon non-energetic sludge storage tank for hazardous and PCB waste within 20,967-gallon secondary containment area.

14. Tank T-506, 10,200-gallon non-energetic sludge storage tank for hazardous and PCB waste within 20,967-gallon secondary containment area.

15. Tank T-507, 10,200-gallon non-energetic sludge storage tank for hazardous and PCB waste within 20,967-gallon secondary containment area.

16. Tank T-508, 10,200-gallon non-energetic sludge storage tank for hazardous and PCB waste within 20,967-gallon secondary containment area.

17. Tank T-509, 17,700-gallon energetic liquid storage tank for hazardous and PCB waste within 216,507-gallon secondary containment area.

18. Tank T-510, 17,700-gallon energetic liquid storage tank for hazardous and PCB waste within 216,507-gallon secondary containment area.

19. Tank T-551, 17,700-gallon energetic liquid storage tank for hazardous and PCB waste within 216,507-gallon secondary containment area.

20. Tank T-512, 17,700-gallon energetic liquid storage tank for hazardous and PCB waste within 216,507-gallon secondary containment area.

21. Tank T-513, 17,700-gallon energetic liquid storage tank for hazardous and PCB waste within 216,507-gallon secondary containment area.

22. Tank T-514, 25,000-gallon aqueous liquid storage tank for hazardous and PCB waste within 60,467-gallon secondary containment area.

23. Tank T-515, 25,000-gallon aqueous liquid storage tank for hazardous and PCB waste within 60,467-gallon secondary containment area.

24. Tank T-521, 103,100-gallon energetic liquid storage tank for hazardous and PCB waste within 216,507-gallon secondary containment area.

25. Tank T-522, 103,100-gallon aqueous liquid storage tank for hazardous and PCB waste within 216,507-gallon secondary containment area.

26. Tank T-523, 103,100-gallon energetic liquid storage tank for hazardous and PCB waste within 216,507-gallon secondary containment area.

27. Tank T-524, 103,100-gallon aqueous liquid storage tank for hazardous and PCB waste within 216,507-gallon secondary containment area.

28. Container storage building (CSB), 2,040 55-gallon drums capacity for hazardous and PCB wastes with 2,602 ft^3 secondary containment.

29. Ash container storage building, 198 yd^3 capacity for hazardous and PCB wastes with 1,356 ft^3 secondary containment.

30. Truck and container storage building, 720 yd^3 capacity for hazardous and PCB wastes with 14,842 ft^3 secondary containment.

31. Stabilization container storage building, 1200 yd^3 capacity for hazardous and PCB wastes with 3,325 ft^3 secondary containment.

32. Building 46 container storage building, 2500 yd^3 capacity for hazardous and PCB wastes with 25,248 ft^3 secondary containment.

33. North container storage building, 192-55 gallon drums for hazardous and PCB wastes with 334 ft^3 secondary containment.

34. South container storage building, 160-55 gallon drums for hazardous and PCB wastes with 127 ft^3 secondary containment.

All of the above tanks and container storage areas are provided with secondary containment. The containment areas for tanks provide a holding volume that is large enough to hold the contents of the largest tank plus the precipitation from a 25-year, 24-hour rainfall event. The containment areas for containers provide a holding volume that holds a minimum of 10% of the volume of the permitted capacity for containers of RCRA regulated hazardous waste, and a minimum of 25% of the volume of the permitted capacity for PCB wastes. There are no discharge valves on any of the secondary containment systems at the facility. All storm water must be manually removed from the secondary containment systems.

Rainfall collected in the tank farm secondary containment areas is removed and discharged in accordance with the TPDES permit, or disposed of in the injection wells or incineration unit. Instances when rainfall is removed from secondary containment systems that contain oil and is discharged via the TPDES permit will be recorded in accordance with 40 CFR §112.8(c)(iv) (see Attachment 7).

Contractors performing construction and maintenance activities will, at various times, bring drums of fuel and product oils on site for their use. Storage and secondary containment is required for these sources and is addressed separately with each contractor.

PCB waste storage in the laboratory consists of samples being stored in plastic containers located in a building with adequate roof and walls to prevent contact with rainwater.

TABLE 4-1
INCINERATOR STORAGE TANKS

TANK NO.	TYPICAL TANK CONTENTS	TANK CAPACITY (GALLONS)	SECONDARY CONTAINMENT VOLUMES (GALLONS)
T-501	ENERGETIC SLUDGE	10,200	51,700

T-502	ENERGETIC SLUDGE	10,200	51,700
T-503	ENERGETIC SLUDGE	10,200	51,700
T-504	ENERGETIC SLUDGE	10,200	51,700
T-505	NON-ENERGETIC SLUDGE	10,200	51,700
T-506	NON-ENERGETIC SLUDGE	10,200	51,700
T-507	NON-ENERGETIC SLUDGE	10,200	51,700
T-508	NON-ENERGETIC SLUDGE	10,200	51,700
T-509	ENERGETIC LIQUIDS	17,700	262,900
T-510	ENERGETIC LIQUIDS	17,700	262,900
T-551	ENERGETIC LIQUIDS	17,700	262,900
T-512	ENERGETICLIQUIDS	17,700	262,900
T-513	ENERGETIC LIQUIDS	17,700	262,900
T-514	AQUEOUS WASTE	25,000	75,450
T-515	AQUEOUS WASTE	25,000	75,450
T-521	ENERGETIC LIQUID	103,100	262,900
T-522	AQUEOUS WASTE	103,100	262,900
T-523	ENERGETIC LIQUID	103,100	262,900
T-524	AQUEOUS WASTE	103,100	262,900

TABLE 4-2
CONTAINER STORAGE INVENTORY

Container Storage Area	Capacity	Secondary Containment Volumes
Container Storage Building	2,040-55 gallon drums or equivalent	2,602 ft^3
Ash Container Storage Building	198 Cubic Yards	1,356 ft^3
Truck and Container Storage Area	720 Cubic Yards	14,842 ft^3
Stabilization Building	1200 Cubic Yards	3,325 ft^3
Bldg 46 Container Storage Building	2500 Cubic Yards	25,248 ft^3
North Container Storage Area	192-55 gallon drums or equivalent	334 ft^3
South Container Storage Area	160-55 gallon drums or equivalent	127 ft^3

5.0 CONTAINMENT, DIVERSIONARY STRUCTURES, AND EQUIPMENT

5.1 Oil/Petroleum Products

Oil is stored in three 500-gallon horizontal tanks located in the storage area inside the Heavy Equipment Maintenance Shop. Two grades of lubricating oil are stored in two of the 500-gallon tanks and waste oil is stored in the remaining 500-gallon tank. Additionally, several 55-gallon drums containing antifreeze and lubricants are stored in this area. These containers are located in a concrete containment area that drains toward a small concrete sump.

Diesel and gasoline are stored in one 8,000 gallon and one 2,000-gallon horizontal tanks, respectively. These tanks are surrounded by a concrete containment. Adjacent to this area, the trailer-mounted 500-gallon horizontal tank is parked within an earthen berm containment area. The pumps for fuel loading/unloading operations are located within the concrete secondary containment. The entire area drains toward a collection sump.

At the incinerator tank farm, Tank 517-F stores 18,260 gallons of fuel oil that is used to flush waste feed lines and for decontamination purposes. The containment area is designed to

At the incinerator tank farm, Tank 517-F stores 18,260 gallons of fuel oil that is used to flush waste feed lines and for decontamination purposes. The containment area is designed to contain the contents of the tank plus precipitation from a 25-year, 24-hour storm event. Spills or leaks are removed in a timely manner.

Drums of oil are stored in a small maintenance storage building located adjacent to the Ash Storage Building. Concrete containment surrounds the drum area.

All containers and tanks are designed and constructed of materials that are compatible with the characteristics of the oil they contain and the temperature and pressure conditions during storage.

5.2 PCBs and Hazardous Wastes

PCBs and hazardous wastes are stored in tanks that are closed top and are of welded construction. The tanks are constructed of carbon steel that exhibits good compatibility with the stored materials. The containment areas are designed to contain the contents of the tank plus precipitation from a 25-year, 24-hour storm event. Spills and leaks are removed in a timely manner.

5.3 Container Storage Areas

The PCB and hazardous waste container handling operations occur in several storage areas on-site. These include the:

- Stabilization Building Container Storage Area
- Container Storage Building
- Truck and Container Storage (ADA) Building
- Ash Container Storage Building
- Building 46 Container Storage Building
- North Container Storage Area
- South Container Storage Area

Stabilization Building Container Storage Area. The Stabilization Building Container Storage Area was designed for the storage of all authorized wastes. The building is roofed and curbed or, in certain areas, enclosed by walls, preventing run-on. Containers holding hazardous wastes will remain closed during storage, except when necessary to add or remove wastes. Curbs that are at least 6-in. high surround the entire storage area.

Secondary containment is provided for 10% of the total volume of hazardous waste stored and 25% PCB wastes stored. Any leaks or spills which discharge into the containment area will be removed immediately after observation.

Container Storage Building. The Container Storage Building (CSB) is used to store RCRA hazardous wastes and PCB wastes. It is located immediately northeast of and is connected to the stabilization container storage building. The CSB is steel framed with a sheet metal roof.

with the stabilization building is constructed of concrete block. The unloading bays are located on the north side.

The floor of the storage area is a 6-in. thick reinforced concrete slab with a 6-in. wide and 18-in. high reinforced concrete curb (monolithic with the floor slab) around all sides. The net volume of the secondary containment system exceeds 10% of the storage capacity of the building. Any leaks or spills will discharge into the containment area and will be removed immediately after observation.

Truck and Container Storage Building (ADA). The ADA Building is used to store drums of hazardous wastes and PCB wastes and tankers. Both PCB solids and liquids will be stored in accordance with 40 CFR §761.65.

The ADA Building is an enclosed, steel-framed building with the north side partially open with an overhanging sheet metal roof. The concrete floor is sloped inward toward two sumps to provide secondary containment and collection in the case of leaks or spillage. These features allow for the collection and timely removal of any leaks or spills. The net volume of the secondary containment system for this building exceeds 25% of the storage capacity of the building.

Ash Container Storage Building. The Ash Container Storage Building is used to store all authorized wastes. The building is steel framed with a sheet metal roof and siding on the northeast and southwest sides, open to the Stabilization Building Container Storage Area on the south and open to the loading/unloading bay on the north side.

The floor of the storage area is an 8-in. thick reinforced concrete slab with a 12-in. wide, 6-in. high reinforced concrete curb (monolithic with the floor slab) around all sides. The floor is sloped to a sump that runs the length of the storage area and can be pumped as necessary to remove liquids.

The net volume of the secondary containment system for this building exceeds 25% of the storage capacity of the building. Any leaks or spills will discharge into the containment area and will be removed immediately after observation.

Building 46 Container Storage Building. Building 46 was designed for the storage of all authorized wastes. The building is an enclosed, steel-framed building with the west side partially open. At least 6-in. high curbs surround the entire storage area. Secondary containment is provided for 10% of the total volume of hazardous waste stored and 25% of the total volume of PCB wastes stored. Any leaks or spills which discharge into the containment area will be removed immediately after observation.

North and South Container Storage Areas. These are relatively small storage areas located within the Bulk Material Handling Building for containers of hazardous and PCB wastes destined for processing in the BMHB. Both areas are equipped with secondary containment to collect any leaks or spills.

6.0 FACILITY DRAINAGE

Drainage from diked storage areas, and stormwater retention ponds is accomplished by vacuum trucks and discharge pumps, respectively. A check for accumulated oil or other forms of contamination is conducted before pumping is initiated. Stormwater accumulating in curbed, concrete containment areas will normally be removed within 24 hours and disposed of appropriately. Stormwater discharged from secondary containment systems where oil is stored will be recorded on a Stormwater Discharge Form. Spilled liquids are removed using portable pumps and/or site vacuum trucks.

Although the likelihood is remote, in the event of a catastrophic release from the tank farm, the facility has a number or preventive measures that are in place and others that could be implemented to prevent the release from leaving the facility's boundaries and impacting a navigable waterway. First, any release from the tank farm that breaches the secondary containment wall (note: this is virtually impossible) will flow to a concrete lined diked area equipped with shutoff valves at the south end of the internal catchment basin. In the event the spill is not contained within the concrete dike, the release would be confined to the catchment basin because it requires manual operation of the pump to empty the contents of the basin into the drainage system that ultimately flows to the facility's external outfall. Finally, the facility maintains a complement of earth moving equipment that could be used to block the flow of a release along an internal drainage pathway.

7.0 STORAGE TANKS

All waste storage tanks are constructed of carbon steel, and when necessary, lined to prevent corrosion.

7.1 Capacity and Impermeability of Secondary Containment

The capacity of the secondary containment for the various storage areas is sufficient to contain the contents of both the largest tank in each storage area as well as any accumulated precipitation. The containment structures are constructed of reinforced concrete floors and curbs.

7.2 Inspections of Above-Ground Hazardous Waste and Petroleum Product Tanks

All hazardous waste and petroleum product tanks are monitored and inspected on a regular basis to assess tank integrity. Included in the inspections are checks for or of:

- Leaks and spills,
- Corrosion deterioration,
- Foundation deterioration,
- Tank auxiliary equipment (valves, piping and pumps),
- Containment structure, and
- Instrumentation and tank level devices.

The following items are inspected and recorded:

(1) Discharge control equipment, vents, sampling ports, overflow piping and fill piping connections to ensure that they are in good working order and are free of leaks, deterioration and corrosion;

(2) The level of oil or waste in the tanks during filling and emptying; and

(3) The exterior of the tanks to detect corrosion, leakage, cracks, discoloration and integrity of the fixtures or seams. None of the tanks contain highly corrosive materials, and materials used for construction of the tanks are compatible with the materials stored within them.

Biennial nondestructive ultrasonic shell thickness testing is conducted on all hazardous waste storage tanks. Records are kept on-site.

7.3 Correction of Tank Seam, Gasket, Rivet and Bolt Leaks

Hazardous waste tanks are inspected regularly to determine integrity and assess condition of operating equipment. The interior of the tanks are inspected at least every five years to detect corrosion and erosion of side and bottom, leaks, cracks, or holes, deterioration, or joint separation of interior liner. The construction materials of the containment foundation and walls and the tank foundations are inspected daily for cracks and gaps. Steps are immediately taken to correct detected leaks.

7.4 Mobile/Portable Storage Tanks

Mobile or portable oil storage tanks will be located inside a secondary containment structure that is large enough to hold the entire contents of the largest compartment. Construction contractors are required to dike or use spill pan containment for all temporary diesel/oil tanks used during on-site construction activities.

8.0 FACILITY TRANSFER OPERATIONS, PUMPING, AND IN-PLANT PROCESS

8.1 Buried Piping

The facility has no underground piping used to store, transfer, or dispense oil or gasoline.

8.2 Non-Used or Out-of-Service Pipeline

When not in use, all pipes are capped. All the pipelines in the oil unloading/loading and storage areas terminate in sumped, bermed or diked areas.

8.3 Pipe Supports

All oil pipes in service are supported on steel braces that are anchored to concrete footings.

8.4 Inspection of Above-Ground Valves and Pipelines

Aboveground gas and oil valves and pipelines are inspected weekly for leaks and spills and during transfer operations.

8.5 Vehicular Traffic

Vehicular traffic comes into potential contact with aboveground piping only at the hazardous waste tanker loading/unloading area. Operating personnel direct the vehicle into the loading/unloading area to prevent any damage to piping.

9.0 FACILITY TRUCK LOADING/UNLOADING

9.1 Tanker Truck Unloading

The areas used to unload bulk diesel fuel, hazardous wastes, and PCB wastes for the incinerator are within secondary containment to contain any spilled material. Drip pans are used at the hose connections while unloading the liquids. Company personnel monitor all unloading operations.

If a leak or spill occurs, the unloading operation will be stopped and the spill will be contained, cleaned up and collected prior to continuing the operation. All outlets of the tank trucks are inspected before leaving the unloading area to prevent possible leakage from the truck while in transit. The unloading areas are shown on the Facility Plot Plan, Attachment 1.

9.2 Container Loading/Unloading Procedures

The loading and unloading of containerized wastes from and to vans or flatbed trailers and the movement of containers within the buildings is done with forklift trucks. Operators are trained to properly handle drums carefully to avoid puncture or damage.

9.3 Interlocked Warning System

During loading and unloading operations, on-site personnel are required to monitor the operations. On-site personnel are also involved in making connections and disconnecting transfer lines. As such, an interlocked warning system is not necessary to prevent vehicular departure before complete disconnect of transfer lines.

9.4 Examination of Cargo Tank Outlets

Prior to departure, the driver of the tank truck and on-site personnel are required to examine the lowermost outlets for leakage. Where necessary, outlets are adjusted to prevent leakage while in transit.

9.5 Field Constructed Above Ground Containers and Brittle Fracture

No field constructed containers are used at the facility, therefore, there are no requirements for brittle fracture inspections.

10.0 PREPAREDNESS AND PREVENTION REQUIREMENTS

The purpose of this section is to demonstrate that Veolia ES Technical Solutions, L.L.C. is adequately equipped to meet preparedness and prevention requirements.

The facility maintains an alarm and communication system, on-site equipment, and personnel trained to respond to an emergency. The on-site equipment enables facility personnel to react and respond to the majority of emergency incidents that may arise.

10.1 Alarm and Communication System

The facility is equipped with a communications network to link both on-site and off-site resources. Off-site communications are available via the local telephone system. Telephones are located in the following buildings:

- Administration Office Building
- Security Building
- Maintenance and Heavy Equipment Building
- Laboratory Building
- Incinerator Control Room
- Bulk Material Handling Building

On-site communications can be conducted by telephone, two-way radio, cellular phones, and the alarm system.

10.2 On-Site Emergency Equipment

The primary emergency response equipment available at the site includes the following:

- Fire Truck
- Fire Hydrants
- Stationary ABC and D type Extinguishers,
- Emergency Eyewash and Shower Units,
- Personnel Safety Equipment Stations,
- Fire Actuated Deluge Systems (water and foam), and
- Emergency Response Trailer.

The facility has strategically located fire hydrants with two 2-1/2-in discharge outlets. These are currently supplied by a water main from a 750,000-gallon fire water storage tank. ABC type fire extinguishers are located at numerous locations throughout the facility. D-type extinguishers are located in the Container Storage and Truck Wash Buildings and Glove Box.

Eye wash stations and safety showers can be found at various locations where the potential for personnel contact with wastes is greatest. Personnel safety equipment is stored at the warehouse and incinerator control room building. As a standard safety practice, Veolia employees handling wastes are required to wear the following minimum safety equipment:

- Hard hats and safety glasses,
- Steel-toed shoes or boots,
- Protective clothing,
- Appropriate respirators.

10.3 Off-Site Resources

Supplemental emergency equipment and supplies are available, if needed, from off-site sources.

11.0 EMERGENCY PERSONNEL

All emergencies will be immediately reported to the Emergency Coordinator or Alternate.

The Emergency Coordinator (EC) is responsible for coordinating all emergency response measures during any emergency. The EC acts as the director of the emergency crew during each operating shift and has complete and total control of all activities during the incident. The EC is thoroughly familiar with all aspects of the SPCC Plan, all operations and activities at the site, the location and characteristics of materials handled, the location of all records within the site, and the site layout. The EC also has the authority to designate other employees to assist in the completion of various tasks. The EC has been granted full corporate authority to expend all necessary resources to deal with any situation. The EC's comprehensive training in emergency response includes:

- Emergency preparedness,
- Knowledge of site evacuation plan,
- Effective utilization of safety equipment and communication devices,
- First aid and CPR,
- Firefighting fundamentals, and
- Fundamentals of toxicology.

An EC or alternate will always be on call and can be reached via telephone, or radio. The site radio system provides for continuous emergency communication on a selected radio frequency.

Table 11-1 presents the name, telephone number and address of the emergency coordinator and designated alternatives.

TABLE 11-1 EMERGENCY COORDINATOR (EC) AND ALTERNATES			
Name	Office Phone	Home/Cell Phone No.	Home Address
Primary: William Avery	(409) 736-4151	(409) 835-7057 (409) 289-2073	2480 Liberty Avenue Beaumont, TX 77702
Alternates			
Roger Litchfield	(409) 736-4173	(409) 548-0918 (409) 332-8224	3820 Doyle Ave Groves, TX 77619
Jeff Turk	(409) 736-2821 Ext. 4600	(409) 722-8842	8974 Central Drive Beaumont, TX 77705
Chuck Crain	(409) 736-4151	(409) 727-0188 (409) 289-2073	2824 W. Boston Dr. Nederland, TX 77627
Glenn Taylor	(409) 736-4151	(409) 835-2942 (409) 293-2916	3175 Yasime Dior Beaumont, TX 77705
Jessie Green	(409) 736-4151	(409) 866-6043 (409) 790-2973	389 Moore Rd Beaumont, TX 77713

The EC is authorized to activate emergency response procedures by initiating the use of appropriate equipment and coordinating its use and application.

In event of an emergency, the Casualty Control Officer will assess the casualty situation and advise the EC of the need to summon emergency medical assistance. They will assist in the coordination of search and rescue efforts; designate the location of the first aid station; and designate, organize, and direct available first aid personnel; designate a technical person to help identify injury-causing hazardous agents; and coordinate off-site medical assistance efforts.

The Personnel Coordinator will be responsible for accounting for all personnel on site at the time of the incident.

The Communications Coordinator will notify appropriate external agencies at the direction of the EC.

The facility maintains a current list of Emergency Coordinators and other key response personnel as part of its Contingency Plan and the list is posted throughout the facility.

12.0 EVACUATION PLAN

It is highly unlikely that a spill or a release of oils, gasoline, hazardous wastes, or PCB wastes will require evacuation of the facility. Adequate spill prevention and control measures have been implemented throughout the plant. Routine visual inspections of aboveground tanks, been implemented throughout the plant. Routine visual inspections of aboveground tanks, associated ancillary equipment, and drum storage areas help to reduce the potential for oils, gasoline or PCBs to discharge on land or surface waters.

The Emergency Coordinator will determine if the site has had a release, fire, or explosion that threatens human health or the environment. If so, the EC will direct the employees to take necessary actions to eliminate, isolate or minimize the conditions causing or contributing to the emergency. The EC will take all possible steps to prevent additional injury or damage. If the release or fire requires immediate evacuation of the premises, the established evacuation plan will be implemented. Good judgement will be used in evacuation procedures to avoid placing people in greater danger. Evacuation routes are shown on the Facility Plot Plan, Attachment 2.

13.0 EMERGENCY RESPONSE PROCEDURES

Veolia ES Technical Solutions, L.L.C. is prepared to respond to incidents at the facility which could threaten employee health or the surrounding environment (e.g., fires, explosions, spills or material releases). Containment and control activities are initiated by the Emergency Coordinator, who will direct facility personnel responses as described below.

In the event of a spill or release, the Emergency Coordinator will mobilize personnel and:

- Identify the material involved and the type of hazard it poses to facility personnel, the surrounding community, and the environment;
- Assemble the required response equipment: protective clothing and gear, heavy equipment (bulldozers, scrapers, backhoe), absorbent material, empty drums, drum overpacks, and plugging materials;
- Determine the most appropriate containment method, such as earthen dikes; and
- Coordinate activities of supervisory personnel, maintaining constant communication with them and with the response team.

In the event of a fire or explosion the Emergency Coordinator will mobilize personnel and:

- Identify the material involved and the type of hazard it poses to facility personnel, the surrounding community, and environment;
- Assemble required response equipment: emergency equipment (protective clothing and gear); fire truck, fire extinguishers (from vehicles and facilities); water truck and other heavy equipment; diking and neutralization materials; empty drums, pumps, vacuum trucks, and tank trucks for cleanup of residues;
- Determine the best method of approach and containment;
- Move in from upwind side;
- Extinguish fire by utilizing the appropriate extinguishing agent (e.g., water, foam, dry chemical) for the class of fire and required protection;
- Cool all effected containers by flooding with water, as appropriate; and
- Assure proper and continued operation of appropriate automatic fixed fire suppression equipment.

All wastes resulting from the cleanup of a discharge will be containerized in appropriate DOT specified containers or tank trucks. The Environmental Health and Safety Manager, or his designee, will characterize these wastes for proper treatment, recovery, or disposal. While these wastes remain in storage at the facility they will be properly labeled and the containers will remain closed except when wastes are being added to or removed from the container.

14.0 SPILL INCIDENT REPORTING

Veolia ES Technical Solutions, L.L.C. maintains Incident Reports which describe the time, date and details of the spill and the corrective action taken in response to the spill event. This report is completed by the Supervisor or Manager of the affected Department. The Environmental, Health and Safety Manager or designee will make the immediate verbal notifications to the appropriate agencies and submit the necessary written notification reports during normal business hours.

During nights, weekends, and holidays, the EC may make these notifications as directed by the EHS Manager. Copies of these reports are kept in the Central Records files at the Port Arthur site.

Hazardous waste and PCB spills outside secondary containment that exceed the reportable quantity must be reported to the Texas Commission on Environmental Quality (TCEQ) and the National Response Center.

TCEQ - (Normal Hours)	(409) 898-3838
State Emergency Response Center - (24 hour)	(800) 832-8224
NRC - (24 hour)	(800) 424-8802
USEPA	(214) 655-6785

NOTE: Contents of telephone reports shall include the following information:

1. Date and time of spill.
2. Type of material spilled.
3. Estimate of the quantity of material spilled.
4. Exact location (address and telephone number) of the spill or discharge and, if applicable, include the name of the waters involved or threatened.
5. Source of the spill.
6. Media affected or threatened by the spill.
7. Cause of the spill.

7. Cause of the spill.

8. Name, address, and telephone number of the party in charge of, or responsible for, the facility or activity associated with the spill.

9. Extent of actual and potential water pollution.

10. Party at the spill site who is in charge of operations at the site and the telephone number of this party.

11. Steps being taken or proposed to contain and clean up the spilled material.

12. Extent of injuries and damage, if any.

13. Possible hazards to human health and the environment (air, soil, water, wildlife, etc.)

14. Was an evacuation necessary?

15. Names of individuals and/or organizations that have been contacted.

Spill reports must be sent to the affected department manager and the Environmental Compliance Supervisor as soon as possible, but not later than 24 hours after the spill. If a spill is reportable, the appropriate agency must be notified as soon as possible after determining the spill is reportable and no later than 24 hours.

15.0 ARRANGEMENTS WITH STATE AND LOCAL EMERGENCY RESPONSE TEAMS.

Veolia has contacted local authorities to discuss their involvement in an emergency situation, and to coordinate the use of personnel and equipment resources.

15.1 Emergency Response Agencies

The Jefferson County Sheriff Department has primary responsibility for law enforcement. They have agreed to play a primary role in facilitating the movement of emergency personnel and equipment, and to take the lead in the evacuation of areas surrounding the site, if necessary.

The Port Arthur Fire Department and Jefferson County Emergency Management Coordinator have been provided a copy of the SPCC Plan. The Port Arthur Fire Department personnel have been briefed on the types of wastes handled at the facility.

Phone: (409) 853-5900

The Medical Center of Southeast Texas has agreed to provide emergency medical assistance to Veolia personnel if needed.

16.0 SECURITY

16.1 Fencing and Gates

The Veolia Port Arthur facility is enclosed by a 6-ft high chain link fence topped with razor wire. Much of this fencing was recently replaced after being destroyed by Hurricane Ike. There are several gates in this perimeter fencing. Except for the main gate, all of these gates are kept locked.

Normal routine vehicular access in and out of the facility is through the main gate. Employee access is via magnetic code badges through the employee gate at the change house and through the Administration Building. A guardhouse is located at the facility's main gate staffed by receiving personnel during normal business hours. After business hours, the main gate is locked. Access to the facility during non-business hours is controlled by the Shift Supervisor.

16.2 Flow and Drain Valves

When not in use, all flow and drain valves and any other valves that will permit direct outward flow of tank materials will be securely locked in the closed position when in non-operating or non-standby status. These measures reduce the possibility of accidentally moving valves into operating positions.

16.3 Pumps

All oil transfer pumps are locked in the "off" position at the starter control when pumps are in a non-operating or non-standby status.

16.4 Loading/Unloading Pipeline Connections

Loading and unloading pipeline connections are capped when not in service.

16.5 Facility Lighting

Adequate lighting is provided in all oil, gasoline and waste processing, storage and loading/unloading areas. Perimeter lighting is installed at key site locations including the employee parking lot.

17.0 INSPECTION AND MONITORING PROGRAM

Veolia has developed a written Inspection Program for the Port Arthur Facility to conform to the comprehensive state and federal environmental regulations. A copy of this plan is available at the facility at all times. This Inspection Program is intended to provide a mechanism to prevent and detect system malfunctions, equipment deterioration and operator errors which, if allowed to continue without remedial action, may ultimately lead to a release of oils, gasoline, hazardous waste or PCB wastes to the environment or create a threat to human health. The inspection program is designed to provide an early warning of the potential for such events in order that corrective and preventive actions may be taken in a timely manner.

17.1 Inspection Program Administration

The inspection program is implemented by qualified and trained individuals assigned the responsibility to detect unsafe conditions at the facility and prevent adverse consequences. The designated individuals have the training and authority to: (1) implement the required inspections, (2) perform necessary evaluations and hazard assessments, and (3) recommend appropriate corrective or remedial actions.

The Environmental, Health and Safety Manager is responsible for implementation of the Inspection Program. The results of the inspections, with appropriate documentation, are submitted to the Environmental Compliance Supervisor for review. In conjunction with the Environmental Compliance Supervisor and Environmental Health and Safety Manager, they will ensure that the appropriate facility functional units implement the required remedial and corrective measures.

The inspectors are familiar with the location of the equipment and systems to be inspected and their normal configuration. For any discrepancy observed, the inspectors will determine the potential for personnel injury or for release of product or waste constituents, and will assess the nature and timing of remedial action required. The determination will consider: (1) the location and nature of the problem, (2) the presence of secondary containment or control, (3) the amount and type of oil or waste material involved, (4) the potential for human exposure, and (5) the likelihood of waste or oil migration.

17.2 Inspection Program

The inspection program is divided into two segments: (1) general facility inspections, and (2) specific process unit inspections. Site security, safety, emergency equipment, environmental monitoring systems and flood protection provisions are included under general facility inspections. Aboveground tanks and container storage areas storing oils, gasoline, hazardous wastes, and PCB materials are included in specific process unit inspections.

The above-ground tanks and container storage areas are inspected for signs of deterioration, leaks which might cause a spill, or an accumulation of liquids inside the diked area. The dikes and the immediate surrounding areas are inspected to detect erosion or obvious signs of leakage, or an accumulation of liquids inside the diked areas. All loading and unloading areas are also inspected when in use.

Inspections are performed according to a predetermined schedule based on engineering knowledge and operational experience with the systems and processes involved. Each inspection item has the content and frequency necessary to alert facility personnel prior to development of a serious problem. A trained inspector evaluates and assesses each item indicating a potential malfunction, equipment deterioration or operator error through regular observation of the process and procedures. The level of response and its timing is determined by the nature and seriousness of the problem identified with protection of personnel and the prevention of adverse environmental impact being of paramount concern.

17.3 Documentation and Record Keeping

Inspections (and reinspections) are conducted and documented using forms specifically designed to contain all pertinent information. Completed inspection forms are given to the Environmental Compliance Supervisor who then takes actions, as necessary, to indicate orders for required remedial actions. A specific Remedial Work Order and Reinspection Report form is generated for each significant discrepancy that can not be corrected in a reasonably short period. The form contains pertinent corrective measures, and is forwarded to appropriate facility personnel for completion.

All completed forms and attachments are maintained at the facility for a minimum of three years from the date of inspection. Each periodic inspection includes significant administrative information, such as the identification of the facility unit, the name of the inspector, and the date and time of the inspection. The inspection checklist section of the form is for indicating the status of designated equipment or structures.

In cases where specialized outside contractors are used to perform testing or inspection services, e.g., ultrasonic wall thickness testing of tanks, the results are reported on the contractor's forms. These reports are made part of the inspection log when received.

18.0 PERSONNEL TRAINING AND SPILL PREVENTION PROCEDURES

The site operating personnel are trained to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, and emergency communication systems. Personnel who handle, sample or come in direct contact with oils, hazardous wastes, or PCB wastes undergo basic and on-the-job training where pollution control is stressed. Spill prevention control procedures are further explained during on-the-job training sessions.

Facility personnel during orientation are trained in the general operation of the facility. A training program related to the specific duties of each job classification is specifically tailored for the position. No employee is permitted to work unsupervised with hazardous waste until the required training is completed as described in the site-training program. In addition, every employee will participate in continuing training to maintain proficiency, to learn new techniques and procedures, and to reinforce safety and quality consciousness.

All operating employees are trained at least annually in accordance with SPCC requirements. Training records on current employees are kept until closure of the site. Training records of former employees are retained in accordance with established procedures. These records are transferred with the employee when transferred with Veolia. As specifically related to the

PCB/Oil processing, storage and loading/unloading areas, training is accomplished in the following areas:

- Operation and maintenance of equipment to prevent discharges;
- Operation of spill control, and cleanup equipment;
- Applicable pollution control laws, rules and regulations;
- General facility operations;
- Contents of the SPCC Plan; and
- Review of spills, malfunctioning components, and recently developed precautionary measures. Spill prevention techniques and spill response protocols for new employees is provided through on-the-job training.

Before performing any transfer operations, new employees are trained in the proper procedures for transfer, which are:

- Ensure receiving tank or container has adequate capacity for amount to be transferred;
- Ensure all vehicles are chalked and containers are grounded and bonded;
- Connect appropriate fill and discharge lines;
- Perform transfer, and monitor lines, pumps, valves and tank for leaks and overflows during transfer; and
- Upon completion of transfer, securely close discharge valve and lids, drain discharge valve, inspect valves, tank and tanker for leaks and overflows.

19.0 CONTROLLED COPY LIST OF SPCC PLAN

A copy of the SPCC plan and all lists revisions will be:

1. Maintained at the facility;

2. Prepared, modified and distributed by the Environmental, Health and Safety Department. The Environmental, Health and Safety Department is also responsible for ensuring the holders receive all amendments.

20.0 AMENDMENTS OF SPCC PLAN

The SPCC plan will be amended when one of the following occurs:

1. The plan fails in an emergency.

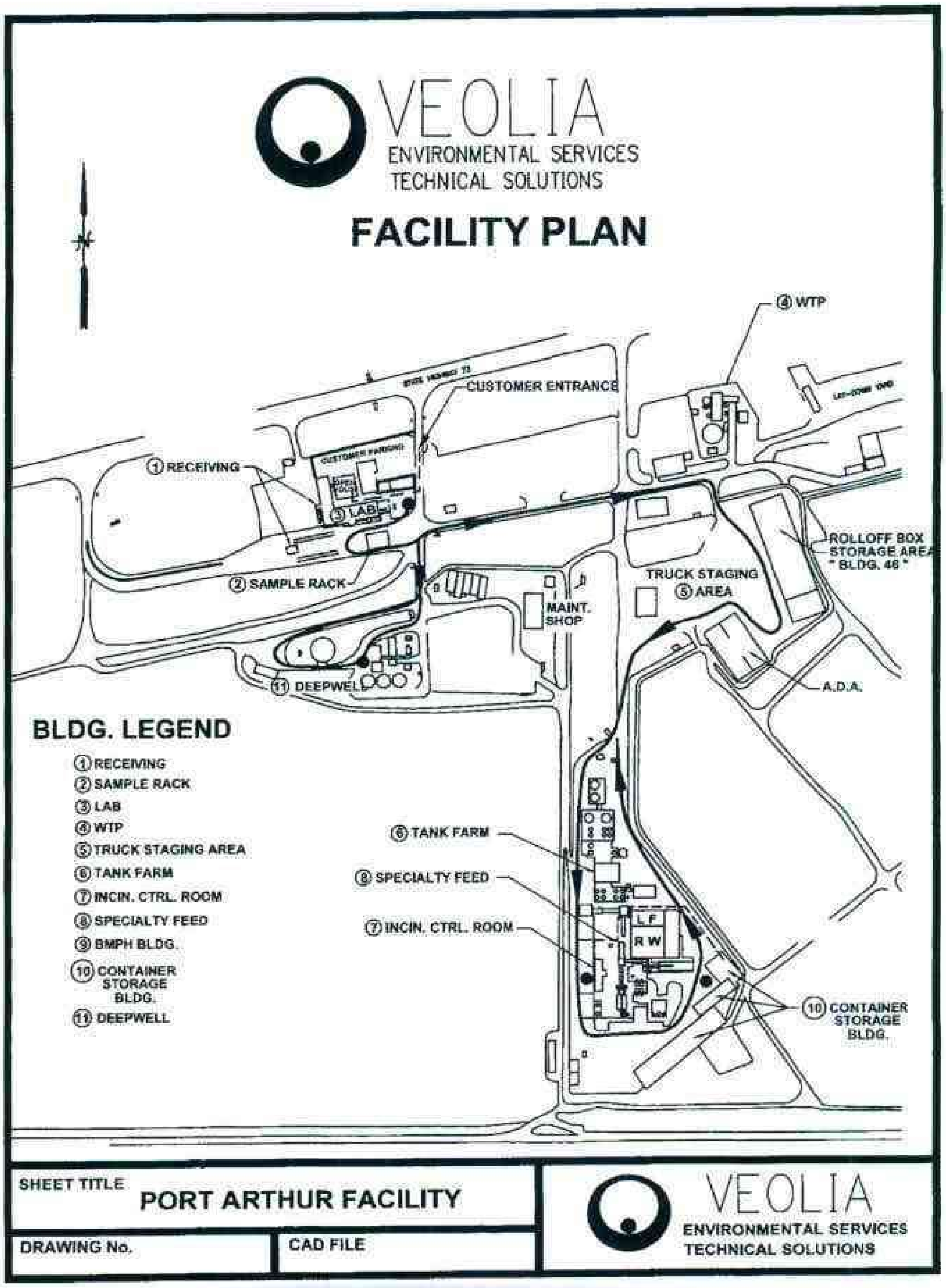
2. The facility changes in its design, construction, operation, maintenance, or other circumstances in such a way that materially affects the potential for a discharge. Examples of changes that may require amendments to the plan include: commissioning or decommissioning of tanks or containers; replacement, reconstruction, or movement of tanks or containers, reconstruction, replacement, or installation of piping systems; construction or demolition that might alter secondary containment structures; or revisions to the standard operating or maintenance procedures.

3. A change in the Emergency Coordinator List, including phone numbers or addresses.

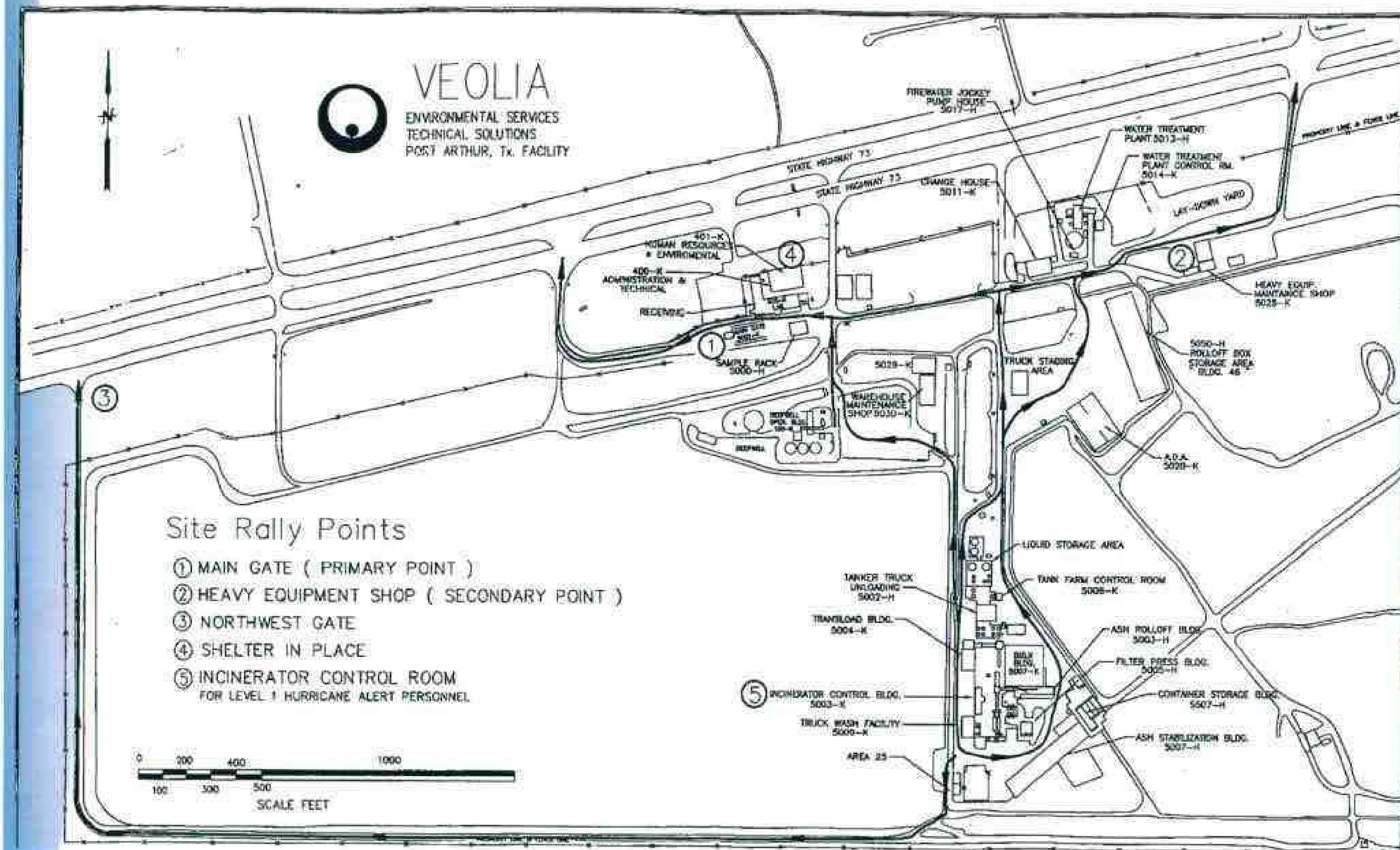
4. The list of emergency equipment changes substantially.

At a minimum, at least once every five years, the SPCC Plan will be reviewed and amended as necessary, and if required, recertified by a registered professional engineer. Portions of this plan not affecting the overall scope or design may be changed without recertification.

Revisions must be made to the SPCC Plan as soon as possible, but no later than six months after the changes occurs. All amendments to the Plan must also be implemented as soon as possible, but no later than six months from the date of the amendment.


VEOLIA
ENVIRONMENTAL SERVICES
TECHNICAL SOLUTIONS
FACILITY PLAN
N
④ WTP
CUSTOMER ENTRANCE
① RECEIVING
③ LAB
② SAMPLE RACK
ROLLOFF BOX
STORAGE AREA
" BLDG. 46 "
TRUCK STAGING
⑤ AREA
MAINT.
SHOP
A.D.A.
⑪ DEEPWELL
BLDG. LEGEND
① RECEIVING
② SAMPLE RACK
③ LAB
④ WTP
⑤ TRUCK STAGING AREA
⑥ TANK FARM
⑦ INCIN. CTRL. ROOM
⑧ SPECIALTY FEED
⑨ BMPH BLDG.
⑩ CONTAINER STORAGE BLDG.
⑪ DEEPWELL
⑥ TANK FARM
⑧ SPECIALTY FEED
⑦ INCIN. CTRL. ROOM
L F
R W
⑩ CONTAINER STORAGE BLDG.
SHEET TITLE
PORT ARTHUR FACILITY
DRAWING No.
CAD FILE
VEOLIA
ENVIRONMENTAL SERVICES
TECHNICAL SOLUTIONS

ATTACHMENT 2



OSHA 300 LOG CASE #________ *(IF APPLICABLE)*

VEOLIA

INCIDENT / INVESTIGATION REPORT CONFIDENTIAL

Incident Date		Date Reported	
Incident Time		Supervisor	
Incident Location		Employee Name(s)	

***INCIDENT TYPE** - CHECK ALL THAT APPLY*			
			PSM
☐ Near Miss ☐ Injury/Illness ☐ Chemical Exposure	☐ Property Damage (Amount $____) ☐ Motor Vehicle Accident ☐ Vehicle Damage (Amount $____)	☐ Spill ☐ Fire ☐ Explosion ☐ Release	☐ Tank Farm ☐ BA Direct Feed Line ☐ BE Direct Feed Line ☐ Kiln Direct Feed Line ☐ Glove Box Feed ☐ Tote Box Feed ☐ Mercury Control System

***INCIDENT / OBSERVATION SUMMARY** - CHRONOLOGICAL ORDER OF EVENTS, ATTACH NECESSARY DOCUMENTS, PHOTOS, ETC*

***SPILL INFORMATION** - ATTACH ANALYTICAL RESULTS FROM PCB WIPE TEST*

Name of EC Notified		Date & Time EC Notified	
Type	☐ RCRA ☐ PCB ☐ Other	Spill Volume	
Profile Number		Total Cleanup Volume	
Container Number		In Containment	☐ Yes ☐ No
Spill Material			
Collect a Post Cleanup Sample if: *Check which type applies*	☐ **PCB >500 ppm:** Double wash w/ diesel, rinse & obtain wipe test sample. ☐ **PCB <500 ppm, >1 lb. of PCBs:** Double wash with diesel, rinse & obtain wipe test sample. ☐ Always collect post cleanup samples for all "Agency Reportable" spills.		

"I certify that this PCB and /or RCRA spill cleanup was conducted in accordance with 40 CFR 761.125 and /or RCRA requirements and that the information contained in this report is true and accurate to the best of my knowledge."

Cleanup completed by		Date		Time	

OSHA 300 LOG CASE #________ *(IF APPLICABLE)*

INVESTIGATION TEAM (Required for PSM Incidents)			
NAME	POSITION	LENGTH OF EXPERIENCE	
DATE / TIME INVESTIGATION BEGAN *(PSM INCIDENT INVESTIGATIONS MUST BEGIN WITHIN 48 HOURS OF OCCURRENCE)*			

CAUSE ANALYSIS SUMMARY

	CORRECTIVE ACTION(S) - *ATTACH NECESSARY DOCUMENTS / WORK ORDER # / ETC*	RESPONSIBLE PERSON(S)	TARGET COMPLETION DATE
1			
2			
3			
4			
5			
DATE CORRECTIVE ACTIONS COMPLETED			

SIGNATURES		**DATE**
Employee(s)		
Contractor (if applicable)		
Area Supervisor		
Area Manager		
Safety Manager		
EHS Manager		
Plant Manager		

Revision April 3, 2018

Page 2 of 2

ATTACHMENT 4
CONTACT DIRECTORY

FEDERAL	
National Response Center	800-424-8802 (24 hour) 202-267-2675
Region VI EPA	214-665-2222 (24 hour)
Staffed by an FOSC	214-655-6785
U.S. Coast Guard	
Coastal Regional Response Center	504-589-6225
Marine Safety Office	
Port Arthur	409-723-6500
Houston/ Galveston	713-671-5113
Corpus Christi	361-939-6393
CHEMTREC	800-424-9300
Chemical Referral Center	800-CMA-8200
CHLOREP (chlorine Incidents)	800-424-9300
NACA Pesticides Safety Team	800-424-9300
National Weather Service	281-337-5074
STATE	
Texas General Land Office	800-832-8224 (24 hours)
Texas Commission on Environmental Quality	512-463-7727 (24 hours)
Railroad Commission	512-463-6788 (24 hours)
LOCAL	
Disaster District Chairperson (24 hour)	
Port Arthur/Beaumont (DPS)	409-924-5400
Paul Davis	409-924-5456(24 hr)
Galveston/Harris County	713-957-6192/6193/6194
Texas Commission on Environmental Quality (Beaumont)	409-898-3838

ATTACHMENT 5

Certification of the Applicability of the Substantial Harm Criteria

Veolia ES Technical Solutions, L.L.C.
Hwy 73, 3.5 Miles W of Taylor Bayou
Port Arthur, Texas 77640

1. Does the facility transfer oil over waster to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?
   Yes_____ No_x___

2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area?
   Yes_____ No_x___

3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to this appendix or a comparable formula 1) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments? For further description of fish and wildlife and sensitive environments, see Appendices I, II, and III to DOC/NOAA's "guidance for section 13, for availability) and the applicable Area Contingency Plan.
   Yes_____ No___x_

4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated) using the appropriate formula in Attachment C-III to this appendix or a comparable formula 1) such that a discharge from the facility would shut down a public drinking water intake 2? 1 If a comparable formula is used, documentation of the reliability and analytical soundness of the comparable formula must be attached to this form. 2 for the purposes of 40 CFR part 112, public drinking water intakes are analogous to public water systems as described at 40 CFR 143.2(c).
   Yes_____ No___x_

5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil discharge in an amount greater than or equal to 10,000 gallons with in the last 5 years?
   Yes_____No___x_

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Signature: Jim M. Osborne Date: 2/1/11

Name (please type or print) James Mitchell Osborne

Title General Manager

REGULATION CROSS REFERENCE MATRIX

Regulation	Description	Page No.
§ 112.3(d)	Professional Engineer (PE) certification with 5 elements	i
§ 112.3(e)	Location of SPCC Plan	22
§ 112.5(a)	Amendment of SPCC Plan	22
§ 112.5(b)	Review of Plan at least every 5 years	22
§ 112.7	Management Approval	i
§ 112.7	Cross-Reference with SPCC Rule	Attachment 6
§ 112.7(a)(1)	Facility Conformance with SPCC Requirements	1
§ 112.7(a)(3)	General Facility Information	1
§ 112.7(a)(3)(i)	Type of Oil in each Container and its Storage Capacity	6
§ 112.7(a)(3)(ii)	Discharge Prevention Measures	2
§ 112.7(a)(3)(iii)	Discharge Drainage Controls	5
§ 112.7(a)(3)(iv)	Countermeasures for Discharge Discovery, Response, and Cleanup	9
§ 112.7(a)(3)(v)	Methods of Disposal of Recovered Materials	15
§ 112.7(a)(3)(vi)	Contact List and Telephone Numbers for Facility Response Coordinator, National Response Center, Cleanup Contractors, and Federal, State and Local Agencies	13, 14, 16, 17, 18 and Attachment 4
§ 112.7(a)(4)	Spill Reporting Information	15, 16 and Attachment 3
§ 112.7(a)(5)	Spill Response Procedures	15
§ 112.7(b)	Failure Prediction (Sources, Quantities, Rates, and Directions)	2
§ 112.7(c)	Secondary Containment	5 and 6
§ 112.7(d)	Impracticability of Secondary Containment	N/A
§ 112.7(e)	Written Procedures for Inspections and Tests	19
§ 112.7(e)	Records of Inspections and Tests Maintained for 3 Years	21
§ 112.7(f)(1)	Employee Training	21
§ 112.7(f)(2)	Designated Individual Accountable for Discharge Prevention	i
§ 112.7(f)(3)	Discharge Prevention Briefings Scheduled and Conducted Annually	21
§ 112.7(g)(1)	Facility Fully Fenced with Locking Entrance Gates	18
§ 112.7(g)(2)	Master Flow and Drain Valves are Secured	19
§ 112.7(g)(3)	Starter Controls on Pumps Locked in "Off" Position	19
§ 112.7(g)(4)	Piping Capped when not in Service	19
§ 112.7(g)(5)	Facility Lighting	19
§ 112.7(h)	Loading/Unloading Rack	17
§ 112.7(h)(1)	Containment	11

REGULATION CROSS REFERENCE MATRIX

§ 112.7(h)(2)	System to Prevent Vehicle Departure Prior to Disconnection of Hoses/Lines	11
§ 112.7(h)(3)	Inspection of Drains/Outlets on Vehicles	11
§ 112.7(i)	Field Constructed Containers and Brittle Fracture	11
§ 112.7(j)	Conformance with State Requirements	1
§ 112.7(k)	Qualified Oil-Filled Operational Equipment	N/A
§ 112.8(b)	Facility Drainage	8
§ 112.8(c)(1)	Containers Compatible with Stored Materials	7 and 8
§ 112.8(c)(2)	Secondary Containment	9
§ 112.8(c)(3)	Stormwater Drainage from Secondary Containment	5
§ 112.8(c)(3)(iv)	Records of Stormwater Drainage from Secondary Containment	N/A
§ 112.8(c)(4)	Corrosion Protection for Completely Buried Metallic Containers	N/A
§ 112.8(c)(5)	Corrosion Protection for Partially Buried Containers	N/A
§ 112.8(c)(6)	Tank Integrity Tests	9
§ 112.8(c)(7)	Internal Heating Coils Monitored	N/A
§ 112.8(c)(8)	Containers Engineered and Procedures to Prevent Discharges	11 and 21
§ 112.8(c)(9)	Effluent Treatment Facility Observations	N/A
§ 112.8(c)(10)	Correct Visible Leaks and Remove Accumulations of Oil	20
§ 112.8(c)(11)	Secondary Containment for Mobile/Portable Containers	5
§ 112.8(d)(1)	Corrosion Protection for Buried Piping	10
§ 112.8(d)(2)	Terminal Connections Capped/Blank Flanged when not in Service or in Standby Service for an Extended Time	10
§ 112.8(d)(3)	Pipe Supports Properly Designed	10
§ 112.8(d)(4)	Inspection of Above-Ground Valves and Pipelines	10
§ 112.8(d)(5)	Warn Vehicles of Aboveground Piping	11

ATTACHMENT 7

Record of Stormwater Discharge from Secondary Containment

Containment Area

Heavy Equipment Fuel Station:___________

Tank T-517:___________

Date	Observation (e.g., Clear, Oily Sheen, etc.)	Time Discharge Started	Time Discharge Completed	Name	Signature

VEOLIA
ENVIRONMENTAL SERVICES

Memo

To: Files

From: Daniel J. Duncan

Date: 04/02/2020

Re: Five Year Review of Veolia Port Arthur, Texas SPCC Plan

In accordance with 40 CFR §112.5(b), I have completed the review and evaluation of the SPCC Plan for the Veolia ES Technical Solutions, L.L.C. facility located near Port Arthur, Texas on April 1, 2020 and determined that there have been no changes in facility design, construction, operation, or maintenance that materially affects the facility's potential to discharge pollutants to navigable waters and therefore will not amend the Plan as a result.

Appendix 5 Closure Plan

COOK-JOYCE INC.
ENGINEERING AND CONSULTING
812 WEST ELEVENTH 512-474-9097
AUSTIN, TEXAS 78701

ATTACHMENT VII.A

CLOSURE PLAN AND COST ESTIMATE

AUGUST 2014
REVISED NOVEMBER 2016, JUNE 2017, OCTOBER 2017, JANUARY 2018, JULY 2018, SEPTEMBER 2018 AND JANUARY 2019

Prepared for:

Veolia ES Technical Solutions, L.L.C.
P.O. Box 2563
Port Arthur, Texas 77643

Prepared by:

Cook-Joyce, Inc.
812 West Eleventh Street
Austin, Texas 78701

The following Closure Plan and Cost Estimate was prepared for permitting and closure of the Veolia ES Technical Solutions, L.L.C Port Arthur facility. This document is not intended for construction or bidding purposes.

STATE OF TEXAS
COREY KLINGELHEFER
86962
LICENSED
PROFESSIONAL ENGINEER

1/11/2019

Corey Klingelhefer, P.E.
Cook-Joyce, Inc. F-883
11 January 2019

VEOLIA\FINAL\12063.16\
R190111_CLOSURE PLAN

REVISION 9
11 JANUARY 2019

TEXAS REGISTERED ENGINEERING FIRM F-883

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1.0 INTRODUCTION

This document presents the closure plan and corresponding cost estimate for the waste management units at the Veolia ES Technical Solutions, L.L.C. (Veolia) Port Arthur facility in accordance with the applicable RCRA regulations under 40 CFR Part 264 and 30 TAC Chapter 335, and the applicable TSCA regulations under 40 CFR Part 761. This closure plan is a consolidated RCRA/TSCA closure plan due to the fact that the waste management units authorized under TSCA are also used to manage hazardous wastes under RCRA. At any given time, the wastes in each of the TSCA-authorized units are managed as hazardous wastes containing PCBs. Therefore, the closure of each of these units must be performed in accordance with both the RCRA and TSCA regulations. Note that references to hazardous waste in this closure plan include PCBs for all units and equipment authorized to manage PCBs. This closure plan and cost estimate have been included with the application to renew and amend Hazardous Waste Permit No. 50212, originally submitted to the TCEQ on 14 August 2014.

Upon approval by the TCEQ, this closure plan and cost estimate is intended to supercede and replace the currently approved closure plan and cost estimate for the facility submitted January 2003. The January 2003 closure plan and cost estimate superceded and replaced prior closure plans and cost estimates for the facility approved and incorporated by reference into Hazardous Waste Permit No. 50212. These prior approved closure plans consisted of the following:

- *Incinerator Facility Closure Plans and Cost Estimates*, January 1987, as revised February 1989, January 2001, and February 2001;
- *Closure and Post Closure Care Plans and Cost Estimates, Port Arthur Landfill Facility*, November 1993;
- *Closure Plan and Cost Estimate, Port Arthur Injection Well Surface Facilities*, December 1989;
- *Container Storage Building Closure Plan and Cost Estimate*, January 2001, as revised February 2001; and

- *Bulk Material Handling Building Closure Plan and Cost Estimate*, June 2001.

Similarly, this closure plan and cost estimate is intended to supercede and replace the currently approved closure plan incorporated into the TSCA authorization under Condition III.D upon approval by EPA.

Throughout the closure plan, two sets of closure activities are presented:

1) "Expected" closure activities - those activities anticipated to be necessary to satisfy regulatory requirements and to conduct closure at the operational condition projected at the end of the active life of each waste management unit; and

2) "Worst-case" closure activities - those activities anticipated to be necessary to satisfy regulatory requirements and to conduct closure of the waste management units at the time when closure of the Port Arthur facility would be most costly.

2.0 GENERAL FACILITY DESCRIPTION

The Veolia Port Arthur facility is a commercial industrial waste management facility located approximately 12 miles west of the City of Port Arthur, Texas, adjacent to and south of State Highway 73. The incinerator and support areas and the deepwell area are contiguous. The Veolia Port Arthur site holds the following TCEQ Permit Nos.: Hazardous Waste Permit No. 50212; WDW-160; WDW-358; Compliance Plan No. 50212; and TPDES Permit No. 02417. These permits collectively authorize and regulate the operation of the site. In general, Hazardous Waste Permit No. 50212 covers the incinerator and its associated waste management units, the east and west support areas and their associated waste management units, and the deepwell area surface storage and processing units. Permit Nos. WDW-160 and WDW-358 cover the existing deepwells, and Permit No. TPDES-02417 covers the discharge of uncontaminated stormwater runoff, treated sanitary sewage and utility wastewater from the site.

The facility holds a TSCA authorization from U.S. EPA to store and incinerate PCBs. The incinerator and its associated waste management units comprise the facility components authorized for PCB management. **No wastes containing PCBs in a concentration of 50 ppm or greater are or will be managed in the deepwell storage and processing units.**

2.1 INCINERATOR AND SUPPORT AREAS DESCRIPTION

The incinerator area is located between property owned by Chemical Waste Management, Inc. (CWM) on which closed landfill units are located (the 01 and 02 landfills, as shown on Drawing VII.A.1). Units in the incinerator area include tanks; container storage units; the incinerator train, which includes a rotary kiln, secondary combustion chamber (SCC), waste feed mechanisms, ash handling equipment, and emission control system; and ancillary components. To the north of the incinerator area lies the east and west support areas, as shown on Drawing VII.A.1. Two existing container storage units are located within the east support area.

Table 2-1 lists the incinerator and support area units and associated equipment, item capacities, and the method of disposition at "worst-case" closure. Most of these units and equipment are in combined TSCA/RCRA waste service and will therefore be subject to closure under both regulatory programs. However, certain units and equipment within the incinerator and support areas will **not** contact PCBs. Table 2-1 identifies the applicable regulatory program(s) for each component within the incinerator and support areas. Additionally, incoming, listed dioxin/furan wastes, which may be managed at the facility upon approval of the waste authorization request in this renewal and amendment application, will be managed in Building 46 (but not the associated solids storage area) and the Truckwash and Process Support Building prior to incineration. Building 46 may be used to store incoming, listed dioxin/furan wastes and the Truckwash and Process Support Building may be used to re-package these wastes prior to direct feed to the incinerator. No other units in the incinerator and support areas will manage incoming, listed dioxin/furan wastes.

Residues from the thermal treatment of incoming, listed dioxin waste, including but not limited to scrubber sludge, incinerator ash, and scrubber blowdown water, will be generated on-site and will also carry the listed dioxin/furan hazardous waste numbers due to the "derived-from" rule in 40 CFR 261.3(c)(2)(i). These waste treatment residuals are typically referred to in this closure plan as 'residual dioxin/furan wastes' and may be stored in any of the permitted container storage units that provide containment in accordance with 40 CFR 264.175(b).

2.2 DEEPWELL AREA DESCRIPTION

The deepwell area is located in the northeastern portion of the 01 site as depicted on Drawing No. VII.A.1. RCRA units authorized in the deepwell area include tanks, a container storage area, and associated ancillary equipment.

Table 2-2 lists the deepwell area units and associated equipment, item capacities, and the method of disposition at "worst-case" closure. The deepwell area units and equipment are authorized for RCRA wastes only; therefore, these units will not manage PCBs and are not subject to TSCA closure requirements. In addition, the deepwell area units will not manage incoming, listed dioxin/furan wastes. However, all of the deepwell tanks will be used to manage the residual dioxin/furan wastes that are aqueous liquids.

This closure plan also addresses final closure activities that will be performed for historical releases of wastes that occurred to surface soils from incidental equipment leaks and drips and occasional spills on the contained injection well surface facilities earthen pad in the general vicinity of tanks T-101A, T-101B, and T-102 and associated filters and components prior to construction of their concrete secondary containment structures in 1985. These surface releases were reported to be minor in nature and all stormwater falling within the earthen bermed area was appropriately disposed via deepwell injection. The surface releases have been covered by the concrete secondary containment structures in this area since 1985.

3.0 CLOSURE PERFORMANCE STANDARD

The facilities will be closed in accordance with the closure performance standards established by the RCRA and TSCA regulations, as applicable. The RCRA closure performance standard is found at 40 *CFR* §264.111, which states that:

> the owner or operator must close the facility in a manner that (a) minimizes the need for further maintenance; (b) controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to ground or surface waters or to the atmosphere; and (c) complies with the closure requirements of this subpart, including, but not limited to, the requirements of 40 *CFR* §§264.178, 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, 264.601 through 264.603, and 364.1102.

The TSCA closure performance standard found at 40 CFR §761.65(e)(1) is substantively equivalent to the RCRA standard, but consists of somewhat different language, as follows:

> A commercial storer of PCB waste shall have a written closure plan that identifies the steps that the owner or operator of the facility shall take to close the PCB waste storage facility in a manner that eliminates the potential for post-closure releases of PCBs which may present an unreasonable risk to human health or the environment. An acceptable closure plan must include, at a minimum, all of the following: *[contents identified in 40 CFR §§761.65(e)(1)(i) through (vii)].*

Veolia will achieve the closure performance standards under both the RCRA and TSCA regulations through the procedures specified herein. In general, the performance standard will be achieved for facility units (other than the historical spills, leaks, and drips at the injection well surface facilities pad) by removal of remaining wastes, followed by decontamination to remove waste residues or flushing, dismantling and landfilling of this equipment; and decontamination of secondary containment structures. For units that are to be decontaminated, the RCRA closure performance standard will be achieved by sampling the final rinsate water and comparing the analytical results to appropriate background and/or risk-based criteria, as described in Sections 4.2.1 and 4.2.4. For those units to be decontaminated that also managed PCBs, TSCA decontamination will be conducted *in addition to* RCRA decontamination, also described in Sections 4.2.1 and 4.2.4. As described in Section 4.2.2, any equipment that is to be flushed, dismantled, and landfilled will meet the debris treatment standards under RCRA, and any such equipment that also managed PCBs will be disposed as PCB remediation waste.

The closure performance standard for the historical spills, leaks, and drips that occurred in the general vicinity of tanks T-101A, T-101B, and T-102 and their associated filters and ancillary equipment will be met by closing the release area in-place as a landfill with post-closure care in accordance with 40 CFR §264.197(b). As described in Section 5.2.3, the final cover system will be constructed with appropriate materials and at slopes which will minimize stormwater erosion and infiltration and promote drainage throughout the post-closure care period. The in-place closure of the historical release area will comply with the applicable landfill closure and post-closure requirements contained at 30 TAC §335.174 and satisfy the RCRA performance standard stated above. The TSCA closure performance standard is not applicable to these historical surface releases since PCBs are not and were not managed at the deepwell area.

The following sections discuss in detail the procedures and actions that will be taken to satisfy the closure performance standards.

4.0 PARTIAL FACILITY CLOSURE

Partial closure of any individual waste management unit will be conducted in accordance with the specific procedures described for that unit in this closure plan. In addition, general procedures applicable to partial closures are described herein, including procedures conducted in compliance with requirements of the TCEQ and EPA (30 *TAC* §335.6(g) and §335.8; 40 CFR §§264.110-.120, adopted by reference at 30 TAC §335.152(a)(5); and 40 CFR §761.65(e) and 40 CFR §761.79.).

The TCEQ will be notified at least 10 days prior to any confirmation sampling associated with the closure of facility units. In addition, Veolia will notify the EPA prior to initiating closure of any unit authorized to manage PCB waste, in accordance with applicable EPA rules. All partial closure activities will be certified by an independent professional engineer registered in the State of Texas and by Veolia at the time of closure to facilitate certification of final facility closure. Partial facility closure certifications will be submitted to the TCEQ Executive Director and, as applicable, the EPA Region VI office, within 60 days of completion of the partial closure activity.

4.1 MAJOR PARTIAL CLOSURES

Based on the existing and planned operations at the site, no major partial facility closure activities are projected to occur at the Port Arthur facility.

4.2 MINOR PARTIAL CLOSURES

Minor partial facility closures that may occur at the Port Arthur site consist, in most cases, of tank closures. Various waste storage tanks are associated with the incinerator and deepwell areas. Detailed tank closure procedures and tank closure timetables are presented in this section and are applicable to all tank closures at the facility, except as otherwise noted herein. Tanks will be closed, as appropriate, by decontamination or by flushing, demolition, and landfilling as a waste in an authorized landfill. Specific procedures for each of the methods are provided below.

All waste containers, tanks, and other vessels and equipment are located within secondary containment structures (with the sole exception of containers holding RCRA-only wastes with no free liquids). All waste management units and associated equipment are subject to regular and frequent inspection and maintenance to minimize potential releases into the secondary containment structures. Similarly, the secondary containment structures themselves are subject to regular and frequent inspection and maintenance to ensure their continued integrity. Any release from a primary containment structure into a secondary containment structure must be controlled and the released materials removed immediately upon detection.

Based upon these requirements and the long operational history of the facility under the RCRA and TSCA regulations, no releases of PCBs or RCRA wastes outside secondary containment are anticipated to be present at closure of a waste management unit. Nevertheless, prior to or during implementation of closure, secondary containment structures will be visually inspected for cracks and gaps where hazardous wastes could have migrated to underlying soils. If there is evidence of a potential release, a sample will be collected of the underlying soils in the area of concern. The sample will be submitted for laboratory analysis of priority pollutant volatiles, priority pollutant base neutrals and acid extractables (semi-volatiles), priority pollutant metals, and as applicable, PCBs and/or dioxins/furans. The analytical results will be compared to background values or appropriate regulatory levels under 30 TAC Chapter 350 and 40 CFR Part 761, as applicable, to determine if the soils have been impacted. Analytical strategies will be planned to ensure that the lower limit of quantitation (LLOQ) for each targeted constituent is equal to or less than the required threshold.

4.2.1 Closure by Decontamination

Prior to closure of a tank by decontamination, the contents of the tank will be removed and disposed of in accordance with applicable regulations. For closure by decontamination, tanks and equipment which have managed PCBs will be subject to PCB decontamination in accordance with 40 CFR §761.79.

Piping and ancillary equipment which will no longer remain in hazardous waste service will either be decontaminated as described below for tanks, or will be handled as described in Section 4.2.2 for landfill disposal at an authorized facility. Secondary containment associated exclusively with a tank (e.g., a secondary containment shell or dedicated curbed or walled concrete pad) will also be decontaminated at tank closure. Where a single containment area serves several tanks, the secondary containment will be decontaminated after closure of the last tank within that containment area.

All decontamination residues (used rinsate, detergent solution, spent solvent, blasting media, etc.) will be disposed of at one or more facilities authorized to manage each separate waste.

4.2.1.1 *Typical PCB Decontamination*

It is anticipated that typical tank PCB decontamination will be performed prior to RCRA decontamination in accordance with the self-implementing decontamination procedures as provided in 40 CFR §761.79(c). The self-implementing decontamination procedure will consist of triplicate rinsing of the interiors of the tanks and equipment using a non-chlorinated hydrocarbon solvent, such as diesel or kerosene, in which PCBs are at least 5% soluble by weight. Each rinse will use a solvent volume approximately equal to 10% of the capacity of the tank or equipment being decontaminated, and may be re-used as long as the concentration of PCBs remains less than 50 ppm. The self-implementing decontamination procedure is not measurement-based; that is, no verification sampling and analyses are required once the decontamination procedure has been completed. No future use restrictions apply under the TSCA regulations once the self-implementing decontamination procedures have been completed.

4.2.1.2 *Typical RCRA Decontamination*

For tanks that have not managed PCBs or have undergone PCB decontamination, an aqueous detergent is expected to be applied using high pressure to remove waste residuals. The detergent wash will continue until visual inspection of the tank and/or wash waters indicates the tank is free of hazardous residues. At that time, steam cleaning, hydroblasting, and/or water rinsing will be used to complete decontamination. Upon completion of the final rinse, a rinsate sample will be collected from each tank to verify complete decontamination.

Verification analysis of collected rinsate samples will be specific to the service for which the tank was utilized. At a minimum, the rinsate samples will be analyzed for priority pollutant volatiles, priority pollutant base neutrals and acid extractables (semi-volatiles), and priority pollutant metals. Dioxin/furan analysis will also be required if the unit undergoing closure managed listed dioxin/furan wastes. The analytical results will be evaluated as described in Section 4.2.4 to verify the decontamination meets the closure performance standards.

4.2.1.3 *Alternate Decontamination Procedures*

The facility may elect to use measurement-based PCB decontamination procedures for closure of tanks as provided at 40 CFR §761.79(b)(3). In this event, decontamination procedures will differ depending on whether or not the tank has an internal coating or lining. A tank with an internal coating, such as paint, or a liner will first be flushed with water and/or detergent solution as necessary to render the tank fit for entry by personnel wearing appropriate personal protective equipment. The interior of the tank will be cleaned to achieve Visual Standard No. 2, Near-White Blast Cleaned Surface Finish, of the National Association of Corrosion Engineers (NACE), as verified through visual inspection of all cleaned areas. All used PCB decontamination residues will be removed and managed as PCB cleanup waste in accordance with 40 CFR §761.61(a)(5)(v). The tank will then be rinsed, and a sample of the rinsate will be taken for analyses in accordance with Section 4.2.4 to verify complete decontamination under RCRA standards.

Measurement-based decontamination procedures for tanks that do not have an interior coating or lining will consist of removal of residues using abrasion and/or rinsing with solvent, detergent solution, and/or water. PCB decontamination in this manner will be complete when wipe sample test results meet the criteria identified in Section 4.2.4. Wipe samples will be collected and evaluated in accordance with the procedures in Subpart P of 40 CFR Part 761. All used PCB decontamination residues will be removed and managed as PCB cleanup waste in accordance with 40 CFR §761.61(a)(5)(v). When a tank is subject to this type of PCB decontamination, a water rinse may be incorporated into the PCB decontamination procedure, and a sample of the rinsate may be collected and analyzed to verify that the tank has also been decontaminated under the RCRA standards, as set forth in Section 4.2.4. If a water rinse is not conducted as part of the PCB decontamination procedure, if the rinse water is not sampled, or if the rinsewater sample does not verify adequate PCB decontamination under the RCRA regulations, additional RCRA decontamination (Section 4.2.1.2) will be performed to achieve the decontamination criteria. Any additional decontamination water required that may be required after PCB decontamination has been completed is not regulated under TSCA.

4.2.1.4 *Secondary Containment Structures*

Decontamination of secondary containment structures will not normally require the same level of effort as decontamination of a tank, since a tank contains wastes on a routine and continuing basis, while a secondary containment structure only contains waste on an occasional and infrequent basis, after which the wastes and residues are removed and the structure is cleaned. Additionally, any spill or other release of PCB wastes is cleaned up in accordance with the Spill Cleanup Policy in Subpart G of 40 CFR Part 761, which generally requires cleanup within 24 hours of discovery.

Decontamination of these structures will be conducted using a high pressure steam and/or water spray, and if necessary, appropriate cleaning and rinsing solutions. Upon completion of the final rinse, a rinsate sample will be collected from each secondary containment area to verify complete decontamination as set out in Section 4.2.4. Rinsate samples will be analyzed for priority pollutant volatiles, priority pollutant base neutrals and acid extractables (semi-volatiles), and priority pollutant metals. Dioxin/furan analysis will also be required if the unit undergoing closure managed listed dioxin/furan wastes.

For concrete containment structures where PCBs were managed, concrete cores will also be collected for analysis of PCBs to confirm adequate decontamination as set out in Section 4.2.4. Since these areas are managed under the Spill Cleanup Policy, little or no residual PCB contamination is anticipated. Consequently, core samples will be collected from the areas where operations had the greatest potential for spills and areas of apparent residual staining. Similarly, any PCB content in the decontamination waters is expected to be well below the 50 mg/L concentration that would subject these waters to regulation under 40 CFR Part 761.

4.2.2 Closure by Landfilling

Prior to closure of a tank by landfilling, the contents of the tank will be removed and disposed of in accordance with applicable regulations. The tank will be treated in accordance with the debris standards contained at 40 CFR §268.45 using a high pressure steam or water spray. Flushing water, and if necessary, a detergent solution or other solvent, will be utilized to remove residual waste materials until visual inspection indicates the tank is free of hazardous waste. Residual staining, minor discolorations, and waste in cracks may remain on some tank surfaces but will be limited to no more than 5% of each square inch of surface area as specified in 40 CFR §268.45. No separate treatment standards or concentration limits apply to non-porous surfaces that contacted PCBs and are to be disposed in a hazardous waste landfill.

Piping and ancillary equipment associated with a tank that will not remain in hazardous waste service may be re-used in another hazardous waste application on-site or it will be discarded. If it is to be discarded, it will either be decontaminated as described in Section 4.2.1 and abandoned, reused or recycled, or will be disposed by landfilling as hazardous waste debris and/or PCB remediation waste. Prior to landfill disposal, the piping and equipment will be treated in accordance with the debris standards contained at 40 CFR §268.45 using a high pressure steam or water spray, in the same manner as a tank. Secondary containment structures which are not curbed or walled concrete pads and are associated exclusively with a tank being closed (e.g., a secondary containment shell around a tank or a secondary containment pipe around a pipe) will either be decontaminated as described in Section 4.2.1 and abandoned, reused or recycled, or it will be flushed in the same manner as the tank at the time of tank closure. After flushing, the tank and associated nonporous equipment and secondary containment structures to be landfilled will be dismantled and transported to an authorized hazardous waste landfill facility for disposal.

Curbed or walled concrete pads which function as secondary containment structures associated exclusively with the tank being closed will be decontaminated as described in Section 4.2.1. Where a secondary containment structure is associated with more than one tank, the structure will be decontaminated at closure of the last tank within the structure. All used rinsate, detergent solution, and solvent will be disposed of at an authorized facility.

4.2.3 General Requirements

Personal protective equipment will be provided for the cleaning crew during decontamination or flushing operations in accordance with Veolia health and safety procedures, or other appropriate procedures. Unnecessary sources of ignition will be kept away from tanks which have contained organic materials. Necessary equipment with potential ignition sources, such as vacuum trucks and hydroblast equipment, will be stationed crosswind of these tanks. Equipment will be grounded if deemed necessary.

Where a group of tanks will be closed concurrently, the procedures specified in Section 4.2.1 or 4.2.2 will be followed for each of the tanks being closed. However, in this case, solvents, detergents and initial rinse solutions may be reused in separate tanks. Where tank rinsing is conducted in addition to flushing with detergent, these rinse waters may also be reused. Final rinsing will be performed on each tank, and the final rinse waters will not be reused. All solvents, washwaters and rinse waters generated during tank closure operations will be sent to an authorized waste disposal facility. Currently, incineration or injection well disposal, as appropriate, are considered to be the most likely disposal methods.

Unloading area(s) and associated equipment will be closed when the last tank area served by the unloading area(s) is closed and no further use of the area is projected. All concrete flooring, curbs and walls which have contacted waste(s) will be decontaminated as described for secondary containment structures and equipment in Section 4.2.1.

All tanks, associated equipment (e.g., transfer pumps and recirculation pumps), and associated unloading areas and pumps are to be within curbed or walled concrete pads. Associated piping will also be located within these concrete pads or will be placed within other secondary containment structures (e.g., an exterior pipe or a concrete trough). Upon closure of the tanks, the secondary containment areas will be thoroughly inspected to identify any potential areas where a release may have occurred. If there is evidence of a potential release from the secondary containment structure, a soil sample will be collected from the area(s) of concern and submitted for laboratory analysis of priority pollutant volatiles, priority pollutant base neutrals and acid extractables (semi-volatiles), priority pollutant metals, and as applicable, PCBs and/or dioxins/furans. The analytical results of the sample will be compared to background values or appropriate risk-based levels for these parameters in 30 TAC §350 to determine if the soils were impacted by the potential release. Results for PCBs will also be compared to the applicable criteria as set forth in Subpart G of 40 CFR Part 761. Analytical strategies will be planned to ensure that the lower limit of quantitation (LLOQ) for each targeted constituent is equal to or lower than the required threshold.

Tables 4-1 and 4-2 present timetables for closure of a tank by decontamination and by landfilling, respectively. These timetables represent the maximum time periods projected for completion of each identified closure activity; actual time periods may vary. As shown in Table 4-1, completion of closure, as defined by submittal of certification of closure, may require greater than 180 days, although physical closure is anticipated to be completed within 150 days of commencement of closure.

During the closure period, inspections will continue to be made in accordance with the facility Inspection Plan. Maintenance activities will continue as necessary, including maintenance of curbs, walls and other runon/runoff control structures. Security will also continue to be maintained. Site visits will be made by an independent professional engineer registered in the State of Texas, or the engineer's designated representative, to document closure activities for the purpose of closure certification.

4.2.4 Protocol to Verify Decontamination

The following protocol will be used for evaluation of final rinse waters to ensure removal of all RCRA wastes and waste residue from waste management units and containment structures. The following decontamination standards are required to meet the closure performance standards described in Section 3.0.

The decontamination standards for each of the non-naturally occurring parameters will be established as (1) the LLOQ for the parameter derived by the laboratory performing the analyses in accordance with the latest edition of SW-846, or (2) the appropriate risk-based standard found in 30 TAC Chapter 350 (the Texas Risk Reduction Program). For metals, the decontamination standard will be established by (1) deriving a background value for the source water, or (2) appropriate risk-based standard found in 30 TAC Chapter 350 (the Texas Risk

Reduction Program). Analytical strategies will be planned to ensure that the LLOQ for each targeted constituent is equal to or lower than the required threshold.

As noted previously, there are no numeric criteria associated with the self-implementing PCB decontamination procedures. For alternate PCB decontamination procedures requiring confirmation through analysis of wipe samples, the verification level is 10 µg/100 cm^2. For concrete to be left in place, the concrete core sample data must document that PCBs concentrations are less than 2 mg/Kg. Concrete containing less than 2 mg/Kg PCBs may also be removed for unrestricted use or reuse under the TSCA regulations. If concrete cannot be decontaminated to meet the 2 mg/Kg criteria, it will be removed and sent off-site for disposal. Concrete with PCB concentrations less than 50 mg/Kg may be disposed at a Subtitle D municipal solid waste landfill; concrete with PCB concentrations greater than 50 mg/Kg may be disposed at a hazardous waste landfill.

5.0 "EXPECTED" CLOSURE

This section identifies the steps intended to be taken for final closure of the facility by Veolia. At least 60 days prior to initiation of final closure of the commercial PCB storage and treatment facility, Veolia will notify the EPA in writing of the date on which closure activities are expected to begin. Unless otherwise approved by EPA, the expected date for initiation of these closure activities will be no later than 30 days after the date on which the facility receives the final quantity of PCB waste. Consistent with the detailed closure timetables for the various units addressed herein, all PCB waste will be removed from storage at the facility within 90 days after receiving the final quantity of PCB waste. In the event that final closure of the commercial PCB storage and treatment facility also constitutes final closure of the facility under RCRA, the TCEQ will also be notified in writing at least 45 days prior to initiating closure activities.

5.1 INCINERATOR AND SUPPORT AREAS

5.1.1 General Expected Closure Procedures

In general, closure of the various units associated with the incinerator and support areas will proceed in the following manner to meet the closure performance standard described in Section 3.0. All waste inventory destined for treatment by incineration will be fed to the on-site incinerator. Incineration residues and other waste inventory amenable to landfilling will be stabilized, as appropriate, and disposed at an authorized landfill facility.

The various tanks, container storage areas, processing units, ancillary equipment, and secondary containment structures may be decontaminated as specified in Section 4.2.1 or in a similar manner to remove remaining hazardous wastes and hazardous waste residues. Decontamination verification will be conducted as described in Section 4.2.4 to ensure removal of all wastes and waste residue from waste management units and containment structures and that the closure performance standard is met. Alternatively, these items may be closed by landfilling after any treatment necessary to meet the debris treatment standards, as described in Section 4.2.2.

Aqueous decontamination residuals will be collected and deepwelled on-site, or sent to an appropriate off-site facility. Organic decontamination residues will either be incinerated on-site or will be shipped to an appropriate off-site facility.

5.1.2 Stand-Alone Container Storage Units

Several container storage units are located in the incinerator and support areas of the facility. Container storage units include containment systems for management of wastes containing free liquids; certain units may be limited, or include an area that is limited, to wastes containing no free liquids.

The various stand-alone container storage units in the incinerator and support areas and their associated capacities are:

- Container Storage Building - 556 cubic yards;
- Ash Container Storage Building - 238 cubic yards;
- Stabilization Container Storage Building – 1,609 cubic yards;
- Building 46 and Associated Solids Storage Area – 2,887 cubic yards;
- Truck and Container Storage Building - 1,009 cubic yards; and
- Truckwash and Process Support Building – 46.7 cubic yards.

Container storage areas are also present in the Bulk Materials Handling Building in the incinerator area. Closure of those container storage areas is addressed within the expected closure of that building.

The solids storage area associated with Building 46 does not have a containment system and will manage wastes which contain no free liquids, no listed dioxin/furan wastes, and no PCBs. The surface of this area may consist of asphalt, concrete, road base, gravel, or similar materials. Upon closure, the surfaces will be thoroughly inspected to identify any potential areas where a release may have occurred. If there is evidence of a potential release, a sample will be collected of the underlying surface soils in the area(s) of concern. The sample(s) will be submitted for laboratory analysis of priority pollutant volatiles, priority pollutant base neutrals and acid extractables (semi-volatiles), and priority pollutant metals. The analytical results of the samples will be compared to background values or appropriate risk-based levels under 30 TAC Chapter 350 for these parameters to determine if the soils have been impacted. Analytical strategies will be planned to ensure that the lower limit of quantitation (LLOQ) for each targeted constituent is equal to or less than the required threshold.

The Container Storage Building serves as the primary unit for receiving and laying out drums and other packaged waste. No bulk containers are stored in this area. The Ash Container Storage Building, and the Stabilization Container Storage Building have historically been used for storage of wastes in drums and in bulk containers; however, bulk containers are no longer being stored in these buildings in accordance with the facility's air quality permit. Building 46 and the Truck and Container Storage Building store bulk containers such as rolloffs and tanker trucks, and smaller containers such as drums. The Truckwash and Process Support Building is used for washing truck interiors and exteriors, for waste processing, transfer, and/or transloading, and other support functions. Each of these container storage buildings include a concrete containment system for storage of wastes with free liquids. Closure of the container storage units will consist of removal of remaining waste inventory and decontamination of containment structures, in the same manner as described in Section 4.2.

Storage of incoming, listed dioxin/furan wastes is limited to Building 46, while any processing prior to incineration is limited to the Truckwash and Process Support Building. The quantity of incoming dioxin/furan wastes is limited to 13,500 pounds. Residual dioxin/furan wastes (e.g., incinerator ash) may be stored in any of the container storage units having containment in accordance with 40 CFR 264.175(b), although bulk containers of residual dioxin/furan wastes are limited to the Truck and Container Storage Building or Building 46 based on current NSR permit requirements.

5.1.3 Incinerator Area Tanks

The following incinerator tanks are used for storage and/or blending of pumpable wastes:

- The four energetic/aqueous holding tanks (T-521, T-522, T-523 and T-524) each have a 103,000 gallon capacity. Primarily organic liquids are contained in these tanks, although aqueous wastes may also be handled.

- The eight energetic liquids storage tanks [existing tanks T-509, T-510, T-512, T-513 and T-551; and planned tanks T-511A, T-552, and T-553] are or will be used primarily for storage of organic liquids. Each tank has a 17,700 gallon capacity.

- The four permitted aqueous liquids storage tanks have or will have individual capacities of 25,000 gallons. Tanks T-514 and T-515 are active; Tanks T-516 and T-550 will be constructed when market demands increase. Aqueous and organic liquid wastes may be stored in these tanks.

- The eight sludge storage tanks (T-501 through T-508) are used for storage of organic and inorganic pumpable sludges. Individual tank capacities are 10,200 gallons.

- The two truck wash storage tanks (T-535 and T-536) are used for storage and settling of truck wash water and other authorized wastes as appropriate. Each has a 5,500 gallon capacity.

Closure of the incinerator tanks will be conducted in accordance with the procedures specified in Section 5.1.1 and 4.2. Secondary containment structures will be decontaminated as described in Section 4.2. Spent solvent used for decontamination of PCB-contaminated equipment/tanks will be incinerated. Water used in decontaminating and/or flushing the tanks and secondary containment structures will be disposed at the on-site deepwell or an appropriate off-site facility. The schedule for closure of the tanks will be in accordance with the appropriate schedule, presented in Tables 4-1 and 4-2, for the method of closure utilized.

5.1.4 Incinerator Train

The incinerator train and ancillary items consist of the rotary kiln, secondary combustion chamber (SCC), associated waste feed systems, ash handling equipment, and emission control systems.

Bulk pumpable wastes to be incinerated are typically blended in the incinerator tank farm prior to being fed to the incinerator, although they may be directly fed without blending, or they may be blended with other wastes to yield a non-pumpable waste blend. Bulk non-pumpable wastes may be mixed with other waste in the Transload Building and then loaded into roll-off boxes for transfer to the Bulk Material Handling Building for feeding to the incinerator. Containerized waste in drums and other packaging is routed from the Bulk Material Handling Building to the incinerator by a powered conveyor system. As described in Section 5.1.5, the Bulk Material Handling Building has two additional waste feeds for the incinerator: one for ignitable materials (closed cup flash point less than 140 °F) and one for non-ignitable materials (closed cup flash point greater than or equal to 140 °F). Ignitable waste materials are fed to the incinerator via a ram feeder and the non-ignitable waste materials are fed to the incinerator using an apron conveyor feed system. Closure of the Bulk Material Handling Building and the Transload Building are addressed in Sections 5.1.5 and 5.1.6, respectively.

Under expected closure, all bulk solids remaining in the equipment will be removed and incinerated. As described in Section 5.1.1, handling and transfer equipment and surfaces may be decontaminated. After decontamination, equipment and structures may be abandoned in place or may be transferred for re-use or recycling (equipment that will continue in on-site hazardous waste service will not require prior decontamination, but will be flushed as necessary for safety and waste compatibility. Alternatively, equipment may be dismantled, treated as necessary to comply with the debris treatment standards, and disposed at an appropriate off-site landfill facility.

After all waste inventory destined for treatment by incineration has been fed to the incinerator, the incinerator will be operated to unload all ash from the kiln; the remaining ash from the conveyor and ash hopper will be discharged. The incinerator will then go through a minimum burnout period of 2 hours to incinerate any residual waste that may remain within the incinerator. After the incinerator is allowed to cool, any residual ash will be removed. In addition, refractory and residual slag will be removed from the kiln with pneumatic hammering devices or equivalent means. The ash, slag, and refractory will be stabilized, if needed, and disposed at an authorized landfill facility. Containment areas will be visually inspected for cracks and gaps to ensure no waste or waste residuals migrated into underlying soils. Final decontamination of the incinerator and associated equipment will be conducted as described in Sections 5.1.1 and 4.2.

The remaining scrubber liquids and sludge will be processed through the scrubber handling equipment. The liquids will be transferred to the on-site deepwell for disposal and the scrubber sludge will be stabilized, as necessary, and disposed at an authorized landfill facility. The bottom ash and scrubber sludge handling equipment will be decontaminated or disposed at an authorized landfill facility after treatment as necessary to meet the debris treatment standards. Flush water will be disposed in the on-site deepwell or appropriate off-site facility.

The packing media from the incinerator absorbers and cooling towers will be unloaded and disposed at an authorized landfill facility. All absorber and cooling tower equipment and associated paved containment areas will be decontaminated or disassembled and landfilled at an authorized facility using the procedures outlined in Section 4.2.

5.1.5 Bulk Material Handling Building

All suitable wastes authorized for receipt at the Port Arthur facility, except for listed dioxin/furan wastes, may be processed within the Bulk Material Handling Building. The Bulk Material Handling Building has two separate waste feed trains, one for ignitable materials (closed cup flash point less than 140 °F) and one for non-ignitable materials (closed cup flash point greater than or equal to 140 °F).

In the non-ignitable waste feed train, bulk solids are typically off-loaded into the Regular Waste Pit (6505-PT1) which has a nominal capacity of 753 cubic yards. Containerized waste to be bulked is typically staged in the South Container Staging Area on pallets. Pallets of containers are moved by forklift onto a conveyor, transferred from the conveyor to a drum lift, and hoisted via the drum lift to the shredder conveyor. The shredder conveyor feeds directly to Shredder 6525-V. Shredded materials discharge via a chute into the Regular Waste Pit. A remotely operated arm grapple can be used to mix waste in the Regular Waste Pit or to transfer wastes from the pit to a roll-off box which sits adjacent to the pit. A bridgecrane and clamshell serve as the primary means for transferring the waste feed mix to the apron conveyor which leads to the existing bulk solids feed chute at the kiln.

In the ignitable ("low-flash") waste feed train, bulk solids are typically unloaded into the Low-Flash Pit (6505-PT2), which has a nominal capacity of 146 cubic yards. The bulk material is fed to Shredder 6555-V, using a bridgecrane and clamshell dedicated to the low-flash feed train, for mixing with low-flash containerized waste in Blender 6560-V. Containerized waste is staged in the North Container Staging area on pallets for both direct drum feeding via the pre-existing ram feeder and feeding through the low-flash container conveying and shredding system. The conveying and shredding system is nearly identical to the system used for the non-ignitable waste feed train. Containers of low-flash waste are conveyed to the low-flash shredder (Shredder 6555-V) where they are sized and discharged to Blender 6560-V, although the shredded waste may alternatively be discharged to the Low-Flash Pit (6505-PT2). Blender 6560-V mixes the shredded waste with liquids (clean water, used motor oil, and/or pumpable waste from the tank farm) and sorbent materials, as necessary, to achieve the correct consistency for the ram feeder. The ram feeder feeds directly to the kiln face though a 10 inch pipe.

All waste inventory remaining within the building at the time of expected closure will be fed to the on-site incinerator. The processing units, transfer equipment, ancillary components and containment areas will be decontaminated, or they may be landfilled at an authorized facility after appropriate treatment is conducted, as specified in Section 4.2. The solvent decontamination liquids will be collected and incinerated on-site. The detergent decontamination water and rinse water will be collected and deepwelled on-site.

5.1.6 Transload Building

The Transload Building consists of a fully enclosed structure containing a concrete mixing pit and a covered truck ramp/access area. Two roll-up doors on the south side of the enclosed mixing pit area provide access for end dumps and roll-off containers to be off-loaded into or loaded from the pit. All waste operations, except loading into roll-off containers will occur within the mixing pit. The volume of the pit is nominally 72 cubic yards.

All suitable wastes authorized for receipt at the Port Arthur facility, except for listed dioxin/furan wastes, may be processed within the mixing pit in the Transload Building. However, as complete secondary containment is not provided for the pit in the current configuration, suitable wastes are limited to those wastes that do not contain free liquids. A Prentice arm and clam-bucket are used to blend and mix waste materials in the pit to develop a blend that may be suitable for feeding directly to the kiln through the Bulk Material Handling Building or that may require further processing in the Bulk Material Handling Building. Drums are not normally anticipated to be processed in the Transload Building mixing pit, but under some circumstances drum processing may be allowed. If this is the case, the Prentice arm and clam bucket will be used to crush the drum(s) in the mixing pit forcing the contents out of the drum(s) so that they can be blended with the other materials in the pit.

The Transload Building mixing pit area includes a basement that is 17 feet wide and extends the full length of the mixing pit. The basement houses former waste processing and transfer components consisting of an auger shredder and the lower end of the kiln feed conveyor. The conveyor system exits the basement via a concrete tunnel that is 12 feet wide, 8 feet high, and on an 18° incline. At the surface of the concrete on the east side of the building, the rectangular concrete tunnel transitions into a 10-foot diameter round steel housing that carries the conveyor system to the former shredder/transfer building. These former waste processing/transfer components and areas will be closed when the Transload Building mixing pit is closed.

All waste inventory remaining within the mixing pit at the time of expected closure will be fed to the on-site incinerator. The mixing pit and associated equipment will be decontaminated, or they may be landfilled at an authorized facility after appropriate treatment is conducted, as specified in Section 4.2. In addition, the former waste processing/transfer components and areas that were previously used to transfer waste to the former shredder/transfer building will be decontaminated, or they may be landfilled at an authorized facility after appropriate treatment is conducted, as specified in Section 4.2. The solvent decontamination liquids will be collected and incinerated on-site. The detergent decontamination water and rinse water will be collected and deepwelled on-site.

5.1.7 Associated Closure Activities

Throughout closure of the incinerator area, associated activities will be conducted. Site security will be maintained. Periodic inspections will be performed in accordance with the Inspection Plan. Maintenance activities determined to be necessary by the periodic inspections will be conducted. All recordkeeping and reporting related to operations, inspections, and maintenance and required by the permit will be performed.

5.1.8 Closure Schedule, Certification and Notices

Table 5-1 presents the closure schedule for the incinerator area. As shown, completion of closure of the incinerator area, including submittal of a certificate of closure, may require greater than 180 days, although physical closure is anticipated to be complete within 180 days of initiation of closure.

Within 60 days of completion of closure of any of the incinerator area units, a certification that the closure has been accomplished in accordance with the specifications of the approved closure plan will be submitted to the TCEQ by registered mail to facilitate certification of final facility closure. The certification will be signed by Veolia and an independent professional engineer registered in the State of Texas. A similar certification will be prepared and submitted to U.S.EPA, Region 6, in accordance with 40 CFR §761.65(e)(8).

5.2 DEEPWELL AREA

The surface units associated with the deepwell area consist of four tanks and a container storage building. No PCBs or incoming, listed dioxin/furan wastes are managed in these units. Residual dioxin/furan wastes (e.g., scrubber blowdown) will be managed in the deepwell tanks.

5.2.1 Deepwell Tanks

Four waste storage tanks (T-101A, T-101B, T-102, and T-201) are located at the deepwell area. These carbon steel tanks are used for processing and storage of aqueous wastes. Tanks T-101A, T-101B, and T-102 are each located inside a secondary containment tank. Secondary containment for Tank 201 is provided by an external steel shell around the tank supported by a concrete foundation. Portions of the tank have been re-constructed to include a new primary floor over the original tank floor supported by press lock grating.

Under expected closure, the tank contents will be removed and disposed in the on-site deepwell or at an appropriate off-site facility. Tanks T-101A, T-101B, T-102 and their associated secondary containment structures and ancillary equipment (pumps, piping, etc.) will be decontaminated and removed, or dismantled and landfilled in the same manner as described in Section 4.2. All concrete secondary containment areas associated with these tanks, including the unloading area, will be decontaminated as described in Section 4.2. These concrete structures will be left in place as a physical barrier to prevent human contact with any underlying potentially contaminated soils from historical releases that occurred in this area prior to construction of the concrete secondary containment structures in 1985. Tank T-201 and its associated secondary containment structures (both steel and concrete) and ancillary equipment will be decontaminated or dismantled and landfilled as described in Section 4.2.

The closure performance standard will be achieved for all tank closures as described in Section 4.2. Closure of the historical spills, leaks, and drips that occurred in the vicinity of tanks T-101A, T-101B, and T-102 and their associated filters and other ancillary equipment are discussed in Section 5.2.3.

5.2.2 Deepwell Container Storage Building

The deepwell container storage building may be used to store most authorized wastes; PCBs, listed dioxin/furan wastes and wastes with free liquids are not managed in the building. Bulk storage containers, such as roll-offs, and smaller containers, such as drums, may be stored in this unit.

As part of expected closure, the wastes located within the building will be landfilled or incinerated, as appropriate. The concrete and ancillary equipment associated with the deepwell container building will be decontaminated or landfilled in the same manner as described in Section 4.2. The closure performance standard will be achieved for either decontamination or flushing/landfilling as described in Section 4.2.

5.2.3 Historical Spills, Leaks, and Drips at Injection Well Surface Facilities Pad

Historical releases of waste to surface soils from incidental equipment leaks and drips and occasional spills occurred on the contained injection well surface facilities earthen pad prior to completion of the concrete secondary containment improvements in 1985. These surface releases occurred in the general vicinity of tanks T-101A, T-101B, and T-102 and their associated filters and ancillary equipment. These surface releases were reported to be minor in nature and all stormwater falling within the earthen bermed area was appropriately disposed via deepwell injection. The surface releases are underlain by approximately 18 feet of Beaumont clay have been covered by the concrete secondary containment structures since 1985.

The concrete secondary containment structures over this area have been inspected and maintained since their construction in 1985 and will continue to be inspected and maintained in accordance with the Inspection Plan (see Attachment III.D of this application) until closure of the deepwell surface facilities. These concrete structures not only serve as secondary containment for the surface facilities, but they are the primary mechanism for preventing human contact with any underlying potentially contaminated soils. Based on the minor nature of the historical surface releases and the thickness of underlying clay, it is not anticipated that these releases would have impacted groundwater. Nevertheless, any potential groundwater impacts are already being addressed by the on-going corrective action program being implemented under Veolia's compliance plan to monitor and remediate contaminated groundwater in the deepwell area (DW Area).

In accordance with 40 CFR §264.197(b), the historical release area will be closed in-place as a landfill with post-closure care when tanks T-101A, T-101B, and T-102 are closed. As discussed in Section 5.2.1, the concrete secondary containment structures associated with T-101A, T-101B, and T-102 and their associated piping, filters, and ancillary components will be left in place after decontamination. Soil sampling using soil borings, direct push, hand sampling, or other appropriate sampling techniques will be performed as part of the closure activities to confirm that impacted soils do not extend beyond the limits of the concrete secondary containment structures. The soil samples will be submitted for laboratory analysis of priority pollutant volatiles, priority pollutant base neutrals and acid extractables (semi-volatiles), and priority pollutant metals. Any impacted soils extending beyond the concrete secondary containment structures will be delineated laterally by comparing the analytical results of the collected soil samples to background values or appropriate risk-based levels specified in 30 TAC §350.

Approximately three feet of compacted clay-rich soil will be constructed over the decontaminated concrete secondary containment structures and any other areas of impacted soils identified during the delineation soil sampling activities. At least one foot of topsoil that is suitable to sustain vegetative growth will be placed over the compacted clay cap. The top soil will be seeded and fertilized to establish vegetative growth and minimize erosion of the final cover system. The final cover system will be constructed with appropriate materials and at slopes which will minimize stormwater erosion and infiltration and promote drainage throughout the post-closure care period.

The final cover system will extend at least 65 feet to the south of the centers of the tanks and cover the entire concrete unloading area. It will extend at least 65 feet west of the center of T-102 and at least 100 feet east of the center of T-101A so that the concrete entrance and exit to the unloading area are covered. The final cover system will extend at least 80 feet to the north of the centers of the tanks so that areas currently occupied by the piping, filters, and other ancillary components of these tanks are covered.

Closure of the injection well itself is addressed in a separate closure plan and governed by the terms of the UIC permit.

5.2.4 Closure Schedule, Certification and Notices

The closure timetable for the deepwell area is provided in Table 5-2. As shown, completion of closure of the deepwell area, including submittal of certification of closure, may require greater than 180 days, although physical closure is anticipated to be complete within 150 days of commencement of closure.

Within 60 days of completion of closure of any of the deepwell area units, a certification that the closure has been accomplished in accordance with the specifications of the approved closure plan will be submitted to the TCEQ by registered mail to facilitate certification of final facility closure. The closure certification will include as-built drawings of the constructed cover system and well as the supporting soil sampling delineation results. The certification will be signed by Veolia and an independent professional engineer registered in the State of Texas.

6.0 "WORST-CASE" CLOSURE DESCRIPTION

40 CFR §264.142(a) requires that an owner have a detailed written estimate of the cost of closing the facility in accordance with the applicable closure requirements of 40 CFR Part 264 and, further, that:

1) The estimate must equal the cost of final closure at the point in the facility's active life when the extent and manner of its operation would make closure the most expensive, as indicated by its closure plan;

2) The closure cost estimate must be based on the costs to the owner or operator of hiring a third party to close the facility. A third party is a party who is neither a parent nor a subsidiary of the owner or operator. The owner or operator may use costs for on-site disposal if he can demonstrate that on-site disposal capacity will exist at all times over the life of the facility;

3) The closure cost estimate may not incorporate any salvage value that may be realized with the sale of hazardous wastes, facility structures or equipment, land or other assets associated with the facility at the time of partial or final closure; and

4) The owner or operator may not incorporate a zero cost for hazardous waste that might have economic value.

40 CFR §761.65(f) requires PCB storage facilities to have a closure cost estimate meeting essentially the same criteria identified above.

TCEQ Technical Guide No. 10 specifies that the estimate of the cost for closure of an industrial solid waste facility be prepared on "worst-case" basis, which is defined as the cost of closing the facility by a third party in the event of sudden and total abandonment of the disposal site by the operator. The applicable basic assumptions for closure bonding as recommended by the TCEQ are:

1) All motorized equipment is inoperable;

2) All storage tanks are full;

3) Containerized waste storage areas are filled with the maximum number of waste containers;

4) A volume of contaminated water resulting from the total average rainfall of the wettest two consecutive months (12.41 inches for May and June; see Table 6-1) is contained in each uncovered secondary containment area; and

5) Facility components do not have a salvage value.

Facility components which are subject to closure and closure cost analysis include, storage tanks and areas, treatment tanks and equipment, drum and bulk storage areas and appurtenant structures (e.g., dikes and levees). The following sections describe the operational status of the facility when "worst-case" closure occurs and the condition of the facility components at that time.

6.1 FACILITY OPERATIONAL STATUS AT "WORST-CASE" CLOSURE

The time at which "worst-case" closure would occur is based on an analysis of the operational status of each unit during the life of the facility. The "worst-case" is controlled by the variable operational status of the incinerator and support area units and the deepwell area units. For "worst-case" closure, the incinerator and the deepwell are assumed to be inoperable.

6.2 STATUS OF FACILITY COMPONENTS AT "WORST-CASE" CLOSURE

Overall site "worst-case" closure scenario conditions include those listed in Section 6.0. Additional specific area assumptions are described below.

Specific assumptions for the incinerator and support areas at the time of "worst case" closure include:

1) All incinerator area tanks are full (all tanks contain wastes with 50 ppm PCBs or greater);

2) All incinerator facility pumps, motors, and fans are inoperable;

3) The bulk solids building contains unprocessed waste (containing greater than 50 ppm PCBs);

4) The container storage buildings contain their maximum, permitted volumes of containerized waste (with 25% of the waste containing greater than 50 ppm PCBs);

5) Building 46 includes 13,500 pounds of incoming, listed dioxin/furan wastes.

6) The rotary kiln is inoperable;

7) The scrubber water treatment system is inoperable and full of scrubber water and sludge;

8) A sealed, full 20 cy rolloff container is located at the ash dragout conveyor, and another is located at the dragline conveyor at the bottom of the SCC; and

9) All waste management units within the Bulk Material Handling Building are full to capacity with PCB-contaminated waste (all greater than 50 ppm PCBs), with the exception of the North and South Container Staging Areas that are full to capacity with 25% of the waste containing greater than 50 ppm PCBs.

For the deepwell facility, the following conditions will apply under the "worst-case" closure:

1) The injection well surface facility equipment is inoperable;

2) The injection well is inoperable;

3) The Deepwell Container Storage Building contains the maximum design capacity of LDR waste; and

4) All process/storage tanks are full (contents are aqueous waste amenable for deepwell injection).

6.3 INCINERATOR AND SUPPORT AREAS

This portion of the facility is authorized for management of PCBs. All waste inventory in these units, other than the container storage units, is assumed to contain greater than 50 ppm PCBs, and 25% of the waste inventory in container storage units having containment in accordance with 40 CFR 264.175(b) is assumed to contain greater than 50 ppm PCBs. Additionally, the waste stored inside Building 46 is assumed to include 13,500 pounds of incoming, listed dioxin/furan waste (the total amount for which authorization is being requested in this renewal/amendment application) .

As noted in Section 4.2.1.4, secondary containment structures only contain waste on an occasional and infrequent basis, after which the wastes and residues are removed and the structure is cleaned. Additionally, any spill or other release of PCB wastes is cleaned up in accordance with the Spill Cleanup Policy in Subpart G of 40 CFR Part 761, which generally requires cleanup within 24 hours of discovery. Consequently, little or no residual PCB contamination should exist within the secondary containment structures, and the PCB concentration of the decontamination waters from these containment structures is expected to be well below the 50 mg/L concentration that would subject these waters to regulation under 40 CFR Part 761.

6.3.1 Stand-Alone Container Storage Units

"Worst-case" closure of the container storage buildings and areas will, in general, require the same activities as described for expected closure in Section 5.1.2. The container storage units are assumed to be at maximum capacity, with 25% of the waste containing greater than 50 ppm PCBs (for Building 46 and its associated solids only area, all PCB waste inventory will be located within the building). The waste volume in Building 46 is also assumed to include 13,500 pounds of listed dioxin/furan wastes. The wastes from the container storage buildings and areas will be transported to an appropriate off-site facility for incineration. The detergent decontamination water and rinse water will also be disposed off-site at an appropriate deepwell facility.

Containment is not provided around the solids storage area associated with Building 46 within the east support area; therefore, stormwater will not accumulate in this area. All of the container storage buildings are protected by roof overhangs and/or curtain barriers over the entrance ways to prevent blown-in stormwater from entering these buildings.

6.3.2 Incinerator Area Tanks

All of the incinerator area tanks are assumed to be full of waste having greater than 50 ppm PCBs. The waste will be transported to an off-site facility for disposal by incineration. Under the worst-case closure scenario, the tanks will be decontaminated as described in Sections 4.2.1.1 and 4.2.1.2 using solvent for PCB decontamination followed with a detergent rinse and a water/steam rinse. The smaller ancillary equipment will be decontaminated or disposed at an authorized landfill after flushing. It is anticipated that the tanks and other structures will be abandoned after decontamination. The solvent decontamination liquids will be transported to an off-site facility for disposal by incineration. The stormwater, detergent decontamination water, and rinse water will also be disposed off-site at a deepwell facility. Since the tanks will have been decontaminated using the self-implementing decontamination procedure under 40 CFR 761.79(c) prior to RCRA decontamination, the RCRA decontamination waters do not represent potential TSCA-regulated materials.

6.3.3 Incinerator Train

Under the worst-case closure scenario, closure activities for the incinerator train will proceed as outlined in Section 5.1.4 for the expected closure activities. The “worst case” assumptions for the incinerator train are listed in Section 6.2. The wastes will be transported to an off-site facility for disposal by incineration. Wastes that are assumed to require stabilization prior to landfilling, including all incinerator ash and clarifier sludge, will be transported to the CWM facility in Lake

Charles, Louisiana for stabilization and disposal at the landfill. In addition, any residual ash, slag, contaminated refractory, and scrubber sludge will be removed, stabilized, and disposed at this landfill facility. Scrubber water and stormwater will be transported to an off-site facility for deepwell disposal. The surfaces and ancillary equipment will be PCB decontaminated, as applicable, followed with a detergent rinse and a final clean water rinse. Following decontamination, the structures will be abandoned in-place. Ancillary equipment will be decontaminated and abandoned in place or disposed at an authorized landfill. The solvent decontamination liquids will be transported to an off-site facility for disposal by incineration. The detergent decontamination water and rinse water will also be disposed off-site at a deepwell facility.

6.3.4 Bulk Materials Handling Building

"Worst-case" closure of the Bulk Materials Handling Building will, in general, require the same activities described for expected closure in Section 5.1.5. However, under "worst-case" closure, all units within the building are assumed to be full. A full 20 cubic yard roll-off container is assumed to be present within the transfer bay. All of the waste is assumed to contain PCB-contaminated waste, with the exception of the North and South Container Staging Areas that have 25% of the waste containing greater than 50 ppm PCBs. As the on-site incinerator is assumed to be inoperable, the wastes will be transported to an off-site facility for disposal by incineration. No stormwater will accumulate in the secondary containment areas since the building is roofed with walls and all open entrances are protected by roof overhangs.

Decontamination procedures for the units and surfaces will be as described in Section 4.2. In the worst-case closure scenario, all equipment will be abandoned in-place after decontamination. The solvent decontamination liquids will be transported to an off-site facility for disposal by incineration. The detergent decontamination water and rinse water will also be disposed off-site at a deepwell facility.

6.3.5 Transload Building

"Worst-case" closure of the Transload Building will, in general, require the same activities described for expected closure in Section 5.1.6. However, under "worst-case" closure, the mixing pit is assumed to be full of PCB-contaminated waste. As the on-site incinerator is assumed to be inoperable, the wastes will be transported to an off-site facility for disposal by incineration. No stormwater will accumulate in any containment areas since the building is completely enclosed with roll-up doors.

Decontamination of the mixing pit and other equipment and surfaces in the building will be performed as described in Section 4.2. However, the worst-case costs also assume that it will be necessary to remove 1-inch of surface concrete from the walls and bottom of the pit to complete decontamination. The former waste processing/transfer components and areas located in the basement and conveyor tunnel/steel housing associated with this building will also be decontaminated as described in Section 4.2. In the worst-case closure scenario, all equipment will be abandoned in-place after decontamination. The solvent decontamination liquids will be transported to an off-site facility for disposal by incineration. The detergent decontamination water and rinse water will also be disposed off-site at a deepwell facility. The concrete dust and debris removed from the mixing pit will be transported to an off-site facility for disposal by incineration.

6.4 DEEPWELL AREA

Under "worst case" conditions, the tanks are full of waste and the Deepwell Container Storage Building is at the maximum capacity. No PCBs or listed dioxin/furan wastes are managed in this portion of the facility. The tanks and the container storage building are full. The waste will be transported to an off-site facility for disposal by incineration. A salt box will be present in the deepwell area and will be full of arsenic waste; this waste will be transported to an appropriate off-site disposal facility. The stormwater accumulated in the containment areas will be deepwelled off-site.

The tanks, ancillary equipment, and secondary containment structures will be decontaminated as described in Section 4.2. The rinsates will also be deepwelled off-site. Tanks T-101A, T-101B, and T-102 and their associated secondary containment tanks and components will be removed after decontamination and relocated on-site. However, their associated concrete pads will be left in place. Delineation soil sampling will be performed as described in Section 5.2.3 to ensure impacted soils to not extend beyond the concrete secondary containment structures.

Three feet of compacted clay-rich soil will be placed over the decontaminated concrete pads in the general area of tanks T-101A, T-101B, and T-102 and their associated filters and ancillary components, including any impacted soils identified during the delineation sampling activities; a foot of topsoil, suitable for sustaining vegetation, will be placed over the clay layer, and seeded and fertilized. The area of the final cover system is the same area described under expected closure in Section 5.2.3.

6.5 "WORST-CASE" CLOSURE CERTIFICATION AND NOTICES

Within 60 days of completion of closure of the facility, certification(s) that the units have been closed in accordance with the specifications of the approved closure plan will be submitted to the TCEQ by registered mail. The certification(s) will be signed by Veolia and an independent professional engineer registered in the State of Texas. Documentation of proper closure, including test results and measurements, will be provided. A similar certification will be prepared for TSCA units and will be submitted to U.S.EPA, Region 6, in accordance with 40 CFR §761.65(e)(8).

7.0 CLOSURE COST ESTIMATE

Closure cost estimates are presented on a unit-specific basis in Tables VII.B.1 through VII.B.3. Where appropriate, waste management units within the same secondary containment area have been grouped together for estimating a "unit" closure cost for a single containment area. Closure cost estimates for the support facilities area are included with the cost estimates for the associated waste management unit(s) as detailed on Tables VII.B.1 through VII.B.3. Cost items are based on 2016 dollars and have been adjusted to 2017 dollars using a TCEQ-supplied inflation factor of 1.8%.

A summary of the estimated closure cost for the Veolia Port Arthur Facility is presented in Table VII.E.1. Details of the closure cost factor and cost estimate calculations are included in Appendix VII.A.1.

8.0 FINAL FACILITY CLOSURE

Closure of all incinerator and support area units and deepwell area surface units represents final closure of the facility under RCRA. (Final closure of the commercial PCB storage and treatment facility will have occurred upon closure of the incinerator and associated storage and processing units). Within 60 days of completion of closure of final closure, a certification that the facility has been closed in accordance with the specifications of the approved closure plan will be submitted to the TCEQ by registered mail. The certification will be signed by Veolia and an independent professional engineer registered in the State of Texas. Documentation of proper closure, including test results and measurements, will be maintained and provided upon request of the Executive Director in accordance with 40 CFR §264.115.

TABLES

TABLE 2-1

DISPOSITION OF INCINERATOR AND SUPPORT AREA UNITS AND ASSOCIATED EQUIPMENT AT "WORST-CASE" CLOSURE

COMPONENT	QUANTITY	WASTE CAPACITY	APPLICABLE REGULATORY PROGRAM AND DISPOSITION AT "WORST-CASE" CLOSURE
STAND-ALONE CONTAINER STORAGE UNITS			
Container Storage Building	1	556 cy	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place
Ash Container Storage Building	1	238 cy	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place.
Stabilization Container Storage Building	1	1,609 cy	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place.
Building 46 and Associated Solids Storage Area	1	2,887 cy, including 13,500 lbs of dioxin/furan waste.	RCRA and TSCA closure (Solids Area is RCRA only). Contents to authorized incinerator; decontaminate; abandon in place.
Truck and Container Storage Building	1	1,009 cy	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place.
Truckwash and Process Support Building	1	46.7 cy	RCRA and TSCA closure. Contents to authorized incinerator; washwater to authorized deepwell; decontaminate, abandon in place.

TABLE 2-1

DISPOSITION OF INCINERATOR AND SUPPORT AREA UNITS AND ASSOCIATED EQUIPMENT AT "WORST-CASE" CLOSURE

COMPONENT	QUANTITY	WASTE CAPACITY	APPLICABLE REGULATORY PROGRAM AND DISPOSITION AT "WORST-CASE" CLOSURE
STORAGE TANKS			
Energetic/Aqueous Holding Tanks (T-521, T-522, T-523, T-524)	4	103,100 gal (each tank)	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place.
Energetic Liquids Storage Tanks (T-509, T-510, T-511A, T-512, T-513, T-551, T-552, T-553)	8	17,700 gal (each tank)	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place.
Aqueous Liquids Storage Tanks (T-514, T-515, T-516, T-550)	4	25,000 gal (each tank)	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place.
Sludge Storage Tanks (T-501, T-502, T-503, T-504, T-505, T-506, T-507, T-508)	8	10,200 gal (each)	RCRA and TSCA closure. Contents to authorized incinerator, decontaminate, abandon in place
Truck Wash Storage Tanks (T-535, T-536)	2	5,500 gal (each)	RCRA and TSCA closure. Contents to authorized incinerator, decontaminate, abandon in place
Ancillary Components (pumps, piping, small equipment, etc.)	---	---	RCRA and TSCA closure. Decontaminate and abandon in place; smaller items may be flushed and disposed in an authorized landfill.
INCINERATOR TRAIN			
Non-Ignitable Waste Apron Conveyor Feed System	1	12 cy	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place.

TABLE 2-1

DISPOSITION OF INCINERATOR AND SUPPORT AREA UNITS AND ASSOCIATED EQUIPMENT AT "WORST-CASE" CLOSURE

COMPONENT	QUANTITY	WASTE CAPACITY	APPLICABLE REGULATORY PROGRAM AND DISPOSITION AT "WORST-CASE" CLOSURE
Containerized Waste Conveyor Feed System	1	56 - 55 gal drums	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place.
Ignitable Waste Ram Feed System	1	3 cy	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place.
Rotary Kiln	1	70 cubic yards	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place.
Ash Removal Conveyors and Containers	1	50 cy	RCRA closure. Contents to authorized landfill (waste to be stabilized); decontaminate, abandon in place.
Secondary Combustion Chamber	1	7,217 gal liquids and 31 cy solids	RCRA closure. Liquids to authorized injection well; solids to authorized landfill (waste must be stabilized); decontaminate and abandon in place
Quench Tower	1	3,949 gal liquids and 7 cy solids	RCRA closure. Liquids to authorized injection well; solids to authorized landfill (waste must be stabilized); decontaminate, abandon in place.
Quench Box	1	2,940 gal liquids and 5 cy solids	RCRA closure. Liquids to authorized injection well; solids to authorized landfill (waste must be stabilized); decontaminate, abandon in place.

TABLE 2-1

DISPOSITION OF INCINERATOR AND SUPPORT AREA UNITS AND ASSOCIATED EQUIPMENT AT "WORST-CASE" CLOSURE

COMPONENT	QUANTITY	WASTE CAPACITY	APPLICABLE REGULATORY PROGRAM AND DISPOSITION AT "WORST-CASE" CLOSURE
Absorbers	2	6,762 gal liquids and 42 cy packing (each)	RCRA closure. Liquids to authorized injection well; packing to authorized landfill; decontaminate, abandon in place.
Cooling Towers	4	7,899 gal liquids and 34 cy packing (each)	RCRA closure. Liquids to authorized injection well; packing to authorized landfill; decontaminate, abandon in place.
Clarifiers and Filter Vessels	3 Clarifiers 2 Surge Tanks	8,000 gal (each) 10,200 gal	RCRA closure. Liquids to authorized injection well; sludge to authorized landfill (to be stabilized); decontaminate, abandon in place.
Filter Presses	2	4 cy (each)	RCRA closure. Solids to authorized landfill (waste will be stabilized); decontaminate and abandon in place.
Sludge Tank	1	1,000 gal	RCRA closure. Sludge to authorized landfill (to be stabilized); decontaminate and abandon in place.
Scrubbers	8	8,000 gal liquids and 40 cy packing (each)	RCRA closure. Liquids to authorized injection well; packing to authorized landfill; decontaminate and abandon in place.

TABLE 2-1

DISPOSITION OF INCINERATOR AND SUPPORT AREA UNITS AND ASSOCIATED EQUIPMENT AT "WORST-CASE" CLOSURE

COMPONENT	QUANTITY	WASTE CAPACITY	APPLICABLE REGULATORY PROGRAM AND DISPOSITION AT "WORST-CASE" CLOSURE
Wet Electrostatic Precipitator	1	1,900 gal liquids	RCRA closure. Liquids to authorized injection well; decontaminate and abandon in place.
BULK MATERIALS HANDLING BUILDING			
Regular Waste Pit	1	753 cy	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place.
Reloading Area Roll-off Box	1	20 cy	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place.
South Container Staging Area	1	43 cy (160 55-gal drums)	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place.
Non-Ignitable Waste Shredder and Feed Hopper	1	21 cy	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place.
Low-flash Pit	1	146 cy	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place.
North Container Staging Area	1	52 cy (192 55-gal drums)	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place.
Ignitable Waste Shredder and Feed Hopper	1	21 cy	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place.

TABLE 2-1

DISPOSITION OF INCINERATOR AND SUPPORT AREA UNITS AND ASSOCIATED EQUIPMENT AT "WORST-CASE" CLOSURE

COMPONENT	QUANTITY	WASTE CAPACITY	APPLICABLE REGULATORY PROGRAM AND DISPOSITION AT "WORST-CASE" CLOSURE
Blender	1	22 cy	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place.
Blender	1	22 cy	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place.
TRANSLOAD BUILDING			
Mixing Pit and Former Waste Processing/Transfer Components in Basement	1	72 cy	RCRA and TSCA closure. Contents to authorized incinerator; decontaminate; abandon in place.

TABLE 2-2

DISPOSITION OF DEEPWELL AREA UNITS AND EQUIPMENT AT "WORST-CASE" CLOSURE

COMPONENT	QUANTITY	WASTE CAPACITY	DISPOSITION AT "WORST-CASE" CLOSURE
DEEPWELL CONTAINER STORAGE UNITS			
Deepwell Container Storage Building	1	120 cy	Contents to authorized incinerator; decontaminate and relocate building structure on-site.
DEEPWELL TANKS			
Storage Tanks (T-101A, T-101B, & T-102)	3	302,000 gal (each)	Contents to authorized injection well; decontaminate and relocate on-site.
Storage Tank (T-201)	1	999,256 gal	Contents to authorized injection well; decontaminate and relocate on-site; steel containment can remain in-place after decontamination.
5-Micron Filters (F-102A & F-102B)	2	3 cy (each)	Contents to authorized landfill; decontaminate and relocate on-site.
1 - Micron Filters (F-103A & F-103B)	2	3 cy (each)	Contents to authorized landfill; decontaminate and relocate on-site.
Carbon Filters	10	55 gal (each)	Contents to authorized landfill; decontaminate and relocate on-site.
Ancillary Equipment (pumps, piping)	---	---	Contents to authorized injection well; decontaminate and relocate on-site; smaller equipment may be flushed and disposed at authorized landfill.

NOTE: All units and equipment associated with the deepwell manage RCRA wastes only.

TABLE 4-1

TIMETABLE FOR TANK CLOSURE BY DECONTAMINATION AND ASSOCIATED ACTIVITIES

	CLOSURE ACTIVITY	DAYS FROM RECEIPT OF FINAL WASTE VOLUME
1.	Removal of hazardous wastes	0 - 15
2.	Decontamination of tank	15 - 30
3.	Disposition of associated piping and equipment (see text)	15 - 45
4.	Decontamination of secondary containment structures, as appropriate (see text)	15 - 45
5.	Inspections by a professional engineer (at periodic intervals to document activities)	15 - 45
6.	Laboratory analysis of rinse water samples (for decontamination)	15 - 90
7.	Additional decontamination, if required	90 - 105
8.	Inspections by a professional engineer (at periodic intervals to document activities)	90 - 105
9.	Laboratory analysis of rinse water samples (for additional decontamination)	105 - 150
10.	Certification of closure	210

TABLE 4-2

TIMETABLE FOR TANK CLOSURE BY LANDFILLING AND ASSOCIATED ACTIVITIES

	CLOSURE ACTIVITY	DAYS FROM RECEIPT OF FINAL WASTE VOLUME
1.	Removal of hazardous wastes	0 - 15
2.	Flushing of tank and associated piping, equipment and secondary containment structures, as appropriate (see text)	15 - 30
3.	Disassembly of tank and shipment to authorized hazardous waste landfill and disposition of associated piping, equipment and secondary containment structures, as appropriate (see text)	30 - 45
4.	Decontamination of secondary containment structures, as appropriate (see text)	45 - 60
5.	Inspections by a professional engineer (at periodic intervals to document activities)	15 - 60
6.	Laboratory analysis of rinse water samples (for decontamination)	45 - 105
7.	Additional decontamination if required	105 - 120
8.	Inspections by a professional engineer (at periodic intervals to document activities)	105 - 120
9.	Laboratory analysis of rinse water samples (for additional decontamination)	120 - 165
10.	Certification of closure	225

TABLE 5-1

CLOSURE TIMETABLE
INCINERATOR AND SUPPORT AREAS

	CLOSURE ACTIVITY	DAYS FROM COMMENCEMENT OF CLOSURE ACTIVITIES
1.	Transport remaining waste materials and residues from waste storage tanks, trucks, handling equipment, and containerized wastes for incineration or landfilling, as appropriate.	0 - 15
2.	Unload ash from incinerator kiln; discharge remaining ash from conveyor and ash hopper; cool (if needed) incinerator and air control train; and process remaining scrubber liquids and sludge equipment.	15 - 30
3.	Unload packing media from absorbers and cooling towers; and transfer of all solids to an authorized landfill for disposal.	20 - 30
4.	Transfer all thermally treated waste to an approved landfill facility for stabilization and/or disposal.	20 - 40
5.	Decontaminate, as applicable, tanks and associated pumps and piping; bulk solids building; bulk materials handling building structure, mixing equipment, shredders, blender, conveyors, and container handling equipment; container storage buildings; emission control equipment; and truck wash facility equipment.	15 - 45
6.	Collect and transfer decontamination liquids from all facilities and scrubber liquids from scrubber sludge handling equipment to an authorized landfill or injection well, as appropriate for disposal.	45 - 90

TABLE 5-1 - continued

CLOSURE TIMETABLE
INCINERATOR AND SUPPORT AREAS

	CLOSURE ACTIVITY	DAYS FROM COMMENCEMENT OF CLOSURE ACTIVITIES
7.	Dismantle pumps, piping, tank structures, bulk solids feed equipment, container handling equipment, truck wash facility equipment, emission control equipment, and scrubber sludge handling equipment and transfer to an authorized landfill for disposal.	15 - 90
8.	Decontaminate paved surfaces, dispose decontamination liquids at an authorized incinerator or deepwell, as appropriate.	20 - 90
9.	Analyze decontamination water	30 - 135
10.	Conduct additional decontamination, if required.	75 - 140
11.	Analyze additional decontamination water samples, if required.	105 - 180
12.	Completion of physical closure	180
13.	Certification of closure	180 - 240

Note: Inspection will be made by a professional engineer at periodic intervals throughout days 15 through 90 (and 90 through 140 if additional decontamination is required) to document closure activities.

TABLE 5-2

CLOSURE TIMETABLE
DEEPWELL AREA

	CLOSURE	DAYS FROM RECEIPT OF FINAL WASTE VOLUME
1.	Removal and disposal of remaining waste	0 - 15
2.	Decontamination, flushing, sampling, dismantling and removal of process equipment and tanks	25 - 100
3.	Inspection by Professional Engineer (at periodic intervals to document activities)	15 - 90
4.	Decontamination, flushing of concrete containment areas	45 - 120
5.	Discharge/disposal of stormwater	0 - 120
6.	Placement of soil cover system, vegetation	100 - 150
7.	Final maintenance activities	140 - 150
8.	Inspections by Professional Engineer (at periodic intervals to document activities)	90 - 150
9.	Certification of closure	150 - 210

TABLE 6-1

AVERAGE MONTHLY RAINFALL
PORT ARTHUR, TEXAS*

MONTH	RAINFALL (in)
January	5.69
February	3.35
March	3.75
April	3.84
May	5.83
June	6.58
July	5.23
August	4.85
September	6.10
October	4.67
November	4.75
December	5.25

* Obtained from Climatology of the U.S., #84, National Oceanic and Atmospheric Administration, U.S. Department of Commerce. Rainfall period of record: 1971 through 2000.

TABLE VII.B.1 UNIT CLOSURE COST ESTIMATE: INCINERATOR AREA

Task	Cost
Incinerator Area: Energetic/Aqueous Holding Tanks (T-521, T-522, T-523, and T-524)	
Task 1 - Disposal of Waste Inventory	
• PCB Bulk Liquids - Incineration (412,400 gal x $3.94/gal)	$1,624,856
Task 2 - Disposal of Stormwater	
• Characterization of Stormwater (2 sample x $380/sample)	$760
• Stormwater Disposal - Deepwell (78,903 gal x $0.624/gal)	$49,235
Task 3 - Tank Decontamination	
• Solvent Rinse (20,620 gal x $1.53/gal)	$31,549
• Detergent Wash (10,310 gal x $0.05/gal)	$516
• Clean Water Rinse (41,240 gal x $0.0054/gal)	$223
• Disposal of Decon Solvent - Incineration (20,620 gal x $1.18/gal)	$24,332
• Disposal of Decon H_2O - Deepwell (51,550 gal x $0.624/gal)	$32,167
Task 4 - Secondary Containment Decontamination	
• Detergent Wash (4,769 gal x $0.05gal)	$238
• Clean Water Rinse (4,769 gal x $0.0054/gal)	$26
• Disposal of Decon H_2O (9,538 gal x $0.624/gal)	$5,952
Task 5 - Laboratory Verification	
• Rinsate Verification Analysis (6 samples x $293.50/sample)	$1,761
• PCB Core Sampling and Analysis (8 samples x $129.84/sample)	$1,039
Task 6 - Direct Labor and Equipment	
• Two-Man Cleaning Crew (20 days x $827/day)	$16,540
• Equipment (20 days x $831/day)	$16,620
Task 7 - Certification (includes rinate verification sampling time)	
• Technician (56 hrs x $55/hr)	$3,080
• Engineer (28 hrs x $145/hr)	$4,060
subtotal	$1,812,953
Contingency (10%)	$181,295
Total Unit Closure Cost	$1,994,248 (2016)
Closure Cost - Each Tank	$498,562 (2016)
1.8% Inflation Adjustment, 2016 to 2017 Dollars (See Note 1)	$8,974
Closure Cost - Each Tank	$507,536 (2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.1 UNIT CLOSURE COST ESTIMATE: INCINERATOR AREA

Task	Cost
Incinerator Area: Energetic Liquids Storage Tanks (T-509, T-510, T-511A, T-512, T-513, T-551, T-552, and T-553)	
Task 1 - Disposal of Waste Inventory	
• PCB Bulk Liquids - Incineration (141,600 gal x $3.94/gal)	$557,904
Task 2 - Disposal of Stormwater	
• Characterization of Stormwater (1 sample x $380/sample)	$380
• Stormwater Disposal - Deepwell (41,540 gal x $0.624/gal)	$25,921
Task 3 - Tank Decontamination	
• Solvent Rinse (3,540 gal x $1.53/gal)	$5,416
• Detergent Wash (1,770 gal x $0.05/gal)	$89
• Clean Water Rinse (14,160 gal x $0.0054/gal)	$76
• Disposal of Decon Solvent - Incineration (3,540 gal x $1.18/gal)	$4,177
• Disposal of Decon H_2O - Deepwell (15,930 gal x $0.624/gal)	$9,940
Task 4 - Secondary Containment Decontamination	
• Detergent Wash (2,511 gal x $0.05gal)	$126
• Clean Water Rinse (2,511 gal x $0.0054/gal)	$14
• Disposal of Decon H_2O - Deepwell (5,022 gal x $0.624/gal)	$3,134
Task 5 - Laboratory Verification	
• Rinsate Verification Analysis (9 samples x $293.50/sample)	$2,642
• PCB Core Sampling and Analysis (4 samples x $129.84/sample)	$519
Task 6 - Direct Labor and Equipment	
• Two-Man Cleaning Crew (16.1 days x $827/day)	$13,315
• Equipment (16.1 days x $831/day)	$13,379
Task 7 - Certification (includes rinate verification sampling time)	
• Technician (50 hrs x $55/hr)	$2,750
• Engineer (25 hrs x $145/hr)	$3,625

subtotal	$643,406	
Contingency (10%)	$64,341	
Total Unit Closure Cost	$707,747	(2016)
Closure Cost - Each Tank	$88,468	(2016)
1.8% Inflation Adjustment, 2016 to 2017 Dollars (See Note 1)	$1,592	
Closure Cost - Each Tank	$90,060	(2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.1 UNIT CLOSURE COST ESTIMATE: INCINERATOR AREA

Task	Cost
Incinerator Area: Aqueous Liquids Storage Tanks (T-514, T-515, T-516, and T-550)	
Task 1 - Disposal of Waste Inventory	
• PCB Bulk Liquids - Incineration (100,000 gal x $3.94/gal)	$394,000
Task 2 - Disposal of Stormwater	
• Characterization of Stormwater (1 sample x $380/sample)	$380
• Stormwater Disposal - Deepwell (29,859 gal x $0.624/gal)	$18,632
Task 3 - Tank Decontamination	
• Solvent Rinse (5,000 gal x $1.53/gal)	$7,650
• Detergent Wash (2,500 gal x $0.05/gal)	$125
• Clean Water Rinse (10,000 gal x $0.0054/gal)	$54
• Disposal of Decon Solvent - Incineration (5,000 gal x $1.18/gal)	$5,900
• Disposal of Decon H_2O - Deepwell (12,500 gal x $0.624/gal)	$7,800
Task 4 - Secondary Containment Decontamination	
• Detergent Wash (1,805 gal x $0.05/gal)	$90
• Clean Water Rinse (1,805 gal x $0.0054/gal)	$10
• Disposal of Decon H_2O - Deepwell (3,610 gal x $0.624/gal)	$2,253
Task 5 - Laboratory Verification	
• Rinsate Verification Analysis (5 samples x $293.50/sample)	$1,468
• PCB Core Sampling and Analysis (4 samples x $129.84/sample)	$519
Task 6 - Direct Labor and Equipment	
• Two-Man Cleaning Crew (9.8 days x $827/day)	$8,105
• Equipment (9.8 days x $831/day)	$8,144
Task 7 - Certification (includes rinate verification sampling time)	
• Technician (34 hrs x $55/hr)	$1,870
• Engineer (17 hrs x $145/hr)	$2,465

subtotal	$459,464	
Contingency (10%)	$45,946	
Total Unit Closure Cost	$505,410	(2016)
Closure Cost - Each Tank	$126,353	(2016)
1.8% Inflation Adjustment, 2016 to 2017 Dollars (See Note 1)	$2,274	
Closure Cost - Each Tank	$128,627	(2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.1 UNIT CLOSURE COST ESTIMATE: INCINERATOR AREA

Task	Cost
Incinerator Area: Sludge Storage Tanks (T-501, T-502, T-503A, T-504, T-505, T-506, T-507 and T-508)	
Task 1 - Disposal of Waste Inventory	
• PCB Bulk Sludges - Incineration (81,600 gal x $8.99/gal)	$733,584
Task 2 - Disposal of Stormwater	
• Characterization of Stormwater (1 sample x $380/sample)	$380
• Stormwater Disposal - Deepwell (39,583 gal x $0.624/gal)	$24,700
Task 3 - Tank Decontamination	
• Solvent Rinse (2,040 gal x $1.53/gal)	$3,121
• Detergent Wash (1,020 gal x $0.05/gal)	$51
• Clean Water Rinse (8,160 gal x $0.0054/gal)	$44
• Disposal of Decon Solvent - Incineration (2,040 gal x $1.18/gal)	$2,407
• Disposal of Decon H_2O - Deepwell (9,180 gal x $0.624/gal)	$5,728
Task 4 - Secondary Containment Decontamination	
• Detergent Wash (2,393 gal x $0.05/gal)	$120
• Clean Water Rinse (2,393 gal x $0.0054/gal)	$13
• Disposal of Decon H_2O - Deepwell (4,786 gal x $0.624/gal)	$2,986
Task 5 - Laboratory Verification	
• Rinsate Verification Analysis (9 samples x $293.50/sample)	$2,642
• PCB Core Sampling and Analysis (4 samples x $129.84/sample)	$519
Task 6 - Direct Labor and Equipment	
• Two-Man Cleaning Crew (13 days x $827/day)	$10,751
• Equipment (13 days x $831/day)	$10,803
Task 7 - Certification (includes rinate verification sampling time)	
• Technician (42 hrs x $55/hr)	$2,310
• Engineer (21 hrs x $145/hr)	$3,045
subtotal	$803,204
Contingency (10%)	$80,320
Total Unit Closure Cost	$883,525 (2016)
Closure Cost - Each Tank	$110,441 (2016)
1.8% Inflation Adjustment, 2016 to 2017 Dollars (See Note 1)	$1,988
Closure Cost - Each Tank	$112,429 (2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.1 UNIT CLOSURE COST ESTIMATE: INCINERATOR AREA

Task	Cost
Incinerator Area: Truck Wash Tanks (T-535 and T-536)	
Task 1 - Disposal of Waste Inventory	
• PCB Bulk Liquids - Incineration (11,000 gal x $3.94/gal)	$43,340
Task 2 - Disposal of Stormwater	
• Characterization of Stormwater (1 sample x $380/sample)	$380
• Stormwater Disposal - Deepwell (10,327 gal x $0.624/gal)	$6,444
Task 3 - Tank Decontamination	
• Solvent Rinse (1,100 gal x $1.53/gal)	$1,683
• Detergent Wash (550 gal x $0.05/gal)	$28
• Clean Water Rinse (1,100 gal x $0.0054/gal)	$6
• Disposal of Decon Solvent - Incineration (1,100 gal x $1.18/gal)	$1,298
• Disposal of Decon H_2O - Deepwell (1,650 gal x $0.624/gal)	$1,030
Task 4 - Secondary Containment Decontamination	
• Detergent Wash (625 gal x $0.05/gal)	$31
• Clean Water Rinse (625 gal x $0.0054/gal)	$3
• Disposal of Decon H_2O - Deepwell (1,250 gal x $.624/gal)	$780
Task 5 - Laboratory Verification	
• Rinsate Verification Analysis (3 samples x $293.50/sample)	$881
• PCB Core Sampling and Analysis (2 samples x $129.84/sample)	$260
Task 6 - Direct Labor and Equipment	
• Two-Man Cleaning Crew (2.6 days x $827/day)	$2,150
• Equipment (2.6 days x $831/day)	$2,161
Task 7 - Certification (includes rinate verification sampling time)	
• Technician (18 hrs x $55/hr)	$990
• Engineer (9 hrs x $145/hr)	$1,305
subtotal	$62,769
Contingency (10%)	$6,277
Total Unit Closure Cost	$69,046 (2016)
Closure Cost - Each Tank	$34,523 (2016)
1.8% Inflation Adjustment, 2016 to 2017 Dollars (See Note 1)	$621
Closure Cost - Each Tank	$35,144 (2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.1 UNIT CLOSURE COST ESTIMATE: INCINERATOR AREA

Task	
Incinerator Area: Incinerator Train	
Task 1 - Disposal of Waste Inventory	
• PCB Bulk Solids, w/ solids loading - Incineration (85 cy x $1471.94/cy)	$125,115
• PCB Drummed Solids - Incineration (28 drums x $1,476.12/drum)	$41,331
• PCB Drummed Liquids - Incineration (28 drums x $718.31 /drum)	$20,113
• Residual D/F wastes, w/solids loading - Stabilize and LF (101 cy x $348.52/cy)	$35,201
• Contaminated Water - Deepwell (158,306 gal x $0.624/gal)	$98,783
• Contaminated Sludges - Stabilize and Landfill (2,020 gal x $1.90/gal)	$3,838
• Contaminated APCS Packing Media - Non-Haz Direct LF (541 cy x $89.77/cy)	$48,566
Task 2 - Disposal of Stormwater	
• SW Characterization [(1 sample x $380/sample) + (1 sample x $330/sample)]	$710
• Disposal of Stormwater - Deepwell (217,471 gal x $0.624/gal)	$135,702
Task 3 - Decontamination of Equipment and Vessels	
• Solvent Rinse (131 gal x $1.53/gal)	$200
• Detergent Wash (37,394 gal x $0.05/gal)	$1,870
• Clean Water Rinse (64,211 gal x $0.0054/gal)	$347
• Disposal of Decon Solvent - Incineration (131 gal x $1.18/gal)	$155
• Disposal of Decon H_2O - Deepwell (101,605 gal x $0.624/gal)	$63,402
• Stabilize and Dispose of Residual Ash, Slag, and Refractory (40 cy x $348.52)	$13,941
Task 4 - Decontamination of Secondary Containment	
• Detergent Wash (13,538 gal x $0.05/gal)	$677
• Clean Water Rinse (13,538 gal x $0.0054/gal)	$73
• Disposal of Decon H_2O - Deepwell (27,076 gal x $0.624/gal)	$16,895
Task 5 - Laboratory Verification	
• Rinsate Verification Analysis - Non-D/F Area (3 samples x $293.50/sample)	$881
• Rinsate Verification Analysis - D/F Area (33 samples x $613.50/sample)	$20,246
• PCB Core Sampling and Analysis (6 samples x $129.84/sample)	$779
Task 6 - Direct Labor and Equipment	
• Two-Man Cleaning Crew (35.5 days x $827/day)	$29,359
• Equipment (35.5 days x $831/day)	$29,501
Task 7 - Certification (includes rinate verification sampling time)	
• Technician (109 hrs x $55/hr)	$5,995
• Engineer (54.5 hrs x $145/hr)	$7,903

subtotal	$701,579	
Contingency (10%)	$70,158	
Total Unit Closure Cost	$771,736	(2016)
1.8% Inflation Adjustment, 2016 to 2017 Dollars (See Note 1)	$13,891	
Total Unit Closure Cost	$785,627	(2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018: https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.1 UNIT CLOSURE COST ESTIMATE: INCINERATOR AREA

Task	Cost
Incinerator Area: Container Storage Building	
Task 1 - Disposal of Waste Inventory	
• PCB Drummed Solids - Incineration (435 drums x $1,476.12/drum)	$642,112
• PCB Drummed Liquids - Incineration (77 drums x $718.31/drum)	$55,310
• LDR Drummed Solids - Incineration (1,303 drums x $693.43/drum)	$903,539
• LDR Drummed Liquids - Incineration (229 drums x $286.89/drum)	$65,698
Task 2 - Decontamination	
• Detergent Wash (8,085 gal x $0.05/gal)	$404
• Clean Water Rinse (8,085 gal x $0.0054/gal)	$44
• Disposal of Decon H_2O - Deepwell (16,170 gal x $0.624/gal)	$10,090
Task 3 - Laboratory Verification	
• Rinsate Verification Analysis (6 samples x $293.50/sample)	$1,761
• PCB Core Sampling and Analysis (15 samples x $129.84/sample)	$1,948
Task 4 - Direct Labor Expenses	
• Two-Man Cleaning Crew (3.5 days x $827/day)	$2,895
• Equipment (3.5 days x $831/day)	$2,909
Task 5 - Certification (includes rinate verification sampling time)	
• Technician (18 hrs x $55/hr)	$990
• Engineer (9 hrs x $145/hr)	$1,305
subtotal	$1,689,004
Contingency (10%)	$168,900
Total Unit Closure Cost	$1,857,904 (2016)
1.8% Inflation Adjustment, 2016 to 2017 Dollars (See Note 1)	$33,442
Total Unit Closure Cost	$1,891,346 (2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.1 UNIT CLOSURE COST ESTIMATE: INCINERATOR AREA

Task	Cost
Incinerator Area: Stabilization Container Storage Building	
Task 1 - Disposal of Waste Inventory	
• PCB Drummed Solids - Incineration (1,256 drums x $1,476.12/drum)	$1,854,007
• PCB Drummed Liquids - Incineration (222 drums x $718.31/drum)	$159,465
• LDR Drummed Solids - Incineration (3,768 drums x $693.43/drum)	$2,612,844
• LDR Drummed Liquids - Incineration (664 drums x $286.89/drum)	$190,495
Task 2 - Decontamination	
• Detergent Wash (12,968 gal x $0.05/gal)	$648
• Clean Water Rinse (12,968 gal x $0.0054/gal)	$70
• Disposal of Decon H_2O - Deepwell (25,936 gal x $0.624/gal)	$16,184
Task 3 - Laboratory Verification	
• Rinsate Verification Analysis (3 sample x $293.50/sample)	$881
• PCB Core Sampling and Analysis (16 samples x $129.84/sample)	$2,077
Task 4 - Direct Labor Expenses	
• 2 Man Cleaning Crew (5.5 days x $827/day)	$4,549
• Equipment (5.5 days x $831/day)	$4,571
Task 5 - Certification (includes rinate verification sampling time)	
• Technician (21 hrs x $55/hr)	$1,155
• Engineer (10.5 hrs x $145/hr)	$1,523
subtotal	$4,848,468
Contingency (10%)	$484,847
Total Unit Closure Cost	$5,333,314 (2016)
1.8% Inflation Adjustment, 2016 to 2017 Dollars (See Note 1)	$96,000
Total Unit Closure Cost	$5,429,314 (2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.1 UNIT CLOSURE COST ESTIMATE: INCINERATOR AREA

Task	Cost
Incinerator Area: Ash Container Storage Building	
Task 1 - Disposal of Waste Inventory	
• PCB Drummed Solids - Incineration (186 drums x $1,476.12/drum)	$274,558
• PCB Drummed Liquids - Incineration (34 drums x $718.31/drum)	$24,423
• LDR Drummed Solids - Incineration (557 drums x $693.43/drum)	$386,241
• LDR Drummed Liquids - Incineration (100 drums x $286.89/drum)	$28,689
Task 2 - Decontamination	
• Detergent Wash (1,593 gal x $0.05/gal)	$80
• Clean Water Rinse (1,593 gal x $0.0054/gal)	$9
• Disposal of Decon H_2O - Deepwell (3,186 gal x $0.624/gal)	$1,988
Task 3 - Laboratory Verification	
• Rinsate Verification Analysis (1 sample x $293.50/sample)	$294
• PCB Core Sampling and Analysis (4 samples x $129.84/sample)	$519
Task 4 - Direct Labor Expenses	
• 2 Man Cleaning Crew (0.7 days x $827/day)	$579
• Equipment (0.7 days x $831/day)	$582
Task 5 - Certification (includes rinate verification sampling time)	
• Technician (11 hrs x $55/hr)	$605
• Engineer (5.5 hrs x $145/hr)	$798
subtotal	$719,363
Contingency (10%)	$71,936
Total Unit Closure Cost	$791,299 (2016)
1.8% Inflation Adjustment, 2016 to 2017 Dollars (See Note 1)	$14,243
Total Unit Closure Cost	$805,542 (2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.1 UNIT CLOSURE COST ESTIMATE: INCINERATOR AREA

Task	Cost
Incinerator Area: Truckwash and Process Support Building	
Task 1 - Disposal of Waste Inventory	
• PCB Drummed Solids - Incineration (21 drums x $1,476.12/drum)	$30,999
• PCB Drummed Liquids - Incineration (4 drums x $718.31/drum)	$2,873
•LDR Drummed Solids - Incineration (63 drums x $693.43/drum)	$43,686
• LDR Drummed Liquids - Incineration (11 drums x $286.89/drum)	$3,156
• PCB Bulk Solids, in Rolloff - Incineration (20 cy x $1,466.53/cy)	$29,331
• PCB Bulk Liquids - Incineration (1,496 gal x $3.94/gal)	$5,894
Task 2 - Decontamination	
• Solvent Rinse (100 gal x $1.53/gal)	$153
• Detergent Wash (1,796 gal x $0.05/gal)	$90
• Clean Water Rinse (1,796 gal x $0.0054/gal)	$10
• Disposal of Decon Solvent - Incineration (100 gal x $1.18/gal)	$118
• Disposal of Decon H_2O - Deepwell (3,592 gal x $0.624/gal)	$2,241
Task 3 - Laboratory Verification	
• Rinsate Verification Analysis - D/F Area (1 sample x $613.50/sample)	$614
• PCB Core Sampling and Analysis (5 samples x $129.84/sample)	$649
Task 4 - Direct Labor Expenses	
• 2 Man Cleaning Crew (1.3 days x $827/day)	$1,075
• Equipment (1.3 days x $831/day)	$1,080
Task 5 - Certification (includes rinate verification sampling time)	
• Technician (12 hrs x $55/hr)	$660
• Engineer (6 hrs x $145/hr)	$870
subtotal	$123,498
Contingency (10%)	$12,350
Total Unit Closure Cost	$135,848 (2016)
1.8% Inflation Adjustment, 2016 to 2017 Dollars (See Note 1)	$2,445
Total Unit Closure Cost	$138,293 (2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.1 UNIT CLOSURE COST ESTIMATE: INCINERATOR AREA

Task	Cost
Incinerator Area: Bulk Materials Handling Building (Regular Waste Pit (6505-PT1) and Associated Equipment/Areas (including rolloff box))	
Task 1 - Disposal of Waste Inventory	
• PCB Bulk Solids, w/solids loading - Incineration (773 cy x $1,471.94/cy)	$1,137,810
Task 2 - Decontamination of Equipment	
• Solvent Rinse (3,042 gal x $1.53/gal)	$4,654
• Detergent Wash (15,210 gal x $0.05/gal)	$761
• Clean Water Rinse (15,210 gal x $0.0054/gal)	$82
• Disposal of Decon Solvent - Incineration (3,042 gal x $1.18/gal)	$3,590
• Disposal of Decon H_2O (30,420 gal x $0.624/gal)	$18,982
Task 3 - Decontamination of Concrete Surfaces	
• Detergent Wash (3,696 gal x $0.05/gal)	$185
• Clean Water Rinse (3,696 gal x $0.0054/gal)	$20
• Disposal of Decon H_2O - Deepwell (7,392 gal x $0.624/gal)	$4,613
Task 4 - Laboratory Verification	
• Rinsate Verification Analysis (8 samples x $293.50/sample)	$2,348
• PCB Wipe Sampling and Analysis (50 samples x $62.50/sample)	$3,125
• PCB Core Sampling and Analysis (7 samples x $129.84/sample)	$909
Task 5 - Direct Labor Expenses	
• Two-Man Cleaning Crew (5.6 days x $827/day)	$4,631
• Equipment (5.6 days x $831/day)	$4,654
Task 6 - Certification (includes rinate verification sampling time)	
• Technician (20 hrs x $55/hr)	$1,100
• Engineer (10 hrs x $145/hr)	$1,450
subtotal	$1,188,912
Contingency (10%)	$118,891
Total Unit Closure Cost	$1,307,803 (2016)
1.8% Inflation Adjustment, 2016 to 2017 Dollars (See Note 1)	$23,540
Total Unit Closure Cost	$1,331,343 (2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.1 UNIT CLOSURE COST ESTIMATE: INCINERATOR AREA

Task	Cost
Incinerator Area: Bulk Materials Handling Building (Low Flash Pit (6505-PT2) and Associated Equipment/Areas)	
Task 1 - Disposal of Waste Inventory	
• PCB Bulk Solids, w/ solids loading - Incineration (146 cy x $1,471.94/cy)	$214,903
Task 2 - Decontamination of Equipment	
• Solvent Rinse (included in volume used for regular waste pit)	$0
• Detergent Wash (2,949 gal x $0.05/gal)	$147
• Clean Water Rinse (2,949 gal x $0.0054/gal)	$16
• Disposal of Decon Solvent (included in volume used for regular waste pit)	$0
• Disposal of Decon H_2O - Deepwell (5,898 gal x $0.624/gal)	$3,680
Task 3 - Decontamination of Concrete Surfaces	
• Detergent Wash (962 gal x $0.05/gal)	$48
• Clean Water Rinse (962 gal x $0.0054/gal)	$5
• Disposal of Decon H_2O - Deepwell (1,924 gal x $0.624/gal)	$1,201
Task 4 - Laboratory Verification	
• Rinsate Verification Analysis (3 samples x $293.50/sample)	$881
• PCB Wipe Sampling and Analysis (18 samples x $62.50/sample)	$1,125
• PCB Core Sampling and Analysis (3 samples x $129.84/sample)	$390
Task 5 - Direct Labor Expenses	
• Two-Man Cleaning Crew (0.9 day x $827/day)	$744
• Equipment (0.9 day x $831/day)	$748
Task 6 - Certification (includes rinate verification sampling time)	
• Technician (8 hrs x $55/hr)	$440
• Engineer (4 hrs x $145/hr)	$580
subtotal	$224,908
Contingency (10%)	$22,491
Total Unit Closure Cost	$247,399 (2016)
1.8% Inflation Adjustment, 2016 to 2017 Dollars (See Note 1)	$4,453
Total Unit Closure Cost	$251,852 (2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.1 UNIT CLOSURE COST ESTIMATE: INCINERATOR AREA

Task	Cost
Incinerator Area: Bulk Materials Handling Building (Shredder (6525-V) and Associated Equipment/Areas)	
Task 1 - Disposal of Waste Inventory	
• PCB Bulk Solids, w/ solids loading - Incineration (21 cy x $1,471.94/cy)	$30,911
Task 2 - Decontamination of Equipment	
• Solvent Rinse (424 gal x $1.53/gal)	$649
• Detergent Wash (424 gal x $0.05/gal)	$21
• Clean Water Rinse (424 gal x $0.0054/gal)	$2
• Disposal of Decon Solvent - Incineration (424 gal x $1.18/gal)	$500
• Disposal of Decon H_2O - Deepwell (848 gal x-$0.624/gal)	$529
Task 3 - Decontamination of Concrete Surfaces	
• Detergent Wash (839 gal x $0.05/gal)	$42
• Clean Water Rinse (839 gal x $0.0054/gal)	$5
• Disposal of Decon H_2O - Deepwell (1,678 gal x $0.624/gal)	$1,047
Task 4 - Laboratory Verification	
• Rinsate Verification Analysis (2 samples x $293.50/sample)	$587
• PCB Core Sampling and Analysis (2 samples x $129.84/sample)	$260
Task 5 - Direct Labor Expenses	
• Two-Man Cleaning Crew (0.9 day x $827/day)	$744
• Equipment (0.9 day x $831/day)	$748
Task 6 - Certification (includes rinate verification sampling time)	
• Technician (7 hrs x $55/hr)	$385
• Engineer (3.5 hrs x $145/hr)	$508
subtotal	$36,937
Contingency (10%)	$3,694
Total Unit Closure Cost	$40,631 (2016)
1.8% Inflation Adjustment, 2016 to 2017 Dollars (See Note 1)	$731
Total Unit Closure Cost	$41,362 (2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.1 UNIT CLOSURE COST ESTIMATE: INCINERATOR AREA

Task	Cost
Incinerator Area: Bulk Materials Handling Building (Shredder (6555-V) and Associated Equipment/Areas)	
Task 1 - Disposal of Waste Inventory	
• PCB Bulk Solids, w/ solids loading - Incineration (21 cy x $1,471.94/cy)	$30,911
Task 2 - Decontamination of Equipment	
• Solvent Rinse (424 gal x $1.53/gal)	$649
• Detergent Wash (424 gal x $0.05/gal)	$21
• Clean Water Rinse (424 gal x $0.0054/gal)	$2
• Disposal of Decon Solvent - Incineration (424 gal x $1.18/gal)	$500
• Disposal of Decon H_2O - Deepwell (848 gal x $0.624/gal)	$529
Task 3 - Decontamination of Concrete Surfaces	
• Detergent Wash (587 gal x $0.05/gal)	$29
• Clean Water Rinse (587 gal x $0.0054/gal)	$3
• Disposal of Decon H_2O - Deepwell (1,174 gal x $0.624/gal)	$733
Task 4 - Laboratory Verification	
• Rinsate Verification Analysis (2 samples x $293.50/sample)	$587
• PCB Core Sampling and Analysis (1 samples x $129.84/sample)	$130
Task 5 - Direct Labor Expenses	
• Two-Man Cleaning Crew (0.8 day x $827/day)	$662
• Equipment (0.8 day x $831/day)	$665
Task 6 - Certification (includes rinate verification sampling time)	
• Technician (7 hrs x $55/hr)	$385
• Engineer (3.5 hrs x $145/hr)	$508
subtotal	$36,313
Contingency (10%)	$3,631
Total Unit Closure Cost	$39,944 (2016)
1.8% Inflation Adjustment, 2016 to 2017 Dollars (See Note 1)	$719
Total Unit Closure Cost	$40,663 (2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.1 UNIT CLOSURE COST ESTIMATE: INCINERATOR AREA

Task	Cost	
Incinerator Area: Bulk Materials Handling Building (Blender (6560-V) and Associated Equipment/Areas)		
Task 1 - Disposal of Waste Inventory		
• PCB Bulk Solids, w/ solids loading - Incineration (22 cy x $1,471.94/cy)	$32,383	
Task 2 - Decontamination of Equipment		
• Solvent Rinse (444 gal x $1.53/gal)	$679	
• Detergent Wash (444 gal x $0.05/gal)	$22	
• Clean Water Rinse (444 gal x $0.0054/gal)	$2	
• Disposal of Decon Solvent - Incineration (444 gal x -$1.18/gal)	$524	
• Disposal of Decon H_2O - Deepwell (888 gal x $0.624/gal)	$554	
Task 3 - Laboratory Verification		
• Rinsate Verification Analysis (1 samples x $293.50/sample)	$294	
• PCB Core Sampling and Analysis (1 samples x $129.84/sample)	$130	
Task 4 - Direct Labor Expenses		
• Two-Man Cleaning Crew (0.5 day x $827/day)	$414	
• Equipment (0.5 day x $831/day)	$416	
Task 5 - Certification (includes rinate verification sampling time)		
• Technician (7 hrs x $55/hr)	$385	
• Engineer (3.5 hrs x $145/hr)	$508	
subtotal	$36,309	
Contingency (10%)	$3,631	
Total Unit Closure Cost	$39,940	(2016)
1.8% Inflation Adjustment, 2016 to 2017 Dollars (See Note 1)	$719	
Total Unit Closure Cost	$40,659	(2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.1 UNIT CLOSURE COST ESTIMATE: INCINERATOR AREA

Task	Cost
Incinerator Area: Bulk Materials Handling Building (North Container Staging Area and Associated Areas)	
Task 1 - Disposal of Waste Inventory	
• PCB Drummed Solids - Incineration (41 drums x $1,476.12/drum)	$60,521
• PCB Drummed Liquids - Incineration (7 drums x $718.31/drum)	$5,028
• LDR Drummed Solids - Incineration (123 drums x $693.43/drum)	$85,292
• LDR Drummed Liquids - Incineration (21 drums x $286.89/drum)	$6,025
Task 2 - Decontamination of Concrete Surfaces	
• Detergent Wash (2,932 gal x $0.05/gal)	$147
• Clean Water Rinse (2,932 gal x $0.0054/gal)	$16
• Disposal of Decon H_2O - Deepwell (5,864 gal x $0.624/gal)	$3,659
Task 3 - Laboratory Verification	
• Rinsate Verification Analysis (3 samples x $293.50/sample)	$881
• PCB Core Sampling and Analysis (4 samples x $129.84/sample)	$519
Task 4 - Direct Labor Expenses	
• Two-Man Cleaning Crew (1.3 days x $827/day)	$1,075
• Equipment (1.3 days x $831/day)	$1,080
Task 5 - Certification (includes rinate verification sampling time)	
• Technician (9 hrs x $55/hr)	$495
• Engineer (4.5 hrs x $145/hr)	$653
subtotal	$165,390
Contingency (10%)	$16,539
Total Unit Closure Cost	$181,929 (2016)
1.8% Inflation Adjustment, 2016 to 2017 Dollars (See Note 1)	$3,275
Total Unit Closure Cost	$185,204 (2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.1 UNIT CLOSURE COST ESTIMATE: INCINERATOR AREA

Task	Cost
Incinerator Area: Bulk Materials Handling Building (South Container Staging Area and Associated Areas)	
Task 1 - Disposal of Waste Inventory	
• PCB Drummed Solids - Incineration (34 drums x $1,476.12/drum)	$50,188
• PCB Drummed Liquids - Incineration (6 drums x $718.31/drum)	$4,310
• LDR Drummed Solids - Incineration (102 drums x $693.43/drum)	$70,730
• LDR Drummed Liquids - Incineration (18 drums x $286.89/drum)	$5,164
Task 2 - Decontamination of Concrete Surfaces	
• Detergent Wash (1,556 gal x $0.05/gal)	$78
• Clean Water Rinse (1,556 gal x $0.0054/gal)	$8
• Disposal of Decon H_2O - Deepwell (3,112 gal x $0.624/gal)	$1,942
Task 3 - Laboratory Verification	
• Rinsate Verification Analysis (2 samples x $293.50/sample)	$587
• PCB Core Sampling and Analysis (2 samples x $129.84/sample)	$260
Task 4 - Direct Labor Expenses	
• Two-Man Cleaning Crew (0.7 day x $827/day)	$579
• Equipment (0.7 day x $831/day)	$582
Task 5 - Certification (includes rinate verification sampling time)	
• Technician (7 hrs x $55/hr)	$385
• Engineer (3.5 hrs x $145/hr)	$508

subtotal	$135,320	
Contingency (10%)	$13,532	
Total Unit Closure Cost	$148,852	(2016)
1.8% Inflation Adjustment, 2016 to 2017 Dollars (See Note 1)	$2,679	
Total Unit Closure Cost	$151,531	(2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.1 UNIT CLOSURE COST ESTIMATE: INCINERATOR AREA

Task	Cost
Incinerator Area: Transload Building	
Task 1 - Disposal of Waste Inventory	
• PCB Bulk Solids, with solids loading - Incineration (72 cy x $1,471.94/cy)	$105,980
Task 2 - Decontamination of Equipment and Containment Areas	
• Solvent Rinse (541 gal x $1.53/gal)	$828
• Detergent Wash (2,858 gal x $0.05/gal)	$143
• Clean Water Rinse (2,858 gal x $0.0054/gal)	$15
• Disposal of Decon Solvent - Incineration (541 gal x $1.18/gal)	$638
• Disposal of Decon H_2O - Deepwell (5,716 gal x $0.624/gal)	$3,567
Task 3 - Direct Labor Expenses for Decontamination	
• Two-Man Cleaning Crew (4.5 days x $827/day)	$3,722
• Equipment (4.5 day x $831/day)	$3,740
Task 4 - Removal of Surface Concrete	
• PCB Bulk Solids, with solids loading - Incineration (5 cy x $1,471.94/cy)	$7,360
Task 5 - Direct Labor Expenses for Surface Concrete Removal	
• Two-Man Cleaning Crew (9 days x $827/day)	$7,443
• Equipment (9 days x $663/day)	$5,967
Task 4 - Laboratory Verification	
• Rinsate Verification Analysis - (5 samples x $293.50/sample)	$1,468
• PCB Wipe Sampling and Analysis (4 samples x $62.50/sample)	$250
• PCB Core Sampling and Analysis (5 samples x $129.84/sample)	$649
Task 5 - Certification (includes rinate verification sampling time)	
• Technician (24 hrs x $55/hr)	$1,320
• Engineer (12 hrs x $145/hr)	$1,740
subtotal	$144,828
Contingency (10%)	$14,483
Total Unit Closure Cost	$159,311 (2016)
1.8% Inflation Adjustment, 2016 to 2017 Dollars (See Note 1)	$2,868
Total Unit Closure Cost	$162,179 (2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.2 UNIT CLOSURE COST ESTIMATE: SUPPORT AREAS

Task	Cost
Support Areas: Building 46 and Solids Storage Area	
Task 1 - Disposal of Waste Inventory	
• PCB Drummed Solids - Incineration (1,149 drums x $1,476.12/drum)	$1,696,062
• PCB Drummed Liquids - Incineration (203 drums x $718.31/drum)	$145,817
• LDR Drummed Solids - Incineration (3,446 drums x $693.43/drum)	$2,389,560
• LDR Drummed Liquids - Incineration (609 drums x $286.89/drum)	$174,716
• PCB Bulk Solids, solids in roll-offs - Incineration (360 cy x $1,466.53/cy)	$527,951
• LDR Bulk Solids - Incineration (1,050 cy x $1,208.95/cy)	$1,269,398
• Dioxin/Furan Waste - Incineration [(13,500 lbs x $10.20/lb) + $5,222]	$142,922
Task 2 - Decontamination	
• Detergent Wash (21,665 gal x $0.05/gal)	$1,083
• Clean Water Rinse (21,665 gal x $0.0054/gal)	$117
• Disposal of Decon H_2O - Deepwell (43,330 gal x $0.624/gal)	$27,038
Task 3 - Laboratory Verification	
• Rinsate Verification Analysis - D/F Area (17 samples @ $613.50/sample)	$10,430
• Soil Verification Analysis (12 samples @ $308.50/sample)	$3,702
• PCB Core Sampling and Analysis (34 samples x $129.84/sample)	$4,415
Task 4 - Direct Labor Expenses	
• Two-Man Cleaning Crew (9.3 days x $827/day)	$7,691
• Equipment (9.3 days x $831/day)	$7,728
Task 5 - Certification (includes rinate and soil verification sampling time)	
• Technician (42 hrs x $55/hr)	$2,310
• Engineer (21 hrs x $145/hr)	$3,045
subtotal	$6,413,984
Contingency (10%)	$641,398
Total Unit Closure Cost	$7,055,382 (2016)
1.8% Inflation Adjustment, 2016 to 2017 dollars (See Note 1)	$126,997
Total Unit Closure Cost	$7,182,379 (2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.2 UNIT CLOSURE COST ESTIMATE: SUPPORT AREAS

Task	Cost
Support Areas: Truck and Container Storage Building	
Task 1 - Disposal of Waste Inventory	
• PCB Drummed Solids - Incineration (788 drums x $1,476.12/drum)	$1,163,183
• PCB Drummed Liquids - Incineration (139 drums x $718.31/drum)	$99,845
• LDR Drummed Solids - Incineration (2,363 drums x $693.43/drum)	$1,638,575
• LDR Drummed Liquids - Incineration (416 drums x $286.89/drum)	$119,346
Task 2 - Decontamination	
• Detergent Wash (8,186 gal x $0.05/gal)	$409
• Clean Water Rinse (8,186 gal x $0.0054/gal)	$44
• Disposal of Decon H_2O - Deepwell (16,372 gal x $0.624/gal)	$10,216
Task 3 - Laboratory Verification	
• Rinsate Verification Analysis - D/F Area (5 samples @ $613.50/sample)	$3,068
• PCB Core Sampling and Analysis (17 samples x $129.84/sample)	$2,207
Task 4 - Direct Labor and Equipment Expenses	
• Two-Man Cleaning Crew (3.5 days x $827/day)	$2,895
• Equipment (3.5 days x $831/day)	$2,909
Task 5 - Certification (includes rinate verification sampling time)	
• Technician (18 hrs x $55/hr)	$990
• Engineer (9 hrs x $145/hr)	$1,305
subtotal	$3,044,991
Contingency (10%)	$304,499
Total Unit Closure Cost	$3,349,491 (2016)
1.8% Inflation Adjustment, 2016 to 2017 dollars (See Note 1)	$60,291
Total Unit Closure Cost	$3,409,782 (2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.3 UNIT CLOSURE COST ESTIMATE: DEEPWELL AREA

Task	Cost
Deepwell Area: Deepwell Container Storage Building	
Task 1 - Disposal of Waste Inventory	
• LDR Bulk Solids, solids in roll-offs - Incineration (96 cy x $1,208.95/cy)	$116,059
• LDR Drummed Solids - Incineration (89 drums x $693.43/drum)	$61,715
Task 2 - Disposal of Stormwater	
• Characterization of Stormwater (1 sample x $330/sample)	$330
• Stormwater - Deepwell (1,743 gal x $0.624/gal)	$1,088
Task 3 - Secondary Containment Decontamination	
• Detergent Wash (1,057 gal x $0.05/gal)	$53
• Clean Water Rinse (1,057 gal x $0.0054/gal)	$6
• Disposal of Decon H_2O - Deepwell (2,114 gal x $0.624/gal)	$1,319
Task 4 - Laboratory Verification	
• Rinsate Verification Analysis (1 samples @ $293.50/sample)	$294
Task 5 - Direct Labor and Equipment	
• Two-Man Cleaning Crew (0.5 days x $827/day)	$414
• Equipment (0.5 days x $831/day)	$416
Task 6 - Certification (includes rinate verification sampling time)	
• Technician (8 hrs x $55/hr)	$440
• Engineer (4 hrs x $145/hr)	$580
subtotal	$182,712
Contingency (10%)	$18,271
Total Unit Closure Cost	$200,984 (2016)
1.8% Inflation Adjustment, 2016 to 2017 dollars (See Note 1)	$3,618
Total Unit Closure Cost	$204,602 (2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.3 UNIT CLOSURE COST ESTIMATE: DEEPWELL AREA

Task	Cost
Deepwell Area: Deepwell Tanks (T-101A, T-101B, and T-102)	
Task 1 - Disposal of Waste Inventory	
• Aqueous Liquids - Deepwell (906,000 gal x $0.624/gal)	$565,344
• Cartridge Filter Media - Stabilize and LF (12 cy x $348.52/cy)	$4,182
• LDR bulk solids in Salt Box - Stabilize and LF (20 cy x $348.52/cy)	$6,970
Task 2 - Disposal of Stormwater	
• Stormwater Characterization (4 samples x $330/sample)	$1,320
• Stormwater - Deepwell (231,479 gal x $0.624/gal)	$144,443
Task 3 - Tank Decontamination	
• Detergent Flush (47,565 gal x $0.05/gal)	$2,378
• Clean Water Flush (90,600 gal x $0.0054/gal)	$489
• Disposal of Decon H_2O - Deepwell (138,165 gal x $0.624/gal)	$86,215
Task 4 - Secondary Containment Decontamination	
• Detergent Wash (37,107 gal x $0.05/gal)	$1,855
• Clean Water Rinse (58,624 gal x $0.0054/gal)	$317
• Disposal of Decon H_2O (95,731 gal x $0.624/gal)	$59,736
Task 5 - Laboratory Verification	
• Rinsate Verification Analysis - incl. D/F (7 samples @ $613.50/sample)	$4,295
Task 6 - Design and Construction of Clay Cover System (includes labor and equipment)	
•Engineering, Surveying, Quality Assurance, and Mobilization	$45,000
• Delineation Soil Sampling	$17,610
• Placement of Clay (6,776 cy x $6.48/cy)	$43,908
• Placement of Topsoil (1,614 cy x $4.98/cy)	$8,038
• Seed and Fertilize (1.0 acre x $1,202.26/acre)	$1,202
Task 7 - Direct Labor and Equipment	
• Two-Man Cleaning/Dismantling Crew (26.75 days x $827/day)	$22,122
• Equipment (21.75 days x $831/day)	$18,074
• Crane with operator (5 days x $3,248/day)	$16,240
Task 8 - Certification (includes rinate verification sampling time)	
• Technician (100 hrs x $55/hr)	$5,500
• Engineer (50 hrs x $145/hr)	$7,250

subtotal	$1,062,490	
Contingency (10%)	$106,249	
Total Unit Closure Cost	$1,168,738	(2016)
Closure Cost - Each Tank	$389,579	(2016)
1.8% Inflation Adjustment, 2016 to 2017 dollars (See Note 1)	$7,012	
Total Unit Closure Cost	$396,591	(2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.B.3 UNIT CLOSURE COST ESTIMATE: DEEPWELL AREA

Task	Cost
Deepwell Area: Deepwell Tank (T-201)	
Task 1 - Disposal of Waste Inventory	
• Aqueous Liquids - Deepwell (999,256 gal x $0.624/gal)	$623,536
• Carbon Canister Media - Stablilize and LF (3 cy x $348.52/cy)	$1,046
Task 2 - Disposal of Stormwater	
• Characterization of Stormwater (2 samples x $330/sample)	$660
• Stormwater - Deepwell (26,095 gal x $0.624/gal)	$16,283
Task 3 - Tank Decontamination	
• Detergent Wash (52,361 gal x $0.05/gal)	$2,618
• Clean Water Rinse (99,926 gal x $0.0054/gal)	$540
• Disposal of Decon H_2O - Deepwell (152,287 gal x $0.624/gal)	$95,027
Task 4 - Secondary Containment Decontamination	
• Detergent Wash (27,163 gal x $0.05/gal)	$1,358
• Clean Water Rinse (50,945 gal x $0.0054/gal)	$275
• Disposal of Decon H_2O (78,108 gal x $0.624/gal)	$48,739
Task 5 - Laboratory Verification	
• Rinsate Verification Analysis - incl D/F (3 samples @ $613.50/sample)	$1,841
Task 6 - Direct Labor and Equipment	
• Two-Man Cleaning/Dismantling Crew (11 days x $827/day)	$9,097
• Equipment (7.5 days x $831/day)	$6,233
• Crane with operator (3.5 days x $3,248/day)	$11,368
Task 7 - Certification (includes rinate verification sampling time)	
• Technician (28 hrs x $55/hr)	$1,540
• Engineer (14 hrs x $145/hr)	$2,030
subtotal	$822,190
Contingency (10%)	$82,219
Total Unit Closure Cost	$904,409 (2016)
1.8% Inflation Adjustment, 2016 to 2017 dollars (See Note 1)	$16,279
Total Unit Closure Cost	$920,688 (2017)

1 Adjustment from 2016 to 2017 Dollars using TCEQ-supplied inflation factor of 1.8%, from TCEQ web page on 17 April 2018 and verified on 2 July 2018:
https://www.tceq.texas.gov/adminservices/financial-administration/revenue/annual_inflation_factors.html

TABLE VII.E.1 PERMITTED UNIT CLOSURE COST SUMMARY

Existing Unit Closure Cost Estimate		
Unit	**Cost**	
Incinerator Area		
Energetic Liquids Holding Tank (T-521)	$507,536	
Energetic Liquids Holding Tank (T-522)	$507,536	
Energetic Liquids Holding Tank (T-523)	$507,536	
Energetic Liquids Holding Tank (T-524)	$507,536	
Energetic Liquids Storage Tank (T-509)	$90,060	
Energetic Liquids Storage Tank (T-510)	$90,060	
Energetic Liquids Storage Tank (T-512)	$90,060	
Energetic Liquids Storage Tank (T-513)	$90,060	
Energetic Liquids Storage Tank (T-551)	$90,060	
Aqueous Liquids Storage Tank (T-514)	$128,627	
Aqueous Liquids Storage Tank (T-515)	$128,627	
Sludge Storage Tank (T-501)	$112,429	
Sludge Storage Tank (T-502)	$112,429	
Sludge Storage Tank (T-503)	$112,429	
Sludge Storage Tank (T-504)	$112,429	
Sludge Storage Tank (T-505)	$112,429	
Sludge Storage Tank (T-506)	$112,429	
Sludge Storage Tank (T-507)	$112,429	
Sludge Storage Tank (T-508)	$112,429	
Truck Wash Storage Tank (T-535)	$35,144	
Truck Wash Storage Tank (T-536)	$35,144	
Incinerator Train	$785,627	
Container Storage Building	$1,891,346	
Stabilization Container Storage Building	$5,429,314	
Ash Container Storage Building	$805,542	
Truckwash and Process Support Building	$138,293	
BMHB - Regular Waste Pit (6505-PT1) and Associated Equipment/Areas	$1,331,343	
BMHB - Low Flash Pit (6505-PT2) and Associated Equipment/Areas	$251,852	
BMHB - Shredder (6525-V) and Associated Equipment/Areas	$41,362	
BMHB - Shredder (6555-V) and Associated Equipment/Areas	$40,663	
BMHB - Blender (6560-V) and Associated Equipment/Areas	$40,659	
BMHB - North Container Staging Area	$185,204	
BMHB - South Container Staging Area	$151,531	
Transload Building	$162,179	
Support Areas		
Building 46 and Solids Storage Area	$7,182,379	
Truck and Container Storage Building	$3,409,782	
Deepwell Area		
Deepwell Container Storage Building	$204,602	(RCRA only)
Deepwell Tanks (T-101A)	$396,591	(RCRA only)
Deepwell Tanks (T-101B)	$396,591	(RCRA only)
Deepwell Tanks (T-102)	$396,591	(RCRA only)
Deepwell Tank (T-201)	$920,688	(RCRA only)
Project Mgmt, Inspections, Maintenance, Security, Recordkeeping, and Reporting	$104,284	
TOTAL CLOSURE COST ESTIMATE, EXISTING UNITS	$27,973,841	(2017)[1]

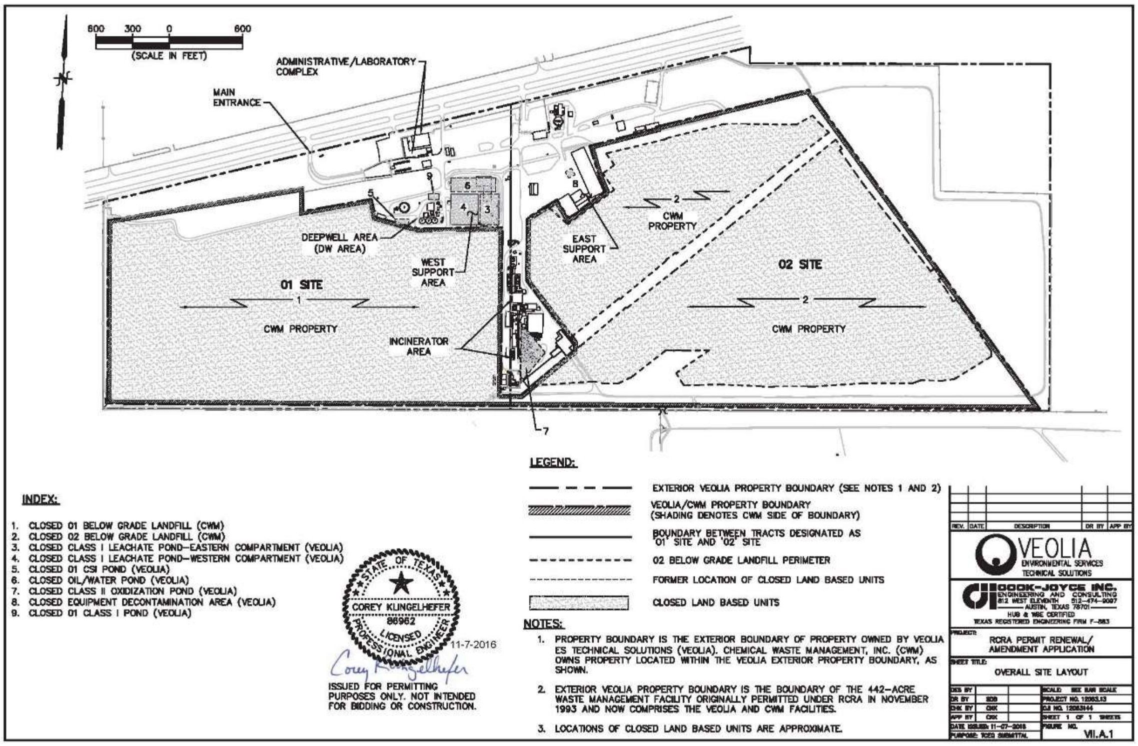
TABLE VII.E.1 PERMITTED UNIT CLOSURE COST SUMMARY

Proposed Unit Closure Cost Estimate		
Unit	**Cost**	
Incinerator Area		
Energetic Liquids Storage Tank (T-511A)	$90,060	
Energetic Liquids Storage Tank (T-552)	$90,060	
Energetic Liquids Storage Tank (T-553)	$90,060	
Aqueous Liquids Storage Tank (T-516)	$128,627	
Aqueous Liquids Storage Tank (T-550)	$128,627	
Sludge Storage Tank (T-503A)[2]	$112,429	
TOTAL CLOSURE COST ESTIMATE, PROPOSED UNITS	$639,863	(2017)[1]

[1] As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.

[2] Tank T-503 was taken out of service in March 1997. T-503A represents a proposed replacement for the originally-permitted T-503.

DRAWINGS



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APPENDICES

APPENDIX VII.A.1

COST ESTIMATE
ASSUMPTIONS AND CALCULATIONS

GENERAL ASSUMPTIONS
CLOSURE COST ESTIMATE
ASSUMPTIONS AND CALCULATIONS

I. DECONTAMINATION

A. Unit Costs for Flushing Media

1. Solvent @ $1.53/gallon
[Bulk off-highway diesel at $1.39/gal plus 10% O&P, based on quote from J.A.M. Distributing in Beaumont, Texas, dated 7/28/2016. Cost includes all freight, delivery, labor, and taxes.]

2. Detergent Wash (Detergent and Clean Water) @ $0.05/gallon
[Based on concentrated liquid Simple Green Cleaner/Degreaser, 55 gal drum, Northern Safety and Industrial website; $447/drum on 8/24/2016. Detergent cost with 10% O&P is $491.70/drum ($8.94/gal). The detergent wash will consist of detergent applied at 20:1 dilution plus an initial clean water spray. It is assumed that the detergent wash will require 1 gallon of detergent for every 200 gallons of water used. The cost of the detergent wash (both detergent and clean water) = ($8.94/gal x 1/200) + ($0.0054/gal clean water) = $0.05/gal.]

3. Clean Water @ $0.0054/gallon
[Clean water will be used for the final decontamination rinse. Potable water from nearest City of Port Arthur fire hydrant at $4.85/1,000 gallons plus 10% O&P, based on quote from City of Port Arthur, Texas dated 8/29/2016.]

B. Labor and Equipment

1. Decontamination Labor - Two-Man Crew with Foreman @ $827/day
[Based on Means Online 2016 Open Shop Labor Rates (with O&P) for Crew B-1 (2 laborers and 1 outside foreman) @ $1,200.40/day x 0.689 labor location factor = $827/day]

2. Decontamination Equipment - $831/day
[Decontamination equipment based on hydroblasting. It is assumed that the daily cost for solvent decontamination equipment will be same as daily cost for hydroblasting equipment.]

   a. Includes two 10,000 psi, 12 GPM, diesel powered pressure sprayers @ $343/day
   [Based on quote of $936/week (each) obtained from Reliable Pumps, Houston, Texas on 7/29/2016. Includes all spray equipment. Assumes 6 work days per week and increased 10% for O&P.]

   b. Includes one water truck, 2000 – 2,999 gal @ $175/day
   [Based on quote of $957/week obtained from United Rentals, Port Arthur, Texas on 8/18/2016. Assumes 6 work days per week and increased 10% for O&P.]

   c. Includes one gas powered pump with hosing @ $32/day
   [Centrifugal pump, gas drive, 1.5" dia, 65 gpm is $166.24/wk, incl O&P, based on Means Online 2016 for Beaumont (776-777). Assumes 6 work days per week and additional $4/day for hoses].

   d. Includes estimated fuel/maintenance costs @ $175/day
   [Assumes $50/day for water truck, $100/day for pressure sprayers, and $25/day for pump (2016 Costs)]

   e. Includes two frac tanks @ $106/day
   [Based on $96/day quote from Evergreen Tank Solutions, Nederland, TX, 8/18/2016. Increased 10% for O&P.]

C. Decontamination Time for Tanks:

Tank Size (gallons)	Decontamination Time (1) Detergent/Clean Water Rinses (Days)	Decontamination Time (2) Detergent and Clean Water Rinses Plus Solvent Rinse (Days)
0 to 5,000	0.5	0.75
5,000 10,000	0.75	1.125
10,000 to 15,000	1	1.5
15,000 to 20,000	1.25	1.875
20,000 to 30,000	1.5	2.25
30,000 to 40,000	1.75	2.625
40,000 to 50,000	2	3
50,000 to 100,000	2.5	3.75
100,000 to 150,000	3	4.5
300,000 (nominal)	3.5	NA
500,000 (nominal)	4	NA
1,000,000 (nominal)	5	NA

Notes:

(1) Decontamination time for detergent and clean water rinses based on two-man crew (with foreman) and two pressure washers capable of cleaning 1,000 ft2/day of internal tank surface area.

(2) Decontamination time for detergent and clean water rinses plus solvent rinse is the detergent/clean water rinses time increased by one-half of the detergent/clean water rinses time.

D. Decontamination Time for Secondary Containment:

1. A two-man crew with foreman can decontaminate (detergent and clean washes) approximately 5,000 ft² of concrete per day using two high pressure water sprayers.

II. ANALYTICAL COSTS

A. Verification Sampling – Rinse water and Soil (sampling kits and analyses only)

1. Verification rinse water samples will be required to confirm adequate decontamination. In addition, verification soil samples will be required to determine if a release has occurred or if adequate soil removal has been achieved. Sampling time for rinse water and soil verification samples included in unit closure certification costs.

2. Analytical and sampling kit costs based on Quote 28015753 from TestAmerica Denver dated 8/22/2016. All shipping costs are paid by the laboratory. Prices are for single samples with standard turnaround.

Parameters/Items	Dioxin/Furan (D/F) Area		Non-D/F Area	
	Soil	Rinse water	Soil	Rinse water
Dioxin/Furans (8290A)	$320	$320	NA	NA
Priority Pollutant Metals (6010C and 7471B)	$88	$88	$88	$88
Priority Pollutant VOCs (8260B)	$64	$64	$64	$64
Priority Pollutant SVOCs (2870C)	$140	$140	$140	$140
Terracore Sampling Kit for VOCs (5035A)	$15	NA	$15	NA
Sample Disposal Fee	$1.50	$1.50	$1.50	$1.50
Total Cost per Sample	**$628.50**	**$613.50**	**$308.50**	**$293.50**

B. Verification Sampling - PCB Core and Wipe Sampling and Analysis

1. Assume 4 core samples can be collected in 1 hour with a technician at $55/hr (2016 CJI Rate Schedule, Tech II), using electrical router hammer and 2" bit. Cost for 2.5 HP electric core drill and a 1.5-3.0kW generator (incl. hourly operating cost for both) is $102.67/day + $44.26/day = $146.93/day based on Means Online 2016 Costs for Beaumont (776-777) with O&P. Cost for sampling is $18.34/sample. Cost for PCB core analysis (including particle size reduction) is $111.50/sample based on Quote 28015753 from TestAmerica Denver dated 8/22/2016. Shipping paid by laboratory.

2. Total cost for PCB core sampling and analysis is $129.84/sample.

3. Assume 5 wipe samples can be collected in 1 hour using a technician at $55/hr (2016 CJI Rate Schedule, Tech II). Cost for sampling per sample is $11. Cost for PCB wipe analysis is $51.50 each based on Quote 28015753 from TestAmerica Denver dated 8/22/2016.

4. Total cost for PCB wipe sampling and analysis is $62.50/sample.

C. Characterization Sampling for Contaminated Stormwater (sampling and analysis only)

1. Characterization sampling will be required for the off-site disposal of stormwater. One stormwater sample will be collected from each outdoor secondary containment area. Listed D/F waste will not be stored or managed in outdoor secondary containment areas.

2. Assume 4 samples can be collected in 1 hour using a technician at $55/hr (2016 CJI Rate Schedule, Tech II). Cost for sampling per sample is $13.75. Assume $14/sample.

3. Analytical costs based on Quote 28015753 from TestAmerica Denver dated 8/22/2016. Prices are for single samples with standard turnaround. Shipping paid by laboratory.

Parameters	PCB Waste Areas	Non-PCB Waste Areas
PCBs (608)	$50	NA
VOCs (624)	$64	$64
SVOCs (625)	$140	$140
RCRA 8 Metals + Sb, Be, and Ni (200.8 & 245.1)	$88.50	$88.50
Cyanide (335.4)	$22	$22
Sample Disposal Fee	$1.50	$1.50
Sampling Cost (each)	$14	$14
Total Cost per Sample	**$380**	**$330**

III. EARTHMOVING AND CONSTRUCTION COSTS

A. Compacted Clay, excavate and placement @ $6.48/cy
[Means Online 2016 Costs for Beaumont (776-777) with O&P: 3 C.Y. crawler mounted backhoe@$1.69/cy; one 20 C.Y. dump truck, 1 mile round trip @ $2.47/cy; Clay backfill spreading with 300 hp dozer @ $0.94/cy; and compaction with sheepsfoot, 6" lifts, 4 passes @ $1.38/cy. Total unit cost is $1.69/cy +$2.47/cy +$0.94/cy + $1.38/cy = $6.48/cy.]

B. Topsoil, excavate and placement @ $4.98/cy
[Means Online 2016 Costs for Beaumont (776-777) with O&P: 3 C.Y. crawler mounted backhoe @$1.69; 20 C.Y. dump truck, 1 mile round trip @ $2.47/cy; and spread dumped material by dozer, no compaction @ $0.82/cy. Total unit cost is $1.69/cy + $2.47/cy + $0.82/cy = $4.98/cy.]

C. Seeding and Fertilizing @ $1,202.26/acre
[Means Online 2016 Costs for Beaumont (776-777) with O&P: tractor spreader, utility mix @ $24.71/MSF x 43.56/MSF/acre = $1076.37/acre and Fertilizer, dry granular, truck whirlwind spreader @ $2.89/MSF x 43.56/MSF/acre = $125.89/acre. Total unit cost is $1,076.37/acre + $125.89/acre = $1,202.26/acre.]

IV. WASTE LOADING, TRANSPORTATION, AND DISPOSAL COSTS

A. Wastes requiring incineration and that are not comprised of listed dioxin/furan (D/F) containing materials will be transported to the Clean Harbors incinerator facility (formerly Safety Kleen) in Deer Park, Texas. Incineration costs are based on an August 30, 2016 quote from Kim Stevenson of Clean Harbors Environmental Services and the 2016 Clean Harbors Disposal Pricing Schedule for Containers. The quoted prices have been increased to include the $16/ton TCEQ waste management fee for incineration and a 6% Recovery Fee applied by the Clean Harbors facility. Quoted prices include all other fees, taxes, and/or surcharges.

B. Aqueous wastes suitable for deepwell disposal will be transported to the Vopak (formerly EMPAK) or Texas Molecular injection well facility in Deer Park, Texas. Deepwell disposal costs are based on an August 17, 2016 quote from Stephen Franklin of Texas Molecular. The quoted prices have been increased by $0.005/gal to account for the $18/ton (dry weight ton) TCEQ waste management fee for deepwell injection assuming a 6% average dry weight solids content in the aqueous wastes. Quoted prices include all other fees, taxes and/or surcharges.

C. Under the worst-case closure scenario, it is assumed that all scrubber water blowdown from the incinerator train will carry dioxin/furan waste codes. The scrubber water will be transported to the Texas Molecular injection well facility in Deer Park, Texas. On June 8, 2017, Mr. Stephen Franklin of Texas Molecular stated that the Texas Molecular facility is exempt from the LDRs by EPA and that their exemption includes the listed D/F waste codes. He also stated that the previously provided disposal costs (discussed immediately above in Item B) would be the same regardless of the waste codes applicable to the scrubber water waste stream.

D. Wastes suitable for land disposal will be transported to the Chemical Waste Management, Inc. landfill facility in Lake Charles, Louisiana. Stabilization and landfill disposal costs based on an August 16, 2016 quote obtained from Josh Fowler with the Chemical Waste Management – Lake Charles facility. The quoted costs have been increased to include the $40/ton Louisiana Hazardous Waste disposal tax plus a 4.41% disposal surcharge. Quoted prices include all other fees, taxes, and/or surcharges.

E. Under the worst-case closure scenario, it is assumed that solid residues from incineration (ash, slag, and filter cake) will carry the D/F waste codes. These solids will be transported to the Chemical Waste Management, Inc. landfill facility in Lake Charles, Louisiana, consistent with the management and disposal practices for these residuals during active facility operations. Although

Veolia does not anticipate any increase in the previously provided disposal rates (discussed immediately above in Item D), a 20 percent surcharge has been included as a conservative measure.

F. Listed D/F waste (other than residuals from incineration) will be transported to and incinerated at the Swan Hills facility in Alberta, Canada. Costs for incineration of listed D/F waste are based on an August 16, 2016 quote from Dan Blackley with the Veolia Menomonee Falls, Wisconsin facility. The quoted incineration rates include transportation of the listed D/F waste from their Menomonee Falls facility to the Swan Hills facility. However, the rates do not include transportation from the Veolia Port Arthur facility to the Veolia Menomonee Falls facility. Quoted prices include all fees, taxes, and surcharges.

G. Disposal costs based on an average density of 90 lbs/ft3 (actual data) for bulk solids, an average specific gravity of 1.32 (actual data) for bulk sludges, and an average specific gravity of 1.08 (actual data) for bulk liquids.

H. Loading costs:

1. Drum Loading onto Transport Truck @ $2.63/drum
   [all costs obtained from 2016 Means Online, Open Shop Labor]
   a. Equipment Operator (light) w/ O&P- $62.55/hr x 0.689 labor location factor = $43.10/hr.
   b. Forklift Rental (21' lift, 5,000 lbs, 4WD) - $731.25/wk x 1.1 O&P = $804.38/wk. Assume forklift is used 20 hours during week. Hourly cost is $804.38/wk / 20 hours = $40.22/hr.
   c. Forklift Operating Cost - $19.94/hr x 1.1 O&P = $21.93/hr.
   d. Assuming 40 drums can be loaded per hour, the total loading cost per drum = [($43.10/hr + $40.22/hr +$21.93/hr) / 40 drums/hr] = $2.63/drum

2. Liquids Loading into 5,000 Gallon Bulk Tanker Truck @ $0.027/gal
   [all costs obtained from 2016 Means Online, Open Shop Labor]
   a. 1 Laborer w/ O&P- $48.90/hr x 0.689 labor location factor = $33.69/hr.
   b. 1 Labor Foreman (1/2-time) w/ O&P – 0.5 x $52.25/hr x 0.689 labor location factor = $18.00/hr.
   c. Pump Rental (Centrifugal, gas drive, 3" dia, 250 gpm) – $170.63/wk x 1.1 O&P = $187.69. Pump hosing, connections, and other ancillary components are an extra $25 per week. Pump is used 20 hours per week. Hourly cost is [($187.69/wk + $25/wk) / 20 hrs/wk] = $10.63/hr.
   d. Pump Operating Cost - $5.61/hr x 1.1 O&P = $6.17/hr
   e. Assuming 2,500 gal of liquids can be loaded per hour, the total loading cost per gallon = [($33.69/hr + $18.00/hr +$10.63/hr + $6.17/hr) / 2,500 gal/hr] = $0.027/gal.

3. Bulk Solids Loading into 20 cy truck/roll-off @ $5.41/cy
   [all costs obtained from 2016 Means Online, Open Shop Labor]
   a. 1 Equipment Operator (medium) w/ O&P- $65.05/hr x 0.689 labor location factor = $44.82/hr.
   b. 1 Laborer w/ O&P- $48.90/hr x 0.689 labor location factor = $33.69/hr.
   c. Track Mounted Excavator Rental (diesel, 1-1/2 cy) with operating costs and O&P - $5,519/wk. Assume loader is used 40 hours during week. Hourly cost is $970.62/wk / 40 hours = $137.98/hr.
   d. Assuming 40 cy of bulk solids can be loaded per hour, the total loading cost per cy = [($44.82/hr + $33.69/hr +$137.98/hr) / 40 cy/hr] = $5.41/cy

I. Transportation costs:
[all transportation costs based on 8/4/2016 quote from Catherine Hillin of Sprint Waste Services]

1. Clean Harbors or Texas Molecular in Deer Park, Texas – Cost per load from the Veolia Port Arthur facility to Clean Harbors or Texas Molecular in Deer Park, Texas is $550 plus a 10.5% fuel surcharge = $608/load. Using capacities of 5,000-gal/tanker truck, 20 cy per solids transport truck, and 80 drums per truckload, unit transportation costs are $0.122/gal for bulk liquids, $30.40 cy for bulk solids, and $7.60/drum for drummed materials.

2. CWM Hazardous Waste Landfill in Lake Charles, Texas – Cost per load from the Veolia Port Arthur facility to the CWM Lake Charles facility is $470 plus a 10.5% fuel surcharge =

$519/load. Using capacities of 5,000-gal/tanker truck and 20 cy per solids transport truck, the unit transportation costs is $0.104/gal for bulk liquids and $26.00 cy for bulk solids.

3. Veolia Menomonee Falls, Wisconsin Facility – Cost per load to transport listed D/F waste from the Veolia Port Arthur facility to the Menomomee Falls, Wisconsin facility is $4,678/load plus a 10.5% fuel surcharge = $5,169/load.

J. Summary of Waste Loading, Transportation, and Disposal Costs:

Waste Type	Unit Disposal Costs	Unit Loading Cost (1)	Unit Transport Cost	Total Loading, Transport, and Disposal Cost
INCINERATION – CLEAN HARBORS - DEER PARK, TEXAS				
PCB Bulk Solids (solids already in roll-off)	$0.591/lb x 90 lbs/ft3 x 27 ft3/cy = $1,436.13/cy	NA	$30.40/cy	$1,466.53/cy
PCB Bulk Solids (requires solids loading into roll-off)	$0.591/lb x 90 lbs/ft3 x 27 ft3/cy = $1,436.13/cy	$5.41/cy	$30.40/cy	$1,471.94/cy
PCB Bulk Sludges	$0.803/lb x 8.34 lbs/gal x 1.32 = $8.84/gal	$0.027/gal	$0.122/gal	$8.99/gal
PCB Bulk Liquids	$0.421/lb x 8.34 lbs/gal x 1.08 = $3.80/gal	$0.027/gal	$0.122/gal	$3.94/gal
PCB Drummed Solids	$2.21/lb x 90 lbs/ft3 x 0.134 ft3/gal x 55 gal/dm = $1,465.89/dm	$2.63/dm	$7.60/dm	$1,476.12/dm
PCB Drummed Liquids	$708.08/dm	$2.63/dm	$7.60/dm	$718.31/dm
LDR Bulk Solids (solids already in roll-off)	$0.485/lb x 90 lbs/ft3 x 27 ft3/cy = $1,178.55/cy	NA	$30.40/cy	$1,208.95/cy
LDR Bulk Solids (requires solids loading into roll-off)	$0.485/lb x 90 lbs/ft3 x 27 ft3/cy = $1,178.55/cy	5.41/cy	$30.40/cy	$1,214.36/cy
LDR Bulk Sludges	$0.740 /lb x 8.34 lbs/gal x 1.32 = $8.15/gal	$0.027/gal	$0.122/gal	$8.30/gal
LDR Bulk Liquids	$0.421 /lb x 8.34 lbs/gal x 1.08 = $3.80/gal	$0.027/gal	$0.122/gal	$3.94/gal
LDR Drummed Solids	$1.03/lb x 90 lbs/ft3 x 0.134 ft3/gal x 55 gal/dm = $683.20/dm	$2.63/dm	$7.60/dm	$693.43/dm
LDR Drummed Liquids	$276.66/dm	$2.63/dm	$7.60/dm	$286.89/dm
Solvent Flush	$0.114/lb x 8.34 lbs/gal x 1.08 = $1.03/gal	$0.027/gal	$0.122/gal	$1.18/gal
LANDFILL – CHEMICAL WASTE MANAGEMENT - LAKE CHARLES, LOUISIANA				
LDR Bulk Solids – Stabilize & Landfill	$217.50/2000lbs x 90 lbs/ft3 x 27 ft3/cy = $264.26/cy	$5.41/cy	$26.00/cy	$295.67/cy
Residual D/F Wastes (Ash, Slag, Filter Cake) – Stabilize & Landfill	$217.50/2000lbs x 90 lbs/ft3 x 27 ft3/cy x 1.2 = $317.11/cy	$5.41/cy	$26.00/cy	$348.52/cy
LDR Sludge - Stabilize & Landfill	$321.91/2000lbs x 8.34 gal/ft3 x 1.32 = $1.77/gal	$0.027/gal	$0.104/gal	$1.90/gal
Non-hazardous waste – Direct Landfill	$48.03/2000lbs x 90 lbs/ft3 x 27 ft3/cy = $58.36/cy	$5.41/cy	$26.00/cy	$89.77/cy
DEEPWELL INJECTION – TEXAS MOLECULAR - DEER PARK, TEXAS				
Low organic liquids/flushwater	$0.475/gal	$0.027/gal	$0.122/gal	$0.624/gal
INCINERATION – SWAN HILLS, CANADA				
Listed Dioxin/Furan (D/F) Waste	$10.20/lb (See Note 1)	See Note 1	See Note 1	See Note 1

Note:

1. The maximum volume of listed D/F waste to be managed at the facility is $13,500 lbs. Unit disposal cost of $10.20/lb for listed D/F waste includes transportation from the Veolia Menomonee facility in Wisconsin to the Swan Hills facility in Canada. Assuming the 13,500 lbs of listed D/F waste is 20 drums, the total loading cost = 20 drums x $2.63 = $53. Cost to transport the listed D/F waste from the Veolia Port Arthur facility to the Veolia facility in Menomonee, Wisconsin is $5,169. Total loading and additional transport cost for the listed D/F waste is $5,169 + $53 = $5,222.

V. CLOSURE CERTIFICATION LABOR

A. A technician and engineer will prepare the certifications for unit closures. Technician cost is $55/hour based on CJI 2016 Rate Schedule (Technician II). Engineer cost is $145/hour based on CJI 2016 Rate Schedule (Senior Project Staff I). Labor hours for closure certifications included in the Unit-Specific Assumptions. Closure certification labor includes collection of rinsate and soil verification samples.

VI. COSTS FOR PROJECT MANAGEMENT, INSPECTIONS, MAINTENANCE, SECURITY, RECORDKEEPING, AND REPORTING

A. Assume one technical staff working on the average 40 hours per week over the duration of the physical closure period of 180 days (26 weeks) at \$55/hr (2016 rate for CJI Technician II): 40 hr/wk x \$55/hr x 26 wk = \$57,200 (2016 dollars).

B. Assume one project manager working on the average of 12 hours per week over the duration of the physical closure period of 180 days (26 weeks) at \$145/hr (2016 rate for CJI Senior Project Staff I): 12 hrs/wk x \$145/hr x 26 wk = \$45,240 (2016 dollars)

C. Total cost for project management, inspections, maintenance, security, recordkeeping, and reporting is \$57,200 + \$45,240 = <u>\$102,440</u>.

INCINERATOR AREA TANKS
CLOSURE COST ESTIMATE
ASSUMPTIONS AND CALCULATIONS

I. DISPOSAL OF WASTE INVENTORY

A. Assumptions:

1. Tanks are full to their permitted capacity with waste.

B. Waste Inventory Volumes:

Tank Group	Number of Tanks	Volume Per Tank	Total Volume	Waste Type
Energetic/Aqueous Holding Tanks (T-521, T-522, T-523, and T-524)	4	103,100 gal	412,400 gal	100% PCB
Energetic Liquids Storage Tanks (T-509, T-510, T-511A, T-512, T-513, T-551, T-552, T-553)	8	17,700 gal	141,600 gal	100% PCB
Aqueous Liquids Storage Tanks (T-514, T-515, T-516, T-550)	4	25,000 gal	100,000 gal	100% PCB
Sludge Storage Tanks (T-501, T-502, T-503A, T-504, T-505, T-506, T-507, T-508)	8	10,200 gal	81,600 gal	100% PCB
Truck Wash Storage Tanks (T-535, T-536)	2	5,500 gal	11,000 gal	100% PCB

II. TANK DECONTAMINATION

A. Assumptions:

1. The tanks will be decontaminated with a triple solvent rinse, followed by a detergent wash, followed by a clean water rinse.
2. Volume of solvent is equal to 20% of the largest tank in the tank group (e.g., 103,100 x 0.2 = 20,620 gal). An initial solvent rinse equal to one-half of this amount will be reused on all incinerator tanks in the tank group and will contain PCBs at 50 ppm or greater after the initial rinse of all tanks in the tank group is completed. The second and third solvent rinses will comprise the other half of this amount and will be reused on all incinerator tanks in the tank group; PCB concentration will remain less than 50 ppm during the second and third rinses.
3. Volume of detergent wash is equal to 10% of the largest tank in the tank group. This volume of detergent will be reused on all tanks in the group.
4. Volume of the clean water rinse is equal to 10% of the total volume of tanks in the group.
5. Spent solvent will be incinerated. The decontamination waters will be deepwelled.

B. Volumes of Decontamination Liquids:

Tank Group	Required Solvent	Required Detergent Wash	Required Clean Water Rinse	Total Volume of Decon Water to Dispose
Energetic/Aqueous Holding Tanks (T-521, T-522, T-523, T-524)	20,620 gal	10,310 gal	41,240 gal	51,550 gal
Energetic Liquids Storage Tanks (T-509, T-510, T-511A, T-512, T-513, T-551, T-552, T-553)	3,540 gal	1,770 gal	14,160 gal	15,930 gal
Aqueous Liquids Storage Tanks (T-514, T-515, T-516, T-550)	5,000 gal	2,500 gal	10,000 gal	12,500 gal
Sludge Storage Tanks (T-501, T-502, T-503A, T-504, T-505, T-506, T-507, T-508)	2,040 gal	1,020 gal	8,160 gal	9,180 gal
Truck Wash Storage Tanks (T-535, T-536)	1,100 gal	550 gal	1,100 gal	1,650 gal

III. STORMWATER DISPOSAL AND DECONTAMINATION OF SECONDARY CONTAINMENT

A. Assumptions:

1. Total volume of stormwater impounded in each area is equal to 12.41 inches (total rainfall of 2 consecutive wettest months) of rainfall over the surface area of the containment.

2. The required volume of detergent wash and clean water rinse are equal to 0.75 inches (0.4675 gal/ft2) of liquids over the surface of the containment area.
3. The volume of decontamination water to dispose is equal to the sum of the required detergent wash and the clean water rinse.
4. Stormwater and decontamination water will be deepwelled.

B. Volumes of Stormwater and Decontamination Liquids

Tank Group	Secondary Containment Area	Volume of Stormwater To Dispose	Required Volume of Detergent Wash	Required Volume of Clean Water Rinse	Volume of Decon Water to Dispose
Energetic/Aqueous Holding Tanks (T-521, T-522, T-523, and T-524)	10,200 ft2	78,903 gal	4,769 gal	4,769 gal	9,538 gal
Energetic Liquids Storage Tanks (T-509, T-510, T-511A, T-512, T-513, T-551, T-552, T-553)	5,370 ft2	41,540 gal	2,511 gal	2,511 gal	5,022 gal
Aqueous Liquids Storage Tanks (T-514, T-515, T-516, T-550)	3,860 ft2	29,859 gal	1,805 gal	1,805 gal	3,610 gal
Sludge Storage Tanks (T-501, T-502, T-503A, T-504, T-505, T-506, T-507, T-508)	5,117 ft2	39,583 gal	2,393 gal	2,393 gal	4,786 gal
Truck Wash Storage Tanks (T-535, T-536)	1,335 ft2	10,327 gal	625 gal	625 gal	1,250 gal

IV. DIRECT LABOR AND EQUIPMENT

A. Assumptions:

1. A two-man crew with foreman can decontaminate (detergent and clean wash) the secondary containment areas at a rate of approximately 5,000 ft² per day.
2. The energetic liquids holding tanks (103,100 gal/ea) take approximately 4.5 days each to decontaminate (including solvent rinse) with a two-man crew.
3. The energetic liquids holding tanks (17,700 gal/ea) take approximately 1.875 days each to decontaminate (including solvent rinse) with a two-man crew.
4. The aqueous storage tanks (25,000 gal/ea) take approximately 2.25 days each to decontaminate (including solvent rinse) with a two-man crew.
5. The sludge storage tanks (10,200 gal/ea) take approximately 1.5 days each to decontaminate (including solvent rinse) with a two-man crew.
6. The truck wash storage tanks (5,500 gal/ea) take approximately 1.125 days each to decontaminate (including solvent) with a two-man crew.

B. Times required to complete tank and secondary containment decontamination:

Tank Group	Tank Decontamination Labor (Two-man crew)	Secondary Containment Decon Labor (Two-man crew)	Total Labor (Two-Man Crew)
Energetic/Aqueous Holding Tanks (T-521, T-522, T-523, T-524)	18 days	2 days	20 days
Energetic Liquids Storage Tanks (T-509, T-510, T-511A, T-512, T-513, T-551, T-552, T-553)	15 days	1.1 day	16.1 days
Aqueous Liquids Storage Tanks (T-514, T-515, T-516, T-550)	9 days	0.8 day	9.8 days
Sludge Storage Tanks (T-501, T-502, T-503A, T-504, T-505, T-506, T-507, T-508)	12 days	1 day	13 days
Truck Wash Storage Tanks (T-535, T-536)	2.3 day	0.3 day	2.6 days

V. ANALYTICAL SERVICES

A. Assumptions:

1. One rinsate verification sample will be collected from each tank and from each secondary containment area after decontamination.
2. Core samples will be collected of the concrete containment structures for PCB closure purposes; the number of core samples is based on the area and geometry of each structure.
3. One stormwater sample will be collected from each open secondary containment area at closure and analyzed for the PCB Waste Areas parameters.
4. The analytical protocol and unit costs for stormwater and verification sampling is shown in the General Assumptions of this Closure Cost Estimate.

B. Summary of Samples to be Collected by Area

Tank Group	Number of Tanks	Number of Secondary Containment Areas	Total Number of Stormwater Characterization Samples	Total Number of Rinsate Verification Samples	PCB Core Samples
Energetic/Aqueous Holding Tanks (T-521, T-522, T-523, T-524)	4	2	2	6	8
Energetic Liquids Storage Tanks (T-509, T-510, T-511A, T-512, T-513, T-551, T-552, T-553)	8	1	1	9	4
Aqueous Liquids Storage Tanks (T-514, T-515, T-516, T-550)	4	1	1	5	4
Sludge Storage Tanks (T-501, T-502, T-503A, T-504, T-505, T-506, T-507, T-508)	8	1	1	9	4
Truck Wash Storage Tanks (T-535, T-536)	2	1	1	3	2

VI. CLOSURE CERTIFICATION

A. Assumptions:

1. The time required for a technical staff is 2 hour per day of physical closure activities, plus 0.5 hr for each rinsate sample collected, plus additional time for report preparation.
2. The time required for an engineer is ½ of the time required for the technical staff.

B. Summary of Man-Hours for Certification by Area

Tank Group	Technician (hrs)	Engineer (hrs)
Energetic/Aqueous Holding Tanks (T-521, T-522, T-523, and T-524)	56	28
Energetic Liquids Storage Tanks (T-509, T-510, T-511A, T-512, T-513, T-551, T-552, T-553)	50	25
Aqueous Liquids Storage Tanks (T-514, T-515, T-516, T-550)	34	17
Sludge Storage Tanks (T-501, T-502, T-503A, T-504, T-505, T-506, T-507, T-508)	42	21
Truck Wash Storage Tanks (T-535, T-536)	18	9

INCINERATOR TRAIN
CLOSURE COST ESTIMATE
ASSUMPTIONS AND CALCULATIONS

I. DISPOSAL OF WASTE INVENTORY

A. Waste Inventory Assumptions Table:

Waste Area	Quantity and Type of Waste Inventory	Assumptions
Non-Ignitable Waste Conveyor System	12 cy PCB bulk solids	Includes waste on the conveyor system between the BMHB and the kiln. Solids will be incinerated.
Containerized Waste Conveyor System	28 Drums PCB solids 28 Drums PCB liquids	The maximum number of drums that can be staged on the drum conveyor system that leads to the kiln is 56. Of these, half are PCB solids and half are PCB liquids. Drums will be incinerated.
Ignitable Waste Ram Feed System	3 cy PCB bulk solids	Includes waste in the ram feed system between the BMHB and the kiln.
Kiln	70 cy PCB bulk solids	The kiln has a total volume of 9,232 ft3. PCB waste occupies approximately 20 percent of this total volume. Solids will be incinerated.
Ash Removal Conveyors and Containers	50 cy residual D/F waste (ash)	Conveyors are 3' in width with a total 150' in length. Thickness of waste is 0.5'. Two 20 cy roll-off containers are full. Ash will be stabilized and landfilled.
Secondary Combustion Chamber	7,217 gallons contaminated water 31 cy of residual D/F waste (slag)	Cross-sectional area of SCC is 201 ft2. Assume a 6 foot depth of liquids/slag in SCC with a 80%/20% ratio. Total slag volume includes an additional 22 cy to account for slag on the flight conveyor and the rolloff container. Liquids will be deepwelled and solids will be stabilized and landfilled.
Quench Tower	3,949 gallons contaminated water 7 cy residual D/F waste (ash)	Cross-sectional area is 132 ft2. Assume a 5-foot depth of liquids/ash particulates in the quench tower with a 80%/20% ratio. Total ash volume also includes 2 cy on the screw and drag conveyors which lead to the SCC slag rolloff box. Liquids will be deepwelled and solids will be stabilized and landfilled.
Quench Box	2,940 gal contaminated water 5 cy residual D/F waste (ash)	Cross-sectional area is 79.6 ft2. Assume box is completely full (6.583 ft depth) of contaminated water and ash with a 75%/25% ratio. Liquids will be deepwelled and solids will be stabilized and landfilled. For quench box configuration, see Figure 1 (CJI drawing 05048001) contained in Onyx's application for a Class 1 permit modification originally submitted in March 2005 and revised in July 2005 and September 2005.
Absorbers (2)	13,524 gal contaminated water 84 cy bulk solids (packing)	Cross-sectional area of each is 113 ft2. Each absorbers contain a maximum of 10 feet of contaminated packing material and 8 feet of contaminated liquids. Liquids will be deepwelled and packing will be landfilled.
Cooling Towers (4)	31,596 gal contaminated water 137 cy bulk solids (packing)	Cross-sectional area of each is 132 ft2. Each tower contains a maximum of 7 feet of contaminated packing material and 8 feet of contaminated liquids. Liquids will be deepwelled and packing will be landfilled.
Clarifiers (3) Surge Tanks (2)	33,180 gal contaminated water 1,020 gal contaminated sludge	Each clarifier can hold a maximum of 8,000 gal of liquids. Assume each clarifier is full of contaminated liquids. In addition, the surge tanks (combined capacity of 10,200 gal) contains approximately 90% liquids and 10% filtered solids (sludge). Liquids will be deepwelled and sludge will be stabilized and landfilled.
Filter Presses (2) Sludge Tank (1)	8 cy residual D/F waste (filter cake) 1,000 gal contaminated sludge	The filter presses contain maximum of 4 cy filter cake each. Sludge tank contains 1,000 gal of sludge. Filter cake and sludge will be stabilized and landfilled.
Scrubbers (8)	64,000 gal contaminated water 320 cy bulk solids (packing)	Each scrubber contains approximately 40 cy packing and 8,000 gal of contaminated liquids. Liquids will be deepwelled. Packing will be landfilled.
Wet Electrostatic Precipitator	1,900 gal contaminated water	Maximum operating capacity of WESP sump is 1,900 gal.

B. Waste Inventory Calculations:

1. PCB Bulk Solids - Incineration: 12 cy + 70 cy + 3 cy = 85 cy
2. PCB Drummed Solids - Incineration: 28 drums
3. PCB Drummed Liquids - Incineration: 28 drums
4. Residual D/F Waste (Bulk Solids) - Stabilize and Landfill: 50 cy + 31 cy + 7 cy +5 cy + 8 cy = 101 cy
5. Contaminated Water - Deepwell: 7,217 gal + 3,949 gal + 2,940 gal +13,524 gal + 31,596 gal + 33,180 gal + 64,000 gal + 1,900 gal = 158,306 gal
6. Contaminated Sludge - Stabilize and Landfill: 1,020 gal + 1,000 gal = 2,020 gal
7. Contaminated Bulk Solids - Landfill (no stabilization): 84 cy + 137 cy + 320 cy = 541 cy

II. STORMWATER DISPOSAL

A. Assumptions:

1. Stormwater can accumulate in the secondary containment areas of the incinerator and the scrubber sludge clarifier area.
2. Secondary containment area of incinerator is 26,613 ft2 based on calculations from CRS Sirrine.
3. Secondary containment area of scrubber: V = (3.14 x 28’ x 28’) - (3.14 x 25’ x 25’) = 500 ft2.
4. Secondary containment of WESP is 40’ x 25’ = 1,000 ft2.
5. Volume of stormwater present in the secondary containment areas is based on a worst case estimate of 12.41 inches of water at closure (average precipitation of the two wettest consecutive months - May and June).
6. One stormwater characterization sample will be collected from the incinerator containment and submitted for the PCB Waste Areas parameters. One stormwater characterization sample will also be collected from the secondary containment of the clarifiers and submitted for the Non-PCB Waste Areas parameters.

B. Stormwater Volume Calculations:

Area	Area	Stormwater
Incinerator	26,613 ft2	205,867 gallons
Scrubber Sludge Clarifier Area	500 ft2	3,868 gallons
Wet Electrostatic Precipitator Area	1,000 ft2	7,736 gallons
Total Stormwater Volume		217,471 gallons

III. DECONTAMINATION OF EQUIPMENT AND VESSELS

A. Assumptions:

1. Decontamination with solvent will only be required for areas which managed PCB wastes. For tanks or vessels, the volume of solvent is equal to 10 percent of the largest tank volume.
2. For tanks and vessels, the volume of detergent is equal to 10 percent of the largest tank volume. For surfaces, the volume of detergent is equal to 0.75 inches (0.4675 gal/ft2) of liquid over the area, plus an additional 3 percent for decontamination of ancillary components.
3. For tanks and vessels, the volume of clean water is equal to 10 percent of the total volume of tanks. For surfaces, the volume of clean water is equal to 0.75 inches (0.4675 gal/ft2) of liquid over the area, plus an additional 3 percent for decontamination of ancillary components.
4. Assume 5 inches of slag and refractory will be removed from the kiln sidewalls. This thickness equates to approximately 40 cubic yards of slag and refractory.

B. Volumes of Decontamination Liquids

Waste Area	Total Size of Areas / Vessels	Volume of Solvent	Volume of Detergent Wash	Volume of Clean Water Rinse	Assumptions
Non-Ignitable Waste Conveyor System	333 ft2	84 gal	161 gal	161 gal	A solvent rinse will be required to decontaminate equipment in this area that has handled PCB contaminated waste.
Containerized Waste Conveyor System	480 ft2	NA	232 gal	232 gal	Conveyors will be decontaminated with a detergent washes and clean water rinses.
Ignitable Waste Ram Feed System	63 ft3 (471 gal)	47 gal	47 gal	47 gal	Solvent rinse will be required to decontaminate this system since it handles PCB contaminated waste.
Kiln	9,240 ft3 (69,115 gal)	NA	6,912 gal	6,912 gal	Kiln has 14' inner diameter and 60' length. Additional manpower and decontamination is provided under direct labor to clean out kiln. No solvent rinse needed since refractory removed for landfill disposal.
Ash Removal Conveyors and Containers	480 ft2	NA	232 gal	232 gal	Decontamination of pan conveyor system. Size is 6' W x 80' L.
Secondary Combustion Chamber	15,678 ft3 (117,272 gal)	NA	11,728 gal	11,728 gal	Cross-sectional area is 201 ft2. Height of unit is 78 ft.
Quench Tower	10,296 ft3 (77,014 gal)	NA	7,701 gal	7,701 gal	Cross-sectional area is 132 ft2. Height of unit is 78 ft.
Quench Box	524 ft3 (3,920 gal)		392	392	Cross-sectional area is 79.6 ft2. Height is 6.583 ft.
Absorbers (2)	5,650 ft3 (42,262 gal)	NA	2,114 gal	4,227 gal	Cross-sectional area of each absorber is 113 ft2. The height of each is 25 ft.
Cooling Towers (4)	10,560 ft3 (78,988 gal)	NA	1,975 gal	7,899 gal	Cross-sectional area of each tower is 132 ft2. Height of each is 20 ft.
Clarifiers (3) Surge Tanks (2)	34,200 gal	NA	800 gal	3,420 gal	Clarifiers are 8,000 gal each. Surge tanks are 5,000 gal and 5,200 gal with a combined capacity of 10,200 gal.
Filter Presses (2) Sludge Tank (1)	2,600 gal	NA	100 gal	260 gal	Filter presses are 800 gal ea. Sludge tank is 1,000 gal.
Scrubbers (8)	160,000 gal	NA	NA	16,000 gal	Scrubbers are 20,000 gal ea. The scrubbers will be decontaminated at same time as WESP. Detergent solution from WESP will be used to decontaminate scrubbers since WESP is largest unit.
Wet Electrostatic Precipitators	50,000 gal	NA	5,000 gal	5,000 gal	WESP has 16' diameter and 31' height. Sump volume = 1,900 gallons.
Total Volumes		**131 gal**	**37,394 gal**	**64,211 gal**	

IV. DECONTAMINATION OF SECONDARY CONTAINMENT AREAS (FOR COMBUSTION CHAMBERS AND APCT)

A. Assumptions:

1. Detergent volume is equal to 0.75 inches (0.4675 gal/ft2) of liquid over containment area plus an additional 3 percent for decontamination of ancillary components.
2. Clean water volume is equal to 0.75 inches (0.4675 gal/ft2) of liquid over containment area plus an additional 3 percent for decontamination of ancillary components.

B. Volumes of Decontamination Liquids

Group	Type of Decontamination	Volume of Detergent Wash	Volume of Clean Water Rinse	Volume of Decontamination Water to Dispose
Incinerator Area - Secondary Containment = 26,613 ft2	1) Detergent 2) Water	12,815 gal	12,815 gal	25,630 gal
Sludge Clarifier - Secondary Containment = 500 ft2	1) Detergent 2) Water	241 gal	241 gal	482 gal
Wet Electrostatic Precipitator - Secondary Containment = 1,000 ft2	1) Detergent 2) Water	482 gal	482 gal	964 gal
Total Volumes		**13,538 gal**	**13,538 gal**	**27,076 gal**

V. LABOR ESTIMATES FOR DECONTAMINATION OF EQUIPMENT AND VESSELS

Waste Area	Size of Area/Vessel	Time for Decon Two-Man Crew (days)(1)	Assumptions
EQUIPMENT AND VESSELS			
Non-Ignitable Waste Conveyor System	333 ft2	0.5	0.5 day to decontaminate all conveyor system components. Will require solvent.
Containerized Waste Conveyor System	480 ft2	0.5	Conveyors will be decontaminated with a detergent wash and clean water rinse
Ignitable Waste Ram Feed	63 ft2 (471 gal)	0.5	Decontaminate 10 inch diameter ram feed system.
Kiln	9,240 ft3 (69,115 gal)	8	Kiln has 14' inner diameter and 60' length. Time to wash with detergent and water is 3 days. Five days required to jackhammer slag and refractory off the sidewalls of kiln.
Ash Removal Conveyors and Containers	480 ft2	0.5	Decontamination of pan conveyor system. Size is 6' W x 80' L.
Secondary Combustion Chamber	15,678 ft3 (117,272 gal)	3	Cross-sectional area is 201 ft2. Height of unit is 78 ft.
Quench Tower	10,296 ft3 (77,014 gal)	2	Cross-sectional area is 132 ft2. Height of unit is 78 ft.
Quench Box	524 ft3 (3,920 gal)	0.5	Cross-sectional area is 79.6 ft2. Height is 6.583 ft.
Absorbers (2)	5,650 ft3 (42,262 gal)	2	Cross-sectional area of each absorber is 113 ft2. The height of each is 25 ft.
Cooling Towers (4)	10,560 ft3 (78,988 gal)	2.5	Cross-sectional area of each tower is 132 ft2. Height of each is 20 ft.
Clarifiers (3) Surge Tanks (2)	34,200 gal	2	Clarifiers are 8,000 gal each. Surge tanks are 5,000 gal and 5,200 gal with a combined capacity of 10,200 gal.
Filter Presses (2) Sludge Tank (1)	2,600 gal	1	Filter presses are 800 gal ea. Sludge tank is 1,000 gal.
Scrubbers (8)	160,000 gal	4.5	Scrubbers are 20,000 gal ea.
Wet Electrostatic Precipitator	50,000 gal	2	Includes decontamination of 1,000 ft2 of secondary containment.
SECONDARY CONTAINMENT AREAS			
Incinerator Area	26,613 ft2	5.5	Two-man crew decontaminates (detergent and clean wash) approximately 5,000 ft^2 per day.
Sludge Clarifier	500 ft2	0.25	Minimum decon time is 0.25 day.
Wet Electrostatic Precipitator	1,000 ft2	0.25	Minimum decon time is 0.25 day.
Total Time		**35.5**	

(1) Time based on decontamination time for tanks, adjusted based on professional judgment for the nature of the vessel and the waste handled.

VI. VERIFICATION SAMPLING PROGRAM

A. Sample Collection Summary Table:

Waste Area	Rinsate Samples	PCB Core Samples
EQUIPMENT/VESSELS		
Non-Ignitable Waste Conveyor System	1	6
Containerized Waste Conveyor System	1	NA
Ignitable Waste Ram Feed System	1	NA
Kiln	1 (D/F)	NA
Ash Removal Conveyors and Containers	1 (D/F)	NA
Secondary Combustion Chamber	1 (D/F)	NA
Quench Tower	1 (D/F)	NA
Quench Box	1 (D/F)	NA
Absorbers (2)	2 (D/F)	NA
Cooling Towers (4)	4 (D/F)	NA
Clarifiers (3) Surge Tanks (2)	5 (D/F)	NA
Filter Presses (2) Sludge Tank (1)	3 (D/F)	NA
Scrubbers (8)	8 (D/F)	NA
Wet Electrostatic Precipitator	2 (D/F)	NA
SECONDARY CONTAINMENT AREAS		
Incinerator Area (2 separate containments)	2 (D/F)	NA
Sludge Clarifier	1 (D/F)	NA
Wet Electrostatic Precipitator	1 (D/F)	NA

B. Total number of rinsate verification samples = 36. Of these rinsate samples, all will be analyzed for the D/F Area parameters, except for the waste conveyors and ram feed systems.

C. Total number of PCB core samples = 6.

VII. CLOSURE CERTIFICATION

A. Assumptions:

1. Time of technician required for certification is 2 hour per day of physical closure, plus 0.5 hr for each rinsate sample collected, plus 20 hours for report preparation = (2 hrs x 35.5 days) + (0.5 hr x 36 samples) + (20 hours report prep) = <u>109 hrs</u>.

2. Time of engineer required for certification is 1/2 of the total time required for the technical staff = <u>54.5 hrs</u>.

CONTAINER STORAGE AREAS
CLOSURE COST ESTIMATE
ASSUMPTIONS AND CALCULATIONS

NOTE: For ease of reference, the terms "drum", "drums", "drummed", etc. are used herein to refer to any/all non-bulk containers as 55-gallon drum equivalents.

I. DISPOSAL OF WASTE INVENTORY

A. Calculation Bases and Assumptions:

1. Facility data for actual waste receipts for the years 2013 through 2017 were queried to determine the quantities of wastes received in various physical forms and, in particular, the relative amount of drummed solids and drummed liquids. These data were also used to extract the fraction of TSCA-regulated PCB wastes in the incoming wastes. Data for 2013 through 2017 revealed that about 81% of the drummed wastes were drummed solids and approximately 19% of the drummed wastes were drummed liquids. During this same time period, the PCB content of drummed and bulk solids was less than 10% and the PCB content of drummed liquids was less than 20%. For the following closure cost calculations,it is assumed that all containerized waste inventory is comprised of 25% TSCA-regulated PCB waste and 75% LDR wastes and that non-bulk wastes are comprised of 85% drummed solids and 15% drummed liquids.
2. Waste and Container Storage Unit Information:

Storage Unit	Waste Volume	Waste Type	Additional Information
Truck and Container Storage Building	1,009 cy	25% PCB and 75%LDR	858 cy (85%) drummed solids, and 151 cy (15%) drummed liquids. Wastes are not stored on the adjacent Loading/Unloading Ramp. Residual D/F waste (slag, ash, etc.) in rolloff boxes can be stored in this unit, but assuming drummed waste requiring incineration (PCB or LDR) is more conservative due to higher disposal costs. Waste may also be stored in this unit in bulk containers such as tankers, frac tanks, and rolloff boxes. However, assuming drummed waste requiring incineration is more conservative due to higher disposal costs.
Building 46 and Associated Solids Storage Area	2,887 cy, INCLUDING up to 13,500 lbs of incoming, listed dioxin/furan (D/F) waste (approximately 5 cy)	25% PCB and 75% LDR (all wastes other incoming, listed D/F waste)	13,500 lbs of incoming listed D/F waste (approximately 5 cy) are assumed to be present in this unit. The breakdown of the remaining 2,882 cy of waste is based on Veolia's actual use of up to 9 out of the 16 bays for drummed waste and the other 7 bays and the associated solids storage area for bulk waste. Assuming each bay is half full (163.5 cy for each bay storing drums and 90 cy for each bay storing bulk waste), and using 85% drummed solids and 15% drummed liquids, there would be 630 cy of bulk solids, 1,251 cy of drummed solids, and 221 cy of drummed liquids within Building 46. An additional 780 yards of bulk waste would therefore be stored outside the building in the solids only storage area. Residual D/F waste (slag, ash, etc.) in rolloff boxes can be stored inside Building 46. However, LDR wastes requiring incineration are assumed to comprise all non-PCB bulk wastes in this container storage unit because the unit cost for incineration is greater than that for stabilization and land disposal of residual D/F waste.

Storage Unit	Waste Volume	Waste Type	Additional Information
Stabilization Container Storage Building	1,609 cy	25% PCB and 75% LDR	1,368 cy (85%) drummed solids, 241cy (15%) drummed liquids
Ash Container Storage Building	238 cy	25% PCB and 75% LDR	202 cy (85%) drummed solids, 36 cy (15%) drummed liquids
Container Storage Building	556 cy	25% PCB and 75% LDR	473 cy (85%) drummed solids, 83 cy (15%) drummed liquids
Truck Wash and Process Support Building	46.7 cy (consisting of 98 55-gal drums or eq. plus a 20 cy roll-off box) plus 1,496 gal washwater	25% PCB and 75% LDR (drummed waste), 100% PCB (bulk waste)	84 drums of solids, 14 drums; one 20 cy roll-off box with PCB solids, and the sump is full of PCB washwater (1,496 gal). Assumes no listed D/F waste since maximum allowable listed D/F waste quantity (13,500 lbs) is accounted for in Building 46. [*NOTE*: Due to the higher unit disposal cost for drummed solids versus drummed liquids and to maintain the total number of drums at 98, the calculated, fractional number of drums with solids was rounded up and the calculated, fractional number of drums with liquids was rounded down.]
BMHB - North Container Staging Area	52 cy (192 - 55 gal drums or equivalent)	25% PCB and 75% LDR	164 (85%) drummed solids, 28 (15%) drummed liquids. [*NOTE*: Due to the higher unit disposal cost for drummed solids versus drummed liquids and to maintain the total number of drums at 192, the calculated, fractional number of drums with solids was rounded up and the calculated, fractional number of drums with liquids was rounded down.]
BMHB - South Container Staging Area	43 cy (160 - 55 gal drums or equivalent)	25% PCB and 75% LDR	136 (85%) drummed solids, 24 (15%) drummed liquids.

B. Calculated Waste Inventory Volumes

NOTE: In the table below, the calculated, fractional numbers of drums with solids are rounded up and the calculated, fractional number of drums with liquids are also rounded up for conservative, closure cost-estimating purposes. Thus, the sum of the waste volumes by category for each unit shown below slightly exceed the initial allowable volumes shown in Item I.A above.

Storage Unit	Drummed solids		Drummed liquids		Bulk solids		PCB bulk liquids	Listed D/F Waste
	PCB	LDR	PCB	LDR	PCB	LDR		
Truck and Container Storage Building	214.5 cy (788 drums)	643.5 cy (2,363 drums)	37.75 cy (139 drums)	113.25 cy (416 drums)	None	None	None	None
Building 46 and Associated Solids Storage Area	312.75 cy (1,149 drums)	938.25 cy (3,446 drums)	55.25 cy (203 drums)	165.75 cy (609 drums)	360 cy (12- 30 cy rolloffs inside)	1,050 cy (9 – 30 cy rolloffs inside plus 26 - 30 cy rolloffs outside)	None	13,500 lbs
Stabilization Container Storage Building	342 cy (1,256 drums)	1026 cy (3,768 drums)	60.25 cy (222 drums)	180.75 cy (664 drums)	None	None	None	None
Ash Container Storage Building	50.5 cy (186 drums)	151.5 cy (557 drums)	9.0 cy (34 drums)	27.0 cy (100 drums)	None	None	None	None
Container Storage Building	118.25 cy (435 drums)	354.75 cy (1,303 drums)	20.75 cy (77 drums)	62.25 cy (229 drums)	None	None	None	None
Truck Wash and Process Support Building	21 drums	63 drums	4 drums	11 drums	20 cy	None	1,496 gal (sump)	None

Storage Unit	Drummed solids		Drummed liquids		Bulk solids		PCB bulk liquids	Listed D/F Waste
	PCB	LDR	PCB	LDR	PCB	LDR		
BMHB - North Container Staging Area	41 drums	123 drums	7 drums	21 drums	None	None	None	None
BMHB - South Container Staging Area	34 drums	102 drums	6 drums	18 drums	None	None	None	None

II. STORMWATER

A. Assumptions:

1. All containment areas are covered or enclosed and will not accumulate any stormwater.

III. DECONTAMINATION

A. Assumptions:

1. Containment surfaces will be cleaned with a detergent wash, followed by a clean water rinse.
2. The truck wash building will require 100 gallons of solvent for decontamination of equipment that has processed PCB contaminated waste.
3. The volume of detergent wash is assumed to be a volume equivalent to 0.75 inches (0.4675 gal/ft2) over the surface of the containment area.
4. The volume of clean rinse water is assumed to be equivalent to the detergent wash volume.
5. Decontamination of Building 46 and the Truck and Container Storage Building will include the two covered truck loading/unloading ramps that are located between these units. Each ramp is approximately 38 feet wide by 51.5 feet long. Since these ramps are identical and serve both units, one ramp will be decontaminated with Building 46 and the other will be decontaminated with Truck and Container Storage Building.
6. The containment area for the Truck and Container Storage Building and its adjacent loading/unloading ramp is 15,553 ft2 (building) + 1,957 ft2 (ramp) = 17,510 ft2. The containment area for Building 46 and its adjacent loading/unloading ramp is 44,386 ft2 (building) + 1,957 ft2 (ramp) = 46,343 ft2.

B. Summary of Decontamination Liquid Volumes:

Storage Area	Size of Area	Volume of Solvent	Volume of Detergent Wash	Volume Clean Water Rinse
Truck & Container Storage Bld and adjacent Loading/Unloading Ramp	17,510 ft2	NA	8,186 gal	8,186 gal
Building 46 and adjacent Loading/Unloading Ramp	46,343 ft2	NA	21,665 gal	21,665 gal
Building 46 Solids Storage Area	118,919 ft2	NA	NA	NA
Stabilization Container Storage Bld	27,740 ft2	NA	12,968 gal	12,968 gal
Ash Container Storage Building	3,407 ft2	NA	1,593 gal	1,593 gal
Container Storage Building	17,295 ft2	NA	8,085 gal	8,085 gal
Truckwash & Process Support Bld	3,840 ft2	100 gal	1,796 gal	1,796 gal

IV. DECONTAMINATION LABOR AND VERIFICATION SAMPLES

A. Assumptions:

1. Core samples will be collected of the concrete containment structures for PCB closure purposes; the number of core samples is based on the area and geometry of each structure.
2. A two-man labor crew with foreman can decontaminate (detergent and clean washes) approximately 5,000 ft2 per day using two high pressure water sprayers. Additional 0.5 days is required for the Truck Wash and Process Support Building to decontaminate equipment.
3. Analytical protocols and unit costs for verification sampling are presented in the General Assumptions of this Closure Cost Estimate. Rinse samples from Building 46 and the Truck Wash Support Building will also require D/F analyses. Listed D/F wastes will not be stored in the Building 46 Solids Storage Area.
4. Soil samples will be collected from the "solids only" areas to demonstrate closure under the Texas Risk Reduction Program Rules. The samples will be collected at a rate of 1 sample per 10,000 ft2 (100 ft grid spacing).

B. Summary of Decontamination Labor and Verification Samples:

Storage Area	Size of Area	Containment Areas / Collection Points	Labor for two-man crew	Rinse Water Samples	Verification Soil Samples	PCB Core Samples
Truck and Container Storage Building and adjacent Loading/Unloading Ramp	17,510 ft2	5	3.5 days	5 (D/F)	NA	17
Bld 46 and adjacent Loading/Unloading Ramp	46,343 ft2	17	9.3 days	17 (D/F)	NA	34
Bld 46 Solids Storage Area	118,919 ft2	NA	NA	NA	12	NA
Stabilization Container Storage Building	28,542 ft2	3	5.5 days	3	NA	16
Ash Container Storage Bld	3,407 ft2	1	0.7 day	1	NA	4
Container Storage Building	17,295 ft2	6	3.5 days	6	NA	15
Truckwash & Process Support Bld	3,840 ft2	1	1.3 days	1 (D/F)	NA	5

V. CLOSURE CERTIFICATION

A. Assumptions:

1. The time required for a technical staff is 2 hours per day of physical closure activities (with min 2 hr on-site), plus 0.5 hr for each rinsate sample to be collected, plus report preparation time. Assume 6 hours is required for a technical staff for closure certification of the Building 46 Solids Storage Area since no decontamination is required for this area.
2. The time required for an engineer is approximately ½ of the time required for the technical staff.

B. Summary of Man-Hours for Certification by Area:

Storage Area	Technician	Engineer
Truck and Container Storage Building and adjacent Loading/Unloading Ramp	18 hrs	9 hrs
Building 46 and adjacent Loading/Unloading Ramp	36 hrs	18 hrs
Building 46 Solids Storage Area	6 hrs	3 hrs
Stabilization Container Storage Building	21 hrs	10.5 hrs
Ash Container Storage Building	11 hrs	5.5 hrs
Container Storage Building	18 hrs	9 hrs
Truckwash and Process Support Building	12 hrs	6 hrs

BULK MATERIAL HANDLING BUILDING
CLOSURE COST ESTIMATE
ASSUMPTIONS AND CALCULATIONS

I. DISPOSAL OF REMAINING WASTE INVENTORY

A. Waste Inventory Volumes:

EQUIPMENT ITEM	ITEM SIZE	WASTE VOLUMES
Non-Ignitable Waste Train		
Regular Waste Pit	(see Engineering Report)	753 cy
Reloading Area Roll-off Box	(standard 20 cy box)	20 cy
South Container Staging Area	(20 pallets of drums x 2 rows)	160 drums
Shredder and Feed Hopper	(6'x6'x12') and (6.25'x4.4'x4.75')	21 cy
Ignitable Waste Train		
Low-flash Pit	(see Engineering Report)	146 cy
North Container Staging Area	(16 pallets of drums x 3 rows)	192 drums
Shredder and Feed Hopper	(6'x6'x12') and (6.25'x4.4'x4.75')	21 cy
Blender	(6.5' x 5.5' x 17')	22 cy

B. All units and equipment assumed to contain PCB-contaminated waste.

II. STORMWATER

B. Assumptions:

1. All waste management areas are within the building and will not accumulate any stormwater.

III. DECONTAMINATION OF EQUIPMENT

A. Solvent will be used for decontamination of processing equipment since this equipment will be used to process PCB wastes. The mixing pits are not coated or lined, and will be decontaminated to meet the measurement-based decontamination standard as provided in 40 CFR 761.79(b)(3). The shredders and the blender will be decontaminated using the self-implementing decontamination procedures under 40 CFR 761.79(c).

B. The volume of solvent to be used for the mixing pits is estimated at 2% of the volume of the largest pit. This volume should be adequate for decontamination of each unit and any ancillary components. PCB decontamination will be verified by wipe samples.

C. The volume of solvent to be used for the shredders and the blender is 10% of the volume of each unit. No verification of decontamination is required under the TSCA regulations.

D. The solvent rinse will be followed by a detergent wash. The volume of the detergent solution is estimated at 10% of the volume of each unit. This volume of the detergent solution should be adequate for decontamination of each unit and any associated ancillary components.

E. The detergent wash will be followed by a clean water rinse equal to 10% of the volume of each unit.

1. Obtain Decontamination Liquids

Unit	Total Volume (cubic yards)	Solvent (gallons)	Detergent Wash (gallons)	Clean Water (gallons)
Regular Waste Pit (6505-PT1)	753	3,042	15,210	15,210
Low Flash Pit (6505-PT2)	146	NA [1]	2,949	2,949
Shredder (6525-V)	21	424	424	424
Shredder (6555-V)	21	424	424	424
Blender (6560-V)	22	444	444	444

[1] Included in Regular Waste Pit Solvent

2. Dispose of Decontamination Liquids

Unit	Solvent (gallons)	Detergent Wash (gallons)	Final Clean Rinse (gallons)	Total Decon Water (gallons)
Regular Waste Pit (6505-PT1)	3,042	15,210	15,210	30,420
Low Flash Pit (6505-PT2)	NA [(1)]	2,949	2,949	5,898
Shredder (6525-V)	424	424	424	848
Shredder (6555-V)	424	424	424	848
Blender (6560-V)	444	444	444	888

[(1)] Included in Regular Waste Pit Solvent.

IV. DECONTAMINATION OF CONCRETE SURFACES

A. Assumptions

1. The concrete surfaces to be decontaminated encompass the entire area of the process building floor, including the drum staging and unloading areas. The concrete leak detection areas for the pits are also included, as well as the sloped truck unloading areas and trenches.

2. The concrete surfaces will be washed with a detergent equal to 0.75 inches (0.4675 gal/ft2) over each surface area.

3. The concrete surfaces will then be rinsed with clean water equal to 0.75 inches (0.4675 gal/ft2) over each surface area.

B. Decontamination Liquid Volumes:

1. Size of Concrete Surfaces Associated with Units (Including Pit Sidewalls)

Unit	Dimensions (ft)	Surface Area (ft^2)
Regular Waste Pit Area and Unloading Area	11(46+56+18.5+27.5+9+13.5+18.5+42+2.5+2.5) + (18.5x42) + (9x38.5) + (18.5x56) + (50x45) +(12x75)	7,905.5
Low Flash Pit and Unloading Area	11(21.5+21.5+19.5+19.5+2.5+2.5) +(22x50)	2,057
Shredder (6625-V) Area	69'x26'	1,794
Shredder (6655-V) Area	33'x38'	1,254
North Drum Storage Area	128'x49'	6,272
South Drum Storage Area	128'x26'	3,328

2. Volumes of Decontamination Liquids

Unit	Surface Area (ft^2)	Detergent Wash (gallons)	Clean Water Rinse (gallons)
Regular Waste Pit Area and Unloading Area	7,905.5	3,696	3,696
Low Flash Pit and Unloading Area	2,057	962	962
Shredder (6625-V) Area	1,794	839	839
Shredder (6555-V) Area	1,254	587	587
North Drum Storage Area	6,272	2,932	2,932
South Drum Storage Area	3,328	1,556	1,556

V. LABORATORY VERIFICATION

A. Assumptions

1. The analytical protocol and unit costs of the analytical parameters is included in the General Assumptions of this Cost Estimate.
2. Verification Samples will be collected from the following areas:

Unit	Rinsate from Unit/Structures	Rinsate from Containment Area	PCB Wipe Samples	PCB Core Samples
Regular Waste Pit and Associated Area	2	6	50	7
Low Flash Pit	1	2	18	3
Shredder (6525-V) and Associated Area	1	1	NA	2
Shredder (6555-V) and Associated Area	1	1	NA	1
Blender	1	0	NA	1
North Container Staging Area	0	3	NA	4
South Container Staging Area	0	2	NA	2

VI. DIRECT LABOR AND EQUIPMENT COSTS FOR DECONTAMINATION

A. Assumptions

1. Labor and Equipment rates for decontamination are provided in the General Assumptions of this Cost Estimate.
2. Time to decontaminate equipment is based on a two-man crew; solvent decon is required for equipment.
3. A two-man crew with foreman can decontaminate concrete structures (detergent and clean washes) at a rate of approximately 5,000 ft² per day.
4. Equipment will include two high-pressure sprayer systems and a gas powered suction pump system.

B. Summary of Time to Complete Decontamination

Unit	Units/Structures (days)	Concrete Surfaces (days)	Total (days)
Regular Waste Pit and Associated Area	4	1.6	5.6
Low Flash Pit	0.5	0.4	0.9
Shredder (6525-V) and Associated Area	0.5	0.4	0.9
Shredder (6555-V) and Associated Area	0.5	0.3	0.8
Blender	0.5	0	0.5
North Container Staging Area	NA	1.3	1.3
South Container Staging Area	NA	0.7	0.7

VII. CLOSURE CERTIFICATION

A. Assumptions:

1. The time required for a technical staff is 2 hours per day of physical closure activities (min 2 hrs on-site), 0.5 hr for each rinsate sample collected, and additional time for report preparation.
2. The time required for an engineer is ½ of the time required for the technical staff.

B. Man-Hours for Certification by Area:

Unit	Technician (hrs)	Engineer (hrs)
Regular Waste Pit Area	20	10
Low Flash Pit Area	8	4
Shredder (6525-V) Area	7	3.5
Shredder (6555-V) Area	7	3.5
Blende r	7	3.5
North Container Staging Area	9	4.5
South Container Staging Area	7	3.5

TRANSLOAD BUILDING
CLOSURE COST ESTIMATE
ASSUMPTIONS AND CALCULATIONS

I. DISPOSAL OF WASTE INVENTORY

A. Assumptions:

1. The mixing pit is full to its permitted capacity with PCB contaminated bulk solids.

B. Waste Inventory Volumes:

Item/Area	Quantity and Type of Waste Inventory	Assumptions
Mixing Pit	72 cy PCB bulk solids	Solids will be incinerated.

II. STORMWATER

A. Assumptions:

1. All waste management/processing areas are within the enclosed building and will not accumulate any stormwater.

III. DECONTAMINATION OF EQUIPMENT AND CONTAINMENT AREAS

A. Assumptions:

1. Solvent will be used for decontamination of mixing pit and associated ancillary equipment since it will be used to process PCB wastes. The mixing pit is not coated or lined, and will be decontaminated to meet the measurement-based decontamination standard as provided in 40 CFR 761.79(b)(3). The shredder and conveyor system in the basement that was formerly used to transfer waste to the former shredder/transfer building will also require a solvent wash. The shredder and conveyor system will be decontaminated using the self implementing decontamination procedures under 40 CFR §761.79(c).
2. The volume of solvent to be used for the mixing pit and ancillary equipment is estimated at 2% of the volume of the pit. PCB decontamination for steel surfaces will be verified by wipe samples. PCB decontamination for concrete surfaces will be verified with core samples.
3. The volume of solvent to be used for the former shredder and conveyor system is 100 gallons in the basement area, 50 gallons in the concrete tunnel conveyor area, and 100 gallons in the round steel conveyor housing.
4. The mixing pit and associated equipment will be pressure washed with a detergent solution after the solvent wash. The volume of the detergent solution is estimated at 10% of the volume of the mixing pit. The detergent wash will be followed by a clean water rinse. The volume of the clean water is equal to 10% of the volume of the mixing pit.
5. Other concrete surfaces within the building will also be decontaminated with a detergent wash followed by a clean water wash. The detergent volume is equal to 0.75 inches (0.4675 gal/ft2) of liquid over these concrete surfaces. The clean water volume is equal to 0.75 inches (0.4675 gal/ft2) of liquid over these concrete surfaces.
6. Surfaces associated with the shredder and conveyor system in the basement that was formerly used to transfer waste to the former shredder/transfer building will also be decontaminated using a detergent wash followed by a clean water wash. The detergent and clean water volumes are each equal to 0.75 inches (0.4675 gal/ft2) of liquid over the floor area. Round steel housing requires 0.75 inches of liquids over half of its interior surface area. Decontamination liquid volumes increased by 25% to account for decontamination of shredder and conveyor system.
7. Labor and equipment rates for decontamination are provided in the General Assumptions of this Cost Estimate. Time to decontaminate equipment is based on a two-man crew with

foreman; solvent decon is required for equipment. A two-man crew with foreman can decontaminate structures (detergent and clean washes) at a rate of approximately 5,000 ft² per day, but decontamination times have been adjusted based on professional judgment. Minimum decontamination time is 0.25 day. Equipment will include two high-pressure sprayer systems and a gas powered suction pump system.

B. Volumes of Decontamination Liquids

Waste Area	Total Size of Areas	Volume of Solvent	Volume of Detergent Wash	Volume of Clean Water Rinse	Decon Time (Days)
Mixing Pit and Equipment	72 cy	291	1,454	1,454	1.25
Other Concrete Surfaces in Building (29' x 13')	377 ft2	NA	176	176	0.25
Basement (40'x17')	680 ft2	100	397	397	1
Concrete Tunnel (12' x 40')	480 ft2	50	281	281	0.75
Round Steel Housing (10'Dia x 60')	0.5 x 1,884 ft2 = 942 ft2	100	550	550	1.25
Totals		**541 gal**	**2,858 gal**	**2,858 gal**	**4.5**

IV. REMOVAL OF SURFACE CONCRETE FROM MIXING PIT

A. Assumptions

1. Concrete surfaces within the mixing pit will require removal of approximately 1-inch of concrete for adequate decontamination. The concrete will be removed with pneumatic planers or scabblers.

2. A two-man crew with foreman can remove 1-inch of surface concrete at an average rate of 50 ft2/hour on flat surfaces and 6 ft2/hr on the 1:1 slopes and vertical sidewalls using a walk behind air scabbler and two hand held air scabblers. Assume that 70 percent of the concrete surfaces are flat and that 30 percent of the concrete surfaces are 1:1 slopes or vertical sidewalls.

3. The surface area of concrete within in the mixing pit is estimated at 1,050 ft2.

4. Concrete Surface Removal Equipment – $663/day
   [Concrete surface removal will be performed using planers or scabblers.]

   a. Includes one walk behind air scabbler @ $152/day
      [Pneumatic 5-head air scabbler (walk behind, 160 cfm) is $830/week based on 6/23/2017 quote from Sunbelt Rentals, Port Arthur. Assumes 6 work days per week and increased 10% for O&P.]

   b. Includes two hand held air scabblers @ $79/day
      [Pneumatic air scabbler (hand held) is $215/week each based on 6/23/2017 quote from Sunbelt Rentals, Port Arthur. Assumes 6 work days per week and increased 10% for O&P.]

   c. Includes one concrete dust vacuum @ $58/day
      [Concrete dust vacuum (electric) is $315/week based on 6/23/2017 quote from Sunbelt Rentals, Port Arthur. Assumes 6 work days per week and increased 10% for O&P.]

   d. Includes diesel powered air compressor @$81/day
      [Air compressor (diesel, 200-245 cfm) is $440/week based on quote from United Rentals, Port Arthur. Assumes 6 work days per week and increased 10% for O&P.]

   e. Includes portable gas powered generator @$43/day
      [Generator (gas, 3.0-3.4kW) is $233/week based on quote from United Rentals, Port Arthur. Assumes 6 work days per week and increased 10% for O&P.

   e. Includes estimated fuel cost @ $100/day
      [Assumes $85/day for air compressor and $15/day for generator (2016 Costs)]

   f. Includes other ancillary components @ $150/day
      [Ancillary components (flails, cords, hoses, shovels, wheel barrow, PPE, etc.) is estimated at $150/day.

B. Calculations

1. Time to complete concrete removal = 9 days
   [(1,050 ft2 x 0.70 / 50 ft2 per hr) + (1,050 ft2 x 0.30 / 6 ft2/hr) = 67 hours = 9 days]

2. Amount of concrete dust/debris generated = 5 cy
   [1,050 ft2 x 1in/12in x 40% fluff = 122.5 ft3 = 4.5 cy. Use 5 cy.]

V. LABORATORY VERIFICATION

A. Assumptions

1. The analytical protocol and unit costs of the analytical parameters is included in the General Assumptions of this Cost Estimate.
2. Verification Samples will be collected from the following areas:

Area	Rinsate Samples	PCB Wipe Samples	PCB Core Samples
Mixing Pit and Equipment	1	4	2
Building Concrete Surfaces	1	NA	1
Basement	1	NA	1
Concrete Tunnel	1	NA	1
Round Steel Housing	1	NA	NA
Total Samples	5	4	5

VI. CLOSURE CERTIFICATION

A. Assumptions:

1. The time required for a technical staff is 2 hours per day of physical closure activities, 0.5 hr for each rinsate sample collected, and additional time for report preparation.
2. The time required for an engineer is ½ of the time required for the technical staff.

B. Man-Hours for Certification:

1. Technician – 24 hours
2. Engineer – 12 hours

DEEPWELL AREA
CLOSURE COST ESTIMATE
ASSUMPTIONS AND CALCULATIONS

I. DISPOSAL OF WASTE INVENTORY

A. Assumptions:

1. Solid wastes in Deepwell Container Storage Building will be incinerated. Aqueous liquids in tanks will be deepwelled.
2. Waste inventory includes 4 cartridge filters (3 cy each) from filters F-102 A & B, and F-103 A & B and 20 cy of bulk solids in the Salt Box that will be stabilized and landfilled as part of the closure for Tanks T-101A, T-101B, and T-102.
3. Waste inventory includes a total of 10 carbon filters containing approximately 55 gallons of carbon each (approximately 3 cy total) that will be stabilized and landfilled as part of the closure for T-201.

B. Summary of Waste Inventory Volumes:

Unit Group	No. Units	Capacity per Unit	Total Waste Volume	Type of Waste
Deepwell Container Storage Building	1	120 cy	96 cy bulk solids and 89 drummed solids	100% LDR
Tanks T-101A, T-101B, and T-102	3	302,000 gal	906,000 gal	Aqueous Liquids
Salt Box	1	20 cy	20 cy	100% LDR
Cartridge Filter Media	4	3cy	12 cy	100% LDR
Tank T-201	1	999,256 gal	999,256 gal	Aqueous Liquids
Carbon Filters	10	55 gal drums	10 drums (3 cy)	100% LDR

II. DISPOSAL OF STORMWATER

A. Assumptions:

1. Under worst-case conditions, 12.41 inches (1.03 ft) of rainfall are present in the open secondary containment areas (avg rainfall for two consecutive wettest months - August and September) at the onset of closure. Since the Deepwell Container Storage Building is roofed with three sidewalls, it is assumed that only 10 percent of this rainfall volume can enter through the open sidewall.
2. For Tanks T-101A, T-101B, and T-102, stormwater can collect in the truck unloading area and secondary containment areas for the tanks. The tanks have gutters, so stormwater can only enter the secondary containment in the annular space between the perimeter of each tank and the perimeter of its secondary containment. The secondary containment for Tanks T-101A, T-101B, and T-102 is 515 ft2 per tank and the surrounding concrete surfaces that drain to the truck unloading area is 28,500 ft2, for a total surface area of 30,045 ft2.
3. Tank T-201 also has gutters, so stormwater can only enter the secondary containment in the annular space between the tank perimeter and the perimeter of the secondary containment. The secondary containment area for T-201 is 1,287 ft2 and the surrounding concrete surfaces that drain to the truck unloading area is approximately 2,100 ft2, for a combined surface area of 3,387 ft2.
4. Stormwater will be transported to the Texas Molecular facility (formerly GNI) in Deer Park, Tx for deepwell disposal.

B. Calculations:

1. Stormwater in Deepwell Container Storage Bld: 0.10 x (75.25 ft x 30.05 ft x 1.03 ft) = 233 ft3 (1,734 gal).
2. Stormwater volume for Tanks T-101A, T-101B, and T-102 and truck unloading area: 1.03 ft x 30,045 ft2 = 30,946.35 ft3 (231,479 gal).
3. Stormwater volume for Tank T-201 and unloading area: 1.03 ft x 3,387 ft2 = 3,488.61 ft3 (26,095 gal).

III. TANK DECONTAMINATION

A. Assumption:

1. Since the tanks will not contain PCB contaminated wastes, no solvent rinse will be required for closure of the tanks.
2. Both of the deepwell tank groups will be closed at the same time. The first decontamination will be a detergent wash at a volume of 10% of the largest tank volume (T-201). This total detergent solution volume is 99,256 gal. This volume split between the tank groups, based on the tank sizes in each group. Of this volume, 47.6% is assumed to be associated with Tanks T-101A, T-101B, and T-102. The remaining 52.4% is assumed to be associated with T-201.
3. The second decontamination will consist of a clean water rinse at a volume equivalent to 10% of all tanks in the group.
4. The decontamination water (detergent and clean water rinses) will be deepwelled off-site at the Texas Molecular facility in Deer Park, Texas.

B. Volumes of Decontamination Liquids by Tank Group:

Unit Groups	Tank Volumes (gal)	Total Group Volume (gal)	Percent of Total Tank Group Volumes	Required Detergent Wash (gal)	Required Clean Water Rinse (gal)	Decon Water Disposal (gal)
Tanks T-101A, T-101B, and T-102	302,000 ea	906,000	47.6	47,565	90,600	138,165
Tank T-201	999,256	999,256	52.4	52,361	99,926	152,287

IV. SECONDARY CONTAINMENT DECONTAMINATION

A. Assumptions:

1. For worst-case closure, the tank containment structures will be decontaminated in the same manner as the tanks. The liquid volumes to be used for decontamination of the secondary containment are assumed to be half of the volumes used for the tanks.
2. The concrete secondary containment for Deepwell Container Storage Bld is 75.3 ft x 20 ft = 1,506 ft2.
3. The area of contained concrete surfaces surrounding Tanks T-101A, T-101B, and T-102 that will require decontamination is 28,500 ft2. The area of contained concrete surfaces surrounding Tank T-201 is 2,100 ft2. It is assumed that each decontamination liquid (detergent wash and clean water) will be equivalent to approximately 0.75 inches (0.4675 gal/ft2) over the concrete contained areas.

B. Volumes of Decontamination Liquids by Group

Unit Group	Total Concrete Containment Area	Required Solvent	Required Detergent Wash	Required Clean Water Rinse	Decon Water Disposal
Tanks T-101A, T-101B, and T-102;	22,500 ft2	NA	37,107 gal	58,624 gal	95,731 gal
Tank T-201	2,100 ft2	NA	27,163 gal	50,945 gal	78,108 gal
Deepwell Container Storage Bld	2,261 ft2	NA	1,057 gal	1,057 gal	2,114 gal

V. ANALYTICAL SERVICES

A. Assumptions:

1. One stormwater characterization sample will be collected from each secondary containment area.
2. One sample of the final cleanwater rinse will be collected from the each of the tanks and tank's secondary containment areas to verify complete decontamination.
3. For analytical protocols and unit costs refer to the General Assumptions of this Closure Cost Estimate.

B. Number of Samples by Area:

Unit Group	Area Type	Number of Tanks	Number of Secondary Containment Areas	Number of Stormwater Characterization Samples	Number of Verification Samples
Deepwell Container Storage Building	Non-PCB	NA	1	1	1
Tanks T-101A, T-101B, and T-102; and Unloading Area	Non-PCB	3	4	4	7 (D/F)
Tank T-201 and Unloading Area	Non-PCB	1	2	2	3 (D/F)

VI. ENGINEERING DESIGN AND CONSTRUCTION OF SOIL COVER SYSTEM

A. Assume that engineering, surveying, quality assurance, and mobilization services for the soil cover system will be $45,000 (in 2016 dollars) based on CJI experience. This cost includes time for planning, oversight, and data review associated with the delineation soil sampling activities.

B. Soil samples will be collected and analyzed to delineate the lateral extent of any impacted soils located beyond the concrete secondary containment area. The total cost to perform the soil sampling activities and laboratory analyses is $17,610, based on the following:

a. It is assumed that 20 direct push borings will be required around the perimeter of the concrete secondary containment area (estimated at 1 acre). The spacing between borings will be 100 feet or less. Three soil samples will be collected from each boring for a total of 40 samples.

b. It is assumed that the direct push borings will take 2 days to complete. The cost of a direct push rig and crew (including mobilization from Houston, Texas) for 2 days is $3,700 based on a verbal quote from David Draybuck with Envirotech Drilling Services on 6/7/2017.

c. It is assumed that a field technician will spend 24 hours for sample collection and handling. The cost of the field technician is $55/hour based on CJI 2016 Rate Schedule (Technician II). Total cost of field technician is $24hrs x $55/hr = $1,320.

d. Other sampling supplies and equipment is estimated at $250.

e. The collected soil samples will be analyzed for Priority Pollutant VOCs, Priority Pollutant SVOCs, and Priority Pollutant Metals. Total cost per sample is $308.50 (see Item II of General Assumptions). Analytical cost is 40 samples x $308.50/sample = $12,340.

f. Total cost for sampling and laboratory analysis is $3,700 + $1,320 + $250 + $12,340 = $17,610

C. A soil cover system will be constructed over approximately 1 acre (43,560 ft2) at the deepwell area. The area to be capped will consist of the area currently occupied by T-101A, T-101B, T-102, the unloading area to the south of these tanks, and the unloading area entrance and exits to

D. the east and west of these tanks. The cover system will extend to about 80 feet north of the centers of these tanks.

E. The cover system will be comprised of approximately 3 feet of compacted clay. The clay will be obtained from an on-site source. Assume 40 percent additional clay needed due to compaction. Clay can be spread and compacted at a rate of 4,000 cy/day. Volume clay = (43,560 ft2 x 3 ft x 1.40) / 27 ft3/cy = <u>6,776 cy.</u>

F. Approximately 1 foot of topsoil will be placed over the clay cap. This topsoil will be obtained from an on-site source. Topsoil can be spread and graded at a rate of 4,000 cy/day. Volume topsoil = (43,560 ft2 x 1ft) / 27 ft3/cy = <u>1,614 cy.</u>

G. The topsoil will be seeded and fertilized after placement. Seeding and fertilizing costs provided in General Assumptions.

H. Projected duration of the soil cover system construction and seeding and fertilizing is 4 days.

VII. DIRECT LABOR AND EQUIPMENT – DECONTAMINATION/DISMANTLING

A. Assumptions:

1. Each of the 302,000 gallon tanks (T-101A, T-101B, and T-102) and ancillary components will take approximately 3.5 days to decontaminate and 1 day to dismantle, and relocate on-site.
2. The 1,007,048 gallon tank (T-201) and ancillary components will take approximately 5 days to decontaminate, and 3 days to dismantle and relocate on-site.
3. Each of the secondary containment structures for T-101A, T-101B, and T-102 will take approximately 1.75 days to decontaminate. It will take a total of 2 days to dismantle and relocate all three of these containment structures on-site.
4. The secondary containment structure for T-201 will take approximately 2.5 days to decontaminate. This steel containment structure will remain in-place.
5. The tanks and steel secondary containments will be relocated on-site with a 100 ton capacity, standard boom crane. Cost for a crane rental and operator is $3,248/day. Cost of crane and operator obtained from Means Online 2016 Open Shop Labor Rates (with O&P) for Beaumont (776-777).
6. A two-man crew with foreman can decontaminate (detergent and clean wash) the concrete unloading area and other containment surfaces at a rate of approximately 5,000 ft^2 per day.

B. Time for Decontamination and Tank Dismantling:

Unit Group	Tank Decontamination / Dismantling Time	Secondary Containment Decontamination / Dismantling Time	Total Time
Deepwell Container Storage Building (2,261 ft2)	NA	0.5 day to decon concrete secondary containment.	0.5 day
Tanks T-101A, T-101B, and T-102; and associated concrete containment surfaces (28,500 ft2)	10.5 days decon, and 3 days for dismantiling and relocating	5.25 days to decon secondary containment tanks, 2 days for dismantling and relocating, and 6 days to decon concrete containment surfaces.	26.75 days
Tank T-201; and associated concrete containment surfaces (2,100 ft2).	5 days for decon, and 3 days for dismantling and relocating	2.5 days to decon secondary containment tank and 0.5 day to decon concrete containment surfaces.	11 days

VIII. CERTIFICATION

A. Assumptions:

1. For the deepwell CSB, the time required for a technical staff is 2 hour per day of decon/dismantling activities, plus 0.5 hr for each rinsate sample collected, plus report preparation time.
2. Due to the large sizes of the deepwell tanks, the time for technical staff for the tank closures is 1 hr per day of tank decon/dismantling activities, plus 0.5 hr for each stormwater or verification sample collected, plus report preparation time.
3. The closure certification for Tanks T-101A, T-101B, and T-102 includes time for documenting the construction of the soil cover system across the historical release area, including preparation of as-built drawings and well as inclusion of the supporting soil sampling delineation results.
4. The time required for an engineer is 1/2 the total time of required for the technical staff.

B. Man-Hours for Closure Certification:

Unit Group	Technical Staff (hrs)	Engineer (hrs)
Deepwell Container Storage Building	8	4
Tanks T-101A, T-101B, and T-102 (plus capping)	100	50
Tank T-201	28	14

Appendix 6 Storage Capacity

TABLE CP-1-1
HAZARDOUS WASTE MANAGEMENT UNITS

FACILITY UNIT NO.	WASTE MANAGEMENT UNIT	DESIGN CAPACITY
DEEPWELL AREA		
57	Deepwell Container Storage Building	120 cubic yards (6 – 20 cubic yard rolloffs or equivalent)
58	Deepwell Tank (T-101A)	302,000 gallons
59	Deepwell Tank (T-101B)	302,000 gallons
60	Deepwell Tank (T-102)	302,000 gallons
65	Deepwell Tank (T-201)	999,256 gallons
70	Deepwell Ancillary Components and Related Appurtenances	NA
56	Class I Leachate Pond - Western Compartment: Post Closure Care	3,258,000 gallons
INCINERATOR AREA		
35	Stabilization Container Storage Building	1,609 cubic yards
2	Ash Container Storage Building	238 cubic yards
87	Container Storage Building	556 cubic yards
Not yet assigned	Transload Building	72 cubic yards
Not yet assigned	Truck Wash and Process Support Building	46.7 cubic yards[1]
4	Energetic/Aqueous Holding Tank (T-521)	103,100 gallons
5	Energetic/Aqueous Holding Tank (T-522)	103,000 gallons
6	Energetic/Aqueous Holding Tank (T-523)	103,000 gallons
7	Energetic/Aqueous Holding Tank (T-524)	103,000 gallons
12	Energetic Liquids Storage Tank (T-509)	17,700 gallons
13	Energetic Liquids Storage Tank (T-510)	17,700 gallons
NA	Energetic Liquids Storage Tank (T-511A)	17,700 gallons
15	Energetic Liquids Storage Tank (T-512)	17,700 gallons
16	Energetic Liquids Storage Tank (T-513)	17,700 gallons
17	Energetic Liquids Storage Tank (T-551)	17,700 gallons
18	Energetic Liquids Storage Tank (T-552)	17,700 gallons
19	Energetic Liquids Storage Tank (T-553)	17,700 gallons
20	Aqueous Liquids Storage Tank (T-514)	25,000 gallons
21	Aqueous Liquids Storage Tank (T-515)	25,000 gallons
22	Aqueous Liquids Storage Tank (T-516)	25,000 gallons

TABLE CP-1-1
HAZARDOUS WASTE MANAGEMENT UNITS

FACILITY UNIT NO.	WASTE MANAGEMENT UNIT	DESIGN CAPACITY
23	Aqueous Liquids Storage Tank (T-550)	25,000 gallons
24	Sludge Storage Tank (T-501)	10,200 gallons
25	Sludge Storage Tank (T-502)	10,200 gallons
NA	Sludge Storage Tank (T-503A)	10,200 gallons
27	Sludge Storage Tank (T-504)	10,200 gallons
28	Sludge Storage Tank (T-505)	10,200 gallons
29	Sludge Storage Tank (T-506)	10,200 gallons
30	Sludge Storage Tank (T-507)	10,200 gallons
31	Sludge Storage Tank (T-508)	10,200 gallons
34	Incinerator Train consisting of rotary kiln, secondary combustion chamber, waste feed mechanisms, ash handling equipment, and emissions control system.	175 million BTU/hr
32	Truck Wash Storage Tank (T-535)	5,500 gallons
33	Truck Wash Storage Tank (T-536)	5,500 gallons
BULK MATERIALS HANDLING BUILDING:		
91	Regular Waste Pit (6505-PT1)	753 cubic yards
92	Low Flash Pit (6505-PT2)	146 cubic yards
88	Shredder (6525-V)	NA
89	Shredder (6555-V)	NA
90	Blender (6560-V)	NA
93	North Container Storage Area	52 cubic yards (192 55-gallon drum equivalents)[2]
94	South Container Storage Area	43 cubic yards(160 55-gallon drum equivalents)
EAST AND WEST SUPPORT AREAS		
3	Truck and Container Storage Building	1,009 cubic yards
46	Building 46 and associated Solids Storage Area	2,887 cubic yards

[1] Design capacity established based on operations conducted within this building.

[2] Design capacity based on a single level of drums on pallets.

COOK-JOYCE INC.
ENGINEERING AND CONSULTING
812 WEST ELEVENTH 512-474-9097
AUSTIN, TEXAS 78701

ATTACHMENT V.B
CONTAINER STORAGE UNIT REPORT

AUGUST 2014
REVISED NOVEMBER 2016, JUNE 2017,
OCTOBER 2017, JANUARY 2018, JULY 2018,
SEPTEMBER 2018, AND JANUARY 2019

Prepared for:

Veolia ES Technical Solutions, L.L.C.
P.O. Box 2563
Port Arthur, Texas 77643

Prepared by:

Cook-Joyce, Inc.
812 West Eleventh Street
Austin, Texas 78701

This document presents the Container Storage Unit Report for the Veolia ES Technical Solutions, L.L.C. Port Arthur facility. The information provided in this report is true, accurate, and complete to the best of my knowledge. This document is being issued for permitting purposes only and is not intended for bidding or construction.

1-11-19

Kathy L. McGee, P.E.
Cook-Joyce, Inc. F-883
11 January 2019

Table V.B. - Container Storage Areas

Permit Unit No.	Container Storage Area/Subarea	N.O.R. No.	Rated Capacity	Dimensions	Containment Volume 3 (including rainfall for unenclosed areas)	Unit will manage (state all that apply)			Other Limitations and Notes
						Ignitable 1	Reactive 1	Incompatible 2	
3	Truck and Container Storage Building[5]	003	1,009 cy [5]	15,553 sf [4] (does not include 20-ft roof overhang)	28,240 cf	Y	Y	Y	1. Unit may store rolloffs and tankers; and totes, drums and other small containers on racks or pallets. 2. The amount of PCB waste in storage in this unit shall not exceed 25% of the total amount of waste in storage. 3. Floor-level pallets may be double stacked. There is no limitation on the number of floor-level, self-palleted totes. #
	Small Containments (2)		77 cy (each)	1,200 sf (each)	2,554 cf (each)				
	East Large Containment		414 cy	6,204 sf	11,448 cf				
	West Large Containment		441 cy	6,204 sf	11,684 cf				

Table V.B. - Container Storage Areas - continued

Permit Unit No.	Container Storage Area/Subarea	N.O.R. No.	Rated Capacity	Dimensions	Containment Volume [3] (including rainfall for unenclosed areas)	Unit will manage (state all that apply): Ignitable [1]	Reactive [1]	Incompatible [2]	Other Limitations and Notes
46	Building 46 and Associated Solids Storage Area	070	2,887 cy	3.7 acres (approx.)	20,976 cf	Y	Y	Y	1. Unit may receive bulk containers (e.g., rolloffs) and totes, drums and other small containers. 2. The amount of PCB waste in storage in this unit shall not exceed 25% of the total amount of waste in storage. 3. Prior to receipt of any pumpable waste in any of the bays that are not currently coated, the concrete surfaces will be coated, or a temporary liner will be installed. 4. The maximum volume of wastes containing free liquids in any single container in any given bay shall not exceed 1,250 cubic feet (9,350 gallons). 5. Bulk and non-bulk waste containers will not be stored together within any given bay. 6. For any bay containing 100% 330-gal. totes, only 27 floor-level, self-palleted totes are allowable 7. Floor-level pallets may be double stacked. 8. Listed dioxin/furan wastes from off-site sources, as well as residues from thermal treatment of these wastes, may be stored within the bays of this unit.
	Building 46 - Entire Building [5, 6]		2,887 cy [5, 6] (1,471.5 cy non-bulk, containerized waste)	44,386 sf [4]	20,976 cf				
	Building 46 - Each Bay (16) [5, 6]		327 cy [5, 6] (non-bulk containers on pallets or racks) -- OR -- 180 cy (bulk containers)	2,459 sf	1,311 cf				
	Building 46 Solids Storage Area		(included in rated capacity)	2.73 acres	Solids Only Area – No Containment Required				

Table V.B. - Container Storage Areas - continued

Permit Unit No.	Container Storage Area/Subarea	N.O.R. No.	Rated Capacity	Dimensions	Containment Volume [3] (including rainfall for unenclosed areas)	Unit will manage (state all that apply)			Other Limitations and Notes
						Ignitable [1]	Reactive [1]	Incompatible [2]	
35	Stabilization Container Storage Building [5, 7, 8]	085	1,609 cy [5] (totes, drums and other small containers on pallets)	27,740 sf [4]	5,015 cf	Y	Y	Y	1. The total waste quantity in this unit shall comply with the following mathematical limitation:[7, 8] $7.91N_P + 14.15N_{Tote} + 2.94R_P + 4.41R_T \leq 5{,}015$ cf Where: N_{Tote} = no. of palleted totes on floor N_P = no. of drum pallets on floor R_P = no. of drum pallets on racks R_T = no. of totes on racks. 2. The amount of PCB waste in storage in this unit shall not exceed 25% of the total amount of waste in storage. 3. Floor level pallets may be double stacked.

Table V.B. - Container Storage Areas - continued

Permit Unit No.	Container Storage Area/Subarea	N.O.R. No.	Rated Capacity	Dimensions	Containment Volume [3] (including rainfall for unenclosed areas)	Unit will manage (state all that apply): Ignitable [1]	Reactive [1]	Incompatible [2]	Other Limitations and Notes
2	Ash Container Storage Building[5, 7, 9]	031	238 cy [5] (totes, drums and other small containers on pallets)	3,407 sf [4]	1,405 cf	Y	Y	N	1. The total waste quantity in this unit shall comply with the following mathematical limitation:[7, 9] $8.23N_P + 15.82N_{Tote} \leq 1,405$ cf Where: N_{Tote} = no. of palleted totes on floor N_P = no. of drum pallets on floor R_P = no. of drum pallets on racks R_T = no. of totes on racks. 2. The amount of PCB waste in storage in this unit shall not exceed 25% of the total amount of waste in storage. 3. Floor-level pallets may be double stacked.
57	Deepwell Container Storage Building	026	120 cy (6 – 20 cy rolloffs or equivalent)	2,261 sf [4]	Solids Only Area – No Containment Required	Y	Y	N	Floor-level pallets may be double stacked.

Table V.B. - Container Storage Areas - continued

Permit Unit No.	Container Storage Area/Subarea	N.O.R. No.	Rated Capacity	Dimensions	Containment Volume [3] (including rainfall for unenclosed areas)	Unit will manage (state all that apply): Ignitable [1]	Reactive [1]	Incompatible [2]	Other Limitations and Notes
87	Container Storage Building[5]	105	556 cy [5, 10] (totes, drums and other small containers)	17,295 sf [4] (excludes office areas)	2,624 cf	Y	Y	Y	1. The amount of PCB waste in storage in this unit shall not exceed 25% of the total amount of waste in storage. 2. Floor-level pallets may be double-stacked. 3. Racks extend along both sides of each containment area to maximize waste storage volume. 4. No floor-level, self-palleted totes.
	Area A (East Bay)		151 cy [10] (containers on racks or pallets)	1,406 sf	495 cf				
	Area B (Center Bay)		151 cy [10] (containers on racks or pallets)	1,406 sf	495 cf				
	Area C (Center Bay)		131 cy [10] (containers on racks or pallets)	1,386 sf	491 cf				
	Area D (West Bay)		338 cy [10] (containers on racks or pallets)	2,824 sf	1,029 cf				
	Area E-1(South Row)		32.7 cy [10] (containers on racks)	244 sf	91 cf				
	Area E-2 (Southeast Row)		7.6 cy [10] (containers on racks)	61 sf	23 cf				

Table V.B. - Container Storage Areas - continued

Permit Unit No.	Container Storage Area/Subarea	N.O.R. No.	Rated Capacity	Dimensions	Containment Volume [3] (including rainfall for unenclosed areas)	Unit will manage (state all that apply)			Other Limitations and Notes
						Ignitable [1]	Reactive [1]	Incompatible [2]	
93	North Container Staging Area[11]	106	52 cy (192, 55-gallon drums or equivalent)	1,238 sf (recessed storage areas only)	432 cf	Y	Y	Y	1. The amount of PCB waste in storage in this unit shall not exceed 25% of the total amount of waste in storage. 2. This unit is located within the Bulk Material Handling Building.
94	South Container Staging Area[11]	107	43 cy (160, 55-gallon drums or equivalent)	399 sf (grated storage areas only)	133 cf	Y	Y	Y	1. The amount of PCB waste in storage in this unit shall not exceed 25% of the total amount of waste in storage. 2. This unit is located within the Bulk Material Handling Building.
103	Truck Wash and Process Support Building[12]	052	46.7 cy	3,840 sf [4]	659 cf	Y	Y	Y	1. Pallet rack systems may be installed in this unit for storage of up to 98, 55-gallon drums or equivalent volume. 2. The amount of PCB waste in storage on pallet rack systems shall not exceed 25% of the total amount of waste in storage on pallet rack systems. 3. In addition to the above, one 20-cy rolloff container may also be stored; PCB waste may be present within the rolloff box.

Footnotes:

[1] Containers managing ignitable or reactive waste must be located at least 15 meters (50 feet) from the facility's property line.

[2] Incompatible waste must be separated from other waste or materials stored nearby in other containers, piles, open tanks, or surface impoundments by means of a dike, berm, wall, or other device.

[3] Containment volumes represent the entire containment capacity of the system without any displacement.

[4] The area occupied by this building is defined by the outer perimeter of the roofed building floor.

[5] Residues from the thermal treatment of incoming, listed dioxin/furan waste, including but not limited to scrubber sludge, incinerator ash, and baghouse bags, will be generated on-site and may be managed in this facility unit.

[6] The bays in Building 46 may be used to store incoming, listed dioxin/furan wastes (i.e., listed dioxin/furan waste that has not undergone thermal treatment in the incinerator). The maximum amount of these wastes shall not exceed 13,500 pounds to ensure the validity of the closure cost estimate for the facility.

[7] The permittee shall maintain records available upon TCEQ request documenting compliance with the mathematical quantity limitation for this unit.

[8] The permittee may modify the waste tracking system to track self-palleted, floor-level totes separately from floor-level totes on pallets. If so, the mathematical waste quantity limitation shown above shall be replaced with the following: $7.91N_P + 10.85N_T + 14.15N_{ST} + 2.94R_P + 4.41R_T \leq 5{,}015$ cf, where N_T is the number of floor-level totes on pallets, N_P is the number of floor-level drums on pallets, N_{ST} is the number of floor-level self-palleted totes, R_P is the number of drum pallets on racks and R_T the number of tote pallets on racks.

[9] The permittee may modify the waste tracking system to track self-palleted, floor-level totes separately from floor-level totes on pallets. If so, the mathematical waste quantity limitation shown above shall be replaced with the following: $8.23N_P + 11.17N_T + 15.82N_{ST} \leq 1{,}405$ cf, where N_T is the number of floor-level totes on pallets, N_P is the number of floor-level drums on pallets and N_{ST} is the number of floor-level self-palleted totes.

[10] The sum of the volumes shown for the subareas exceeds the initial allowable volume for the unit. The total volume of waste in storage within this unit will be maintained at or below the allowable volume to ensure the validity of the closure cost estimate for the facility.

[11] Unit is not currently shown on N.O.R.; updated information was submitted to the TCEQ's Registration and Reporting Section by letter dated 19 September 2017.

[12] Authorization is being sought for this existing building as a permitted unit.

Appendix 7 General Engineering Report

COOK-JOYCE INC.
ENGINEERING AND CONSULTING
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ATTACHMENT V.A.

GENERAL ENGINEERING REPORT

AUGUST 2014
REVISED NOVEMBER 2016,
JUNE 2017, OCTOBER 2017, JULY 2018,
SEPTEMBER 2018 AND JANUARY 2019

Prepared for:

Veolia ES Technical Solutions, L.L.C.
P.O. Box 2563
Port Arthur, Texas 77643

Prepared by:

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Austin, Texas 78701

This document presents the General Engineering Report for the Veolia ES Technical Solutions, L.L.C. Port Arthur facility. The information provided in this report is true, accurate, and complete to the best of my knowledge. This document is being issued for permitting purposes only and is not intended for bidding or construction.

STATE OF TEXAS
KATHY L. McGEE
57783
REGISTERED
PROFESSIONAL ENGINEER

1-11-19

Kathy L. McGee, P.E.
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January 11, 2019

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R190111_GEN ENG RPT

REVISION 9
11 JANUARY 2019

TEXAS REGISTERED ENGINEERING FIRM F-883

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V.A.14 TRANSLOAD BUILDING – SECTION A-A’

V.A.15 TRANSLOAD BUILDING – SECTION B-B’

1.0 GENERAL INFORMATION

The Veolia ES Technical Solutions, L.L.C. (Veolia) Port Arthur facility is situated on approximately 150 acres of land adjacent to and south of State Highway 73, 3.5 miles west of Taylor Bayou in Jefferson County, Texas. The principal features of the facility are an incinerator, two injection wells, and associated surface units. The incinerator and the other surface units at the facility are primarily authorized by Texas Commission on Environmental Quality (TCEQ) hazardous waste permit and compliance plan No. 50212 (hereinafter referred to as HW-50212 and CP-50212). The facility also holds an EPA authorization for storage and incineration of PCBs. Operation of the underground injection wells is authorized by TCEQ permit Nos. WDW-160 and WDW-358. Air emissions from the facility are primarily regulated under New Source Review (NSR) permit No. 42450, Air Operating Permit No. 1509, and multiple registrations issued by the TCEQ. Stormwater and treated sanitary wastewater are discharged from the facility in accordance with TPDES permit No. WQ000241700. CP-50212 authorizes a groundwater corrective action program in an area of the facility impacted by surface impoundments operated by a previous owner.

This application seeks renewal and amendment of HW-50212 and CP-50212 and requests the following:

- renewal of permit authorization for the waste management activities and units currently authorized by HW-50212;
- removal of certain unconstructed units previously authorized under HW-50212;
- modification of the wastes that the facility is authorized to accept;
- addition of tanks previously authorized under HW-50212 to support continued facility operations under forecast market conditions;
- addition of certain currently-authorized ancillary components as permitted facility units;

- approval of previous modifications of the incinerator, the tank systems, the miscellaneous unit systems and container storage areas using the drawings, P&IDs and process flow diagrams contained in this application as the basis for approving any prior modifications that may not have received individual authorizations;

- increases in the permitted storage volumes of certain container storage units based on a detailed engineering evaluation of the containment provided;

- elimination/modification of redundant/inconsistent requirements between the facility's air quality permits and HW-50212;

- revision of incinerator operating parameter limits (OPLs) contained in HW-50212 to be consistent with the OPLs established in the facility's Notification of Compliance (NOC) with the Hazardous Waste Combustor (HWC) Maximum Achievable Control Technology (MACT) standards, the requirements of the Title V permit, and as approved pursuant to Alternate Monitoring Applications;

- revision of allowable feed rates of certain constituents based on the results of the 2017 CPT/RCRA/Air Periodic Test and as embodied in the NOC dated May 4, 2017 Revised July 7, 2017;

- revision of groundwater monitoring, closure and post-closure requirements to reflect removal of certain unconstructed units from the permit;

- revision of the corrective action monitoring program under the Compliance Plan, including changes to monitoring parameters and frequencies, establishment of Alternate Concentration Limits (ACLs), and revision of the Groundwater Protection Standard for arsenic in well DW-12; and

- revision of the estimated costs for closure, post-closure care and corrective action based on current market conditions.

1.1 BACKGROUND INFORMATION

Commercial industrial waste management activities were initially authorized at this location in 1975 by Texas Water Commission (TWC) Permit No. 39012-01, issued under authority of the Texas Solid Waste Disposal Act (TSWDA). The 01 below-grade landfill was developed on the western sector of the facility (the 01 site) in accordance with Permit No. 39012-01. The 02 below-grade landfill, located on the eastern sector of the facility (the 02 site), was authorized by TWC Permit No. 39012-02 under authority of the TSWDA in 1978. Permit Nos. 39012-01 and 39012-02 collectively authorized commercial waste management operations on a 442-acre tract of land. Chemical Waste Management, Inc. (CWM) acquired the entire 442-acre facility in 1978. In 1979, TWC Permit No. WDW-160 was issued authorizing underground injection disposal and associated surface units in the northeastern portion of the 01 site.

After the initial RCRA regulations were issued in 1980, operation and maintenance of the waste management units at the facility continued under the applicable interim status provisions of the RCRA hazardous waste permitting program. In 1985, WDW-160 was amended and re-issued as a consolidated UIC/RCRA permit for the injection well facility (the deepwell and associated surface units). A new hazardous waste permit (HW-50212 / CP-50212) was issued by TCEQ in 1988, authorizing construction and operation of an incinerator and associated storage and processing units in a largely-undeveloped area between the 01 and 02 below-grade landfills. This permit represented a partial facility permit under the RCRA regulations and a new facility permit under TCEQ's industrial solid waste regulations. The remainder of the facility, including the land disposal units, continued operation under RCRA interim status until September 1993, when the entire 442-acre facility was included in the RCRA permit through major amendment of HW-50212. A proposed landfill (the 02 above-grade landfill) was also authorized in the 1993 major amendment. In 2004, RCRA authority for the surface units at the injection well facility was transferred to HW-50212.

In 1999, CWM and Vivendi, S.A. (Vivendi) closed on a Purchase and Sale Agreement under which a number of CWM's operations in the United States were to be transferred to Vivendi, including 150 acres of the 442-acre CWM Port Arthur facility. In order to execute the Purchase and Sale Agreement, the environmental permits governing the operational portions of the original 442-acre facility were transferred to Onyx Environmental Services (Onyx), a Vivendi company. The two below grade landfills (the 01 landfill and the 02 below-grade landfill) remained the property of CWM and are now regulated under a separate hazardous waste permit (No. 50384). The entity formerly named Onyx is now known as Veolia ES Technical Solutions, L.L.C (Veolia). Figure V.A.1. depicts the boundary of the Veolia Port Arthur Facility, as well as the adjacent CWM property that comprised the original 442-acre hazardous waste management facility.

1.2 WASTE MANAGEMENT UNITS

Waste management units that are addressed by this permit application are identified in Table V.A.1. As detailed therein, these units include tanks; container storage units; miscellaneous units; the incinerator train, which includes a rotary kiln and secondary combustion chamber (SCC), associated waste handling and feed equipment, and emission control systems; and the deepwell ancillary components. Table V.A.1 also summarizes unit capacities, their current operational status, the type of waste managed in each, and the type of permitting activity associated with each waste management unit (e.g., renewal of authorization, removal from the permit, etc.).

Texas regulation (30 TAC §305.149) establishes a time limitation for construction of commercial hazardous waste management units after permit issuance. The regulation sets out a default time limit that may be extended upon request, and also provides for the establishment of an alternate construction schedule as may be approved by permit. Authorization for a number of previously authorized or newly-proposed, unconstructed units was sought and granted when the prior renewal application was approved. Some of these units have been constructed, but others have not and are no longer authorized based on the construction schedule approved in the current permit. Of the unconstructed units, Veolia is seeking re-authorization for certain previously-authorized units and requesting others be removed from the permit, as indicated in Table V.A.1.

Proposed schedules for construction of newly-authorized units are discussed in Section 3.0.

1.3 SITE LAYOUT AND TOPOGRAPHIC INFORMATION

The figures discussed below address the requirements of Section V.A.1 of the Part B application form and 40 CFR §270.14(b)(19). All maps and figures indicate the orientation (north direction), drafting date, and scale.

Drawing V.A.1 provides a plan view of the overall Veolia Port Arthur facility. This drawing depicts the locations of the major operational areas of the site (the deepwell area, the incinerator area, and the incinerator support areas), facility traffic patterns, the facility property boundary, access control (e.g., fences), buildings, levees and discharge points. As shown on the plan view, State Highway 73 provides direct access to the facility. Incoming waste shipment inspection, administrative, laboratory, maintenance and general support functions lie immediately south of Highway 73 and north of flood protection levees which surround the permitted waste management units. Figures V.A.2 through V.A.4 show the layout of major operational areas of the site including the location of each waste management unit in these areas. Drawing V.A.5 shows the topography of the facility at a scale of 1 inch equal to 300 feet, mapped at 1-foot intervals, flood zones and base flood elevations, and an area wind rose. Drainage patterns at the facility are depicted on Figure V.A.6, Sheets 1 and 2.

All permitted, active waste management activities are conducted in areas of the facility where flood protection from a 100-year hurricane event is provided by levees. The deepwell area, including the injection well and associated surface facilities, and the west support area are located within a common levee that lies south of the main entrance to the facility. Active units (a container storage area, tankage, and ancillary components) are located within the deepwell area, while the west support area contains no active units. The current permit authorized a stabilization building with mixing pits, a container management area, and associated tankage to be located within the west support area. However, this building and the associated waste management units were not constructed, and permit authorization for these units expired in March 2008.

The incinerator and east support areas are located within another flood protection levee that is partially contiguous with the eastern portion of the levee around the deepwell area. The majority of the active waste management units and operations are located within the incinerator area, which includes: the incinerator train and associated waste feed and emission control equipment; tankage for waste storage and treatment; miscellaneous units for storage, mixing, sizing, and blending of wastes prior to incineration; and container storage units for storage of incoming wastes to be incinerated and waste treatment residues from the incinerator. The east support area, located to the north of the incinerator area, contains two container storage areas and a covered truck loading/unloading dock and staging area. While the storage and processing units are primarily used in conjunction with operation of the incinerator, these units may also be used for storage and processing of wastes destined for further management at other authorized waste management facilities, as described throughout the renewal/amendment application documents.

Drawing V.A.7 shows surface water bodies and surrounding land uses.

Drawing V.A.8 depicts the monitoring wells which are located at the facility.

2.0 SITE CHARACTERISTICS

The Veolia Port Arthur facility is located near the City of Port Arthur, with direct access from State Highway 73. As depicted on Part A, Attachment B the land use in the vicinity of the site is agricultural, industrial and undeveloped. The nearest residence is over a mile from the facility. The City of Port Arthur municipal landfill is located approximately 1.3 miles east of the eastern facility boundary.

Facility siting criteria are addressed in Part B Section II. As shown on Drawing V.A.5, the facility is located within the 100-year floodplain. Attachment II.F provides engineering reports which demonstrate that the active hazardous waste management units are adequately protected from the effects of a 100-year flood.

This application does not constitute an application for a new hazardous waste management facility or an areal expansion of the existing hazardous waste management facility. Since the overall facility was in existence and qualified for interim status when the RCRA regulations took effect in 1980, and since the original Part B permit application for the facility had been declared administratively complete before September 1, 1984, the informational requirements regarding unsuitable site characteristics did not apply to the original Part B permit application, as provided at 30 TAC §335.201(b). However, the incinerator portion of the facility was originally permitted as a new facility in 1988, prior to final administrative action on the original Part B application, based on a stand-alone permit application filed on January 16, 1987. A Site Selection Report was prepared to address the applicable informational requirements relating to unsuitable site characteristics; at that time, these requirements were found in 31 TAC §335.204(a)(1) and (a)(3) through (5). The original Site Selection Report for the incinerator facility is provided as Attachment II.A, and the information provided therein remains unchanged.

Section II.G. of the Part B application form primarily addresses additional information requirements that were established by the Texas Legislature in 1991 under Senate Bill 1099. These additional informational requirements apply to facilities that were not in existence on the effective date of the legislation, and, in some cases, to areal or capacity expansions of existing hazardous waste facilities subsequent to the effective date of the legislation. Since this application seeks authorization of additional capacity beyond that currently authorized by HW-50212, this application includes information in response to those portions of Section II.G of the Part B application form that are applicable to capacity expansions.

3.0 CONSTRUCTION SCHEDULES

All existing units at the Veolia Port Arthur facility currently meet all applicable design standards established under the RCRA program. As such, no schedule for compliance is needed.

30 TAC §305.149 establishes a construction schedule requirement for commercial hazardous waste management facilities. New units must be constructed within 2 years after the issuance of the permit authorizing their construction, or an alternate schedule submitted with the permit application and approved by the permit; extensions are allowed as Class 2 or Class 3 modifications depending on the requested length of the extension. As noted earlier in this report, Veolia no longer has authorization for certain units permitted by the current permit due to operation of 30 TAC §305.149. Veolia has determined that the previously permitted units may well be needed in the future, inclusion of these units in the renewal application is the most appropriate course of action, and an alternate schedule for construction of the tanks is necessary.

In preparing the alternate construction schedule, Veolia has reviewed the regulatory considerations associated with 30 TAC §305.149 as well as facility management and business considerations. These considerations are discussed below.

3.1 MANAGEMENT AND BUSINESS CONSIDERATIONS

These tanks will be built if and when market conditions present a demand for this additional capacity. This could occur as a result of Veolia's evaluation of market trends and future needs, or it could occur as a result of a sudden need or unanticipated situation in the industrial waste generating community.

1. <u>Evaluation of Market Conditions</u>

Prior to commitment of capital funds for a construction project, Veolia routinely surveys market conditions as part of its business operations. When a potential new business service or need is identified and a facility modification would be necessary to address this potential new service or need, Veolia evaluates a number of factors in determining whether to proceed with the facility modification. This evaluation typically includes analysis of market conditions, updating prior estimates of potential construction costs, consideration of operational factors, assessment of potential impacts on operating costs at and revenues generated by the facility, and development of a financial *pro forma*. This information is then subject to a series of reviews by management at the facility and within the corporation up to top management. This decision-making process, in and of itself, can require significant time. Once a decision has been made to pursue the construction project, engineering plans, specifications and bid documents are typically necessary. Any bid documents must be obtained and evaluated, and contract terms and conditions generally must be negotiated.

In addition to the time required to implement the evaluation/design/construction process described above, overall time for completing any construction project is highly dependent upon conditions outside the control of the individuals responsible for execution of the project, such as availability of necessary materials, shipping delays for materials not available locally, and delays due to adverse weather.

2. Unanticipated Generator Needs

Customer needs can vary greatly over time as special projects arise or unanticipated conditions occur. Frequently, Veolia must be able to respond rapidly to be successful in addressing these variable customer needs. While a rapid response may not always be possible, particularly for more complex facility modifications, Veolia has identified the potential need for additional tankage at the facility and knows from past history that such needs can manifest suddenly. The design and operating information for the unconstructed tanks has previously been reviewed by TCEQ staff and authorized by HW-50212. Identical tankage has been constructed and is in use at the facility. The necessary infrastructure for the additional tanks (foundation/secondary containment, pipe racks, etc.) already exists. When a need for additional tankage occurs, Veolia has the capability to quickly commission tank fabrication, erect new tanks, and obtain a professional engineer's certification of new tanks in accordance with permit and regulatory requirements, if permit authorization for such tanks exists.

3.2 REGULATORY CONSIDERATIONS

The regulation at 30 TAC §305.149 was promulgated by a TCEQ predecessor agency (the agency), effective November 23, 1994. In the Texas Register publication of the final rule (19 TexReg 8863), the introductory language in the preamble states that it is adopted pursuant to new provisions of the Texas Solid Waste Disposal Act (the Act), Texas Health and Safety Code, §361.2032, promulgated by the legislature in 1991. Introductory language in the preamble also notes that §361.2032 of the Act directed the agency to conduct a needs assessment for commercial hazardous waste management to support the development of rules that would allow prioritization of permit applications for commercial facilities. This language continues, stating that 30 TAC §305.149 is designed to facilitate an assessment of accurate hazardous waste capacity under §361.2032(b) of the Act by encouraging applicants to seek permits only for units they intend to construct within defined time limits. Additional introductory text from the preamble also states:

> *One of the reasons for developing a prioritization process is to ensure that the commission's limited staff resources are allocated to processing permit applications which address the highest priority need. Because commission staff is constrained by resource limitations and can process only a finite number of permits, it is important not only to encourage applicants to permit the types of units for which there is the highest need, but also the capacity they intend to construct in the near future.*

In numerous preamble responses to separate comments on the proposed rule, the agency reiterates the need, and the authority, for the construction schedule rule, which is to fulfill the legislative requirement for assessment of commercial hazardous waste capacity needs. These responses essentially echo the introductory text of the preamble, in some instances elaborating further that permitted capacity that is not intended to be built in the near future makes an accurate assessment of hazardous waste management capacity problematic because of excess permitted, yet unrealized, capacity. In at least one location in the preamble, a goal of ensuring units are constructed in accordance with current standards was also identified. However, this is a secondary goal; the preamble clearly states the rule was adopted pursuant to §361.2032 of the Act to conduct a needs assessment for commercial hazardous waste management to support the development of rules that would allow prioritization of permit applications for commercial facilities.

Review of the Texas Solid Waste Disposal Act reveals that the Act no longer contains §361.2032 and, further, that the text previously in this section is not contained elsewhere in the Act. There are no TCEQ rules that prioritize commercial hazardous waste applications based on the priority of the need addressed by those applications. TCEQ no longer conducts biennial assessments of commercial hazardous waste capacity needs. There appears to be no current basis for the existence of the rule at 30 TAC §305.149. Nonetheless, it remains an adopted rule and it applies to the Veolia facility.

Six previously permitted tanks within the incinerator tank farm are to be permitted for future construction: three energetic liquids storage tanks (previously permitted unconstructed tanks T-552 and T-553 and a replacement tank, T-511A, for former tank T-511), two aqueous storage tanks (previously-permitted, unconstructed tanks T-516 and T-550), and one sludge storage tank (T-503A that will be a replacement for former tank T-503 that is out of service). Each of these unconstructed tanks is identical in design to a currently permitted and constructed tank. There have been no changes in the regulatory standards for these tanks since the prior renewal of HW-50212, when these tanks were most recently authorized.

There is no longer any statutory basis for only permitting units that are intended to be built in the near future. Including the previously permitted tanks in the renewed and amended permit and allowing that authorization to extend for a prolonged period of time will have no impact other than to conserve future resources by avoiding duplicative permitting actions to re-authorize previously-authorized tanks. As a result, Veolia proposes a construction schedule of ten years, the life of the permit, for the previously permitted tanks as summarized in Table V.A.2. This schedule will minimize the potential need for an interim re-authorization prior to permit renewal, thereby saving state resources.

4.0 FACILITY DESIGN AND OPERATION

General information regarding the design and operation of the Veolia Port Arthur facility is provided below. More specific information regarding key management procedures and facility designs is provided in separate attachments to the Part B application form.

As previously discussed in Attachment F of the Part A application, *Waste Characterization Report,* the Port Arthur facility receives and manages virtually all types of hazardous and non-hazardous wastes, including most hazardous wastes identified and listed in 40 CFR Part 261. These wastes include household hazardous waste, waste generated by commercial establishments (e.g., dry cleaners, mechanic shops, printing offices), and waste generated by industrial facilities (e.g., petroleum refining and petrochemical plants, pulp and paper mills, semiconductor plants). The facility accepts PCBs and containerized gases, and, as a co-fired combustor as defined in 30 TAC §113.2070, may also accept Special Waste from Health-Care Related Facilities as defined in 25 TAC §1.132(44).

As detailed in the Incinerator Report, Part B Attachment V.H, the Veolia incinerator has a long history of demonstrated test performance achieving a destruction removal efficiency (DRE) that exceeds 99.9999% using Principal Organic Hazardous Constituents (POHCs) that are more difficult to incinerate than listed dioxin/furan-containing waste, identified by EPA as F020, F021, F022, F023, F026, and F027 wastes in 40 CFR §261.31. Based on these accumulated performance test data, Veolia is seeking authorization to incinerate the listed dioxin/furan-containing waste under the renewed and amended permit.

There are two other categories of waste that Veolia plans to accept in the future. Veolia is proposing to accept putrescible waste as defined in 30 TAC §330.3(119) in sealed containers and commercial packaging, which could include materials such as expired MRE's (Meals Ready to Eat) and expired or off-spec food products, for storage and incineration. Veolia is also proposing to accept certain materials that must be shipped as Department of Transportation (DOT) Class 1 explosives and may be regulated by the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), but are not hazardous waste due to their explosive properties.

Wastes which the facility will not accept are: (1) radioactive wastes; (2) explosive material, as defined by DOT under 49 CFR Part 173, except for DOT Class 1 explosives that do not exhibit the reactive properties of 40 CFR §261.23(a)(6) or 40 CFR §261.23(a)(7), as may be authorized by the ATF; and (3) garbage, as defined in 30 TAC §330.3(56), in bulk and/or non-sealed containers.

4.1 WASTE ROUTING

Wastes are received in bulk containers (e.g., rolloff bins, end dumps, and tanker trucks) and in smaller containers such as drums, boxes, pails and other packaging. Wastes are managed according to their physical state and the treatment and/or disposal processes intended for the waste. This management philosophy is reflected in the waste characterization information presented in Part A application Attachment F and in Attachment IV of the Part B application. Incineration is the predominant process employed for off-site wastes received at the facility. However, leachate from the adjacent CWM landfill and other aqueous, third-party wastes may be received for deepwell injection.

Incoming wastes shipments at the Port Arthur facility are checked in with the receiving office at the main gate and are directed to the appropriate area for inspection and, as necessary, sampling for incoming load analyses. Incoming trucks with bulk waste containers (e.g., tankers, end dumps and rolloff bins) are routinely inspected and sampled at the sampling station located near the main gate. Fugitive emissions from inspection and sampling of bulk containers of pumpable wastes are controlled by an emission collection and control system at the sampling station.

Incoming shipments of drummed and other packaged waste are normally inspected and sampled at the off-loading location. The number of waste containers opened for inspection and/or sampling at these off-loading locations will be limited as necessary to control fugitive emissions. When a potential odor nuisance exists, or when appropriate for worker health and safety, inspection and/or sampling of containerized waste will be conducted within an enclosure that is exhausted to an emission control device.

Waste shipments may be directed to an appropriate container storage unit for holding pending acceptance. After acceptance, waste shipments will be directed to an appropriate storage or treatment unit. Appropriate units will be designated based on available unit capacities, the physical nature of the waste shipment, the compatibility of the waste shipment with the existing contents of a potential receiving unit or receiving unit area, the intended processes for management of the waste, and facility and customer scheduling constraints. Trucks bearing rejected waste or waste designated for transfer to an off-site facility exit through the main gate.

Bulk pumpable wastes are typically directed to an unloading area for off-loading to a storage tank. However, bulk liquid wastes may be fed directly to the incinerator or placed in a container storage unit, as appropriate. Aqueous bulk pumpable wastes are received in the aqueous liquids storage tanks or the energetic/aqueous holding tanks in the incinerator tank farm or in the deepwell storage tanks. Bulk pumpable wastes with heating value are received in the energetic liquids holding tanks, the energetic/aqueous holding tanks, the energetic liquids storage tanks, and the sludge storage tanks, all of which are located in the incinerator tank farm.

Bulk non-pumpable wastes may be received in container storage units designed for bulk containers or may be unloaded into mixing pits located in the bulk material handling building (BMHB) and the trans-load building. Wastes which are received in drums and other non-bulk packaging may be placed in any of the container storage units. With the exception of non-aerosol, containerized gaseous wastes, containerized wastes in non-bulk packaging may also be directed to the mixing pits in the BMHB and the trans-load building.

Incoming wastes that are listed dioxin/furan wastes will be restricted to the following units: Building 46, the Truck Wash and Process Support Building, and the incinerator.

Detailed process flow diagrams are provided in Part A Attachment E. These flow diagrams depict unit-to-unit waste movement at the facility.

4.2 WASTE MANAGEMENT UNIT INFORMATION

General information on the waste management units in existence or proposed to be constructed at the facility is provided below. Additional information can be found in the unit-specific design reports.

4.2.1 Container Storage

The facility includes eight currently-permitted container storage units; an existing building currently authorized as an ancillary component (the truckwash and process support building) is proposed to be permitted as an additional container storage unit. The existing and proposed container storage units are identified in Table V.A.1.

Containers of all sizes, including smaller containers such as pails, drums and totes, and bulk containers such as rolloffs and tanker trucks are accepted. The container storage building, the deepwell storage building, and the north and south container staging areas within the BMHB are designed for storage of smaller containers only. The ash container storage building, the stabilization container storage building, the Building 46 container storage area, the truck and container storage building, and the truck wash and process support building are capable of storing smaller containers as well as bulk containers. However, due to NSR permit conditions currently in effect, only sealed containers are stored in the ash container storage building and the stabilization container storage building.

In general, all authorized wastes may be stored in any of the container storage units. The deepwell storage building and the solids-only area within the Building 46 container storage area are restricted to wastes containing no free liquids and no TSCA-regulated PCBs. Future storage of incoming wastes bearing the listed dioxin/furan waste codes will be limited to Building 46 and the truckwash and process support building. These wastes may be stored prior to incineration inside Building 46 only, and may be re-packaged, but not stored, in the truck wash and process support building prior to direct feed to the incinerator.

The primary units for storage of containerized waste at the facility are the truck and container storage building, the Building 46 container storage area, the stabilization container storage building, the ash container storage building, and the container storage building. These five units provide storage for most of the containerized wastes received at the Veolia facility for treatment. Other than the solids-only storage area associated with Building 46, each of these container storage units includes one or more concrete containment systems.

A detailed engineering evaluation of the containment system for each of the five primary container storage units was conducted as part of the permit renewal and amendment activities. These evaluations establish a practical maximum waste storage volume for each unit that complies with the containment requirements of 40 CFR §264.175(b)(3) and exceeds the currently-permitted waste volume. The evaluation approach also provides operational flexibility in container configuration by establishing appropriate mechanisms for maintaining and verifying compliance with storage limitations.

Based on the engineering evaluations provided, this amendment application requests an increase in the permitted storage capacity for four of the five primary container storage units: the truck and container storage building, Building 46 and its associated solids storage area, the stabilization container storage building, and the ash container storage building. However, due to closure cost considerations, the requested increases are less than the practical maximum waste storage volumes established in the detailed engineering evaluations, and no increase in permitted storage capacity is being requested for the container storage building,

As noted above, the truck wash and process support building, which is currently authorized by HW-50212 as an ancillary component to the incinerator, is requested to be included in the permit as a container storage area. This will allow incidental storage of wastes in the building and minimize unnecessary movement of wastes within the facility.

Detailed information on the design and operation of the container storage units is provided in a separate Container Storage Unit Report, Part B Attachment V.B.

4.2.2 Tank Storage and Processing

Numerous tanks are used for hazardous waste management at the Veolia Port Arthur facility (see Table V.A.1). The majority of these tank systems are located in the incinerator tank farm, with the remainder located in the deepwell area. The incinerator tank farm stores and blends pumpable aqueous and energetic (having heating value) wastes. Deepwell tanks are primarily used for storage, blending, and pH adjustment of aqueous waste prior to deepwell injection.

The permitted tank systems are currently authorized to manage all wastes authorized at the facility. The tank systems will not be used to manage wastes carrying the dioxin/furan codes, should these wastes be authorized for management at the facility as is being requested in this permit renewal and amendment application.

In accordance with the Waste Analysis Plan, all waste material that is to be placed into a tank which contains different wastes or waste residues is evaluated for compatibility with the tank contents prior to placing the material into a tank. The evaluation utilizes the Commingled Waste Compatibility Test (ASTM Method D5058A), in which the material that is to be placed into a tank is mixed with a sample of the material that is in the tank. Laboratory personnel observe the mixture for indications of incompatibility such as significant temperature change, gas evolution, change in physical state, or violent reactions. Using the laboratory test results as a reference, the temperature of the tank contents is monitored as additional waste is added to the tank and waste addition is controlled to maintain the temperature change within an acceptable range. In addition, the tanks vent to emission control devices.

Detailed information on the design and operation of the facility's tank systems is contained in a separate Tank Report, Part B Attachment V.C.

4.2.3 Miscellaneous Units

Several miscellaneous units are housed in the BMHB: two steel-lined, concrete mixing pits, two shear-type shredders, and a blender; other ancillary equipment is provided for movement of materials between units. As described in Section 4.3.2, the BMHB contains two waste processing trains referred to as the regular waste train and the low flash train. The regular waste train includes a mixing pit and a shredder for mixing and sizing bulk and containerized waste materials and equipment that allows transfer of wastes between units and conveys bulk solid waste feed to the incinerator. The low flash train includes a mixing pit, a shredder, and a blender to mix, size and blend bulk non-pumpable, bulk liquid, and containerized waste for delivery to the incinerator via a ram feeder. The low flash train operates in a nitrogen-inerted atmosphere when necessary to handle and feed low-flash materials, but may also operate in a normal atmosphere when handling regular wastes.

Prior to construction of the BMHB, bulk non-pumpable wastes were fed to the incinerator via the bulk solids building, which housed a portion of the original system for conveying bulk solid wastes to the incinerator kiln. As such, the bulk solids building was authorized as an ancillary component to the incinerator in the original RCRA permit for this facility. When the bulk solids feed function was relocated to the BMHB, the bulk solids building was re-designated the transload building, reflecting the fact that it could be used for waste transloading (e.g., unloading wastes from a customer's rolloff box to a Veolia rolloff box). The current RCRA permit, which spanned the transition period for relocating the bulk waste feed function, continues to authorize the bulk solids building as an ancillary component to the incinerator, but TCEQ has requested that the pit in this building now be permitted as a separate waste management unit if it will be used for waste management activities in the future. Consistent with the current permit authorization for the mixing pits in the BMHB, the pit in the transload building is included in this permit renewal and amendment application as a miscellaneous unit. Operations in the transload building are described in Section 4.3.3. The currently-permitted miscellaneous units are authorized to manage all wastes authorized at the facility. None of the miscellaneous units included in this application will be used to manage wastes carrying the dioxin/furan codes, should these wastes be authorized for management at the facility as is being requested in this permit renewal and amendment application. In addition, since the mixing pit in the transload building currently does not have complete secondary containment, wastes that may be received in this unit will not contain free liquids.

Detailed information on the design and operation of the miscellaneous units in the BMHB is provided in a Miscellaneous Units Report, Part B Attachment V.K-1. Information on the design and operation of the mixing pit in the transload building is provided in a separate Miscellaneous Units Report, Part B Attachment V.K-2.

4.2.4 Incineration

The incinerator includes a rotary kiln and secondary combustion chamber (SCC) that effectively destroy organic waste materials. Feed mechanisms at the kiln faceplate accommodate pumpable, bulk solid, and containerized streams; the SCC receives pumpable and gaseous waste streams. Typically, incoming wastes are stored and/or processed prior to being incinerated, with the primary objective to prepare well-homogenized waste feed blends that allow more consistent performance of the incineration process. A series of emission control equipment, including an adiabatic quench tower, caustic absorbers, an ionizing wet scrubber (IWS), and a wet electrostatic precipitator (WESP), follows the combustion components to remove metals, other particulate matter, and acid gases.

As noted previously, Veolia is seeking authorization to manage the listed dioxin/furan-containing waste in the incinerator under the renewed and amended permit, based on the performance test data for the incinerator that has been accumulated over its operation. Containerized wastes containing listed dioxin/furan wastes may be stored in Building 46 prior to incineration on the containerized feed line or prior to routing to the Truck Wash and Process Support Building for repackaging before being fed to the incinerator on the containerized feed line.

Solid residues from the incineration of the listed dioxin/furan wastes destined for off-site landfill disposal, including slag, ash, and filter cake, will also carry the listed dioxin/furan codes due to the "derived from" rule at 40 CFR §261.3(c)(2)(i). Prior to off-site shipment, containers holding incineration residues may be stored on-site in permitted container storage or non-permitted container accumulation units. Any containers of incineration residues bearing the listed dioxin/furan waste codes will only be stored in units that have a containment system that complies with 40 CFR §264.175(b) (i.e., containers with these residues will not be placed in a solids-only container storage area). Aqueous residues from the incineration of the listed dioxin/furan wastes (e.g., scrubber water) will similarly carry the listed dioxin/furan waste codes. These aqueous residues from dioxin/furan waste incineration will continue to be disposed in an on-site permitted injection well and may be managed in any of the deepwell tank systems

(Permit Unit Nos. 58, 59, 60 and 65) and in the ancillary components and related appurtenances at the deepwell (Permit Unit No. 70).

Detailed information on the design and operation of the incinerator is provided in a separate Incinerator Report, Part B Attachment V.H.

4.2.5 Emission Controls

Robust systems are in place to control emissions from all facility operations as necessary to comply with applicable regulatory standards. Detailed information on the design and operation of the incinerator emission control system is provided in the Incinerator Report, Part B Attachment V.H. The applicable portion of Section X. of the Part B form has been completed to address the requirements of 40 CFR Part 264, Subparts AA, BB, and CC.

The emission control system for the incinerator, an integral part of the incinerator train, is regulated under several environmental programs, including HWC MACT, RCRA, and TSCA. In addition to the emission control requirements of the RCRA permit, air emissions from the Veolia Port Arthur facility are authorized and regulated under TCEQ New Source Review Permit No. 42450, Federal Operating Permit No. O1509, and various permit by rule and standard permit registrations, as well as the requirements of the TSCA regulations.

4.3 WASTE MANAGEMENT OPERATIONS

Primary waste operations include incineration of a broad range of industrial wastes and certain non-industrial wastes, deepwell injection of aqueous wastes, and associated waste storage and processing activities. The facility also provides a centralized location to which generators can ship their wastes for a wide variety of additional treatment, storage and disposal options, including on-site specialty waste services, decontamination services, and intermediate handling of wastes destined for trans-shipment to an authorized off-site facility for further management.

4.3.1 Incineration

The Veolia Port Arthur facility incinerator treats all types of hazardous and non-hazardous wastes in liquid, bulk solid, containerized, and gaseous forms. Bulk pumpable wastes to be incinerated are typically blended in the incinerator tank farm prior to being fed to the incinerator, although they may be directly fed without blending. Bulk pumpable wastes are also mixed with other wastes in the blender located in the BMHB to yield a waste blend suitable for feeding to the incinerator via the ram feeder.

Incoming wastes are typically processed to prepare well-homogenized waste feed blends for the incinerator to maintain consistent performance of the incineration process. Veolia prepares pumpable waste blends in the tank farm and bulk solid waste blends in the BMHB. Well-homogenized waste feed blends help minimize exceedances of continuously monitored emission standards and operating parameters, which in turn cause automatic waste feed cutoffs. Operations to prepare incinerator feed blends of bulk and containerized waste are described more completely in Section 4.3.2.

Incinerator operations are monitored and adjusted by the distributed control system (DCS) in the central control room, which is manned round-the-clock. The control room operators are supported by incinerator operators outside the control room that monitor physical operations of process systems, line out valves for proper pumping, unload tankers and manage containerized and bulk waste materials. In addition, there are operators in the BMHB that operate the bulk waste mixing arm and the overhead cranes associated with the two mixing pits in the BHMB. All of the operators communicate and coordinate via radio communication to ensure a consistent operational scenario.

The incinerator operations are constrained by Operating Parameter Limits (OPLs) that are embodied in RCRA, MACT, TSCA, Title V and NSR permits/authorizations. Included within the OPLs are automatic waste feed cutoff parameters whereby the DCS will automatically cut off some or all of the waste feeds to the combustion units if defined parameters are exceeded; or the DCS may automatically shut down the incinerator altogether. Operators may also manually shut off incinerator waste feeds or shut down the incinerator. The incinerator has a sophisticated emission control train to allow the incinerator to operate with narrowly defined air emission limits that must be demonstrated on a periodic basis. Solid residuals are captured and transferred off-site for disposal in an authorized land disposal facility. Liquid residuals are captured, treated and disposed in an on-site permitted injection well.

4.3.2 Bulk Material Handling Building

The Bulk Material Handling Building (BMHB) houses waste management units and associated equipment that provide for bulking, sizing, mixing, and blending of bulk solids and containerized waste. It also houses the feed end of the mechanisms that convey non-pumpable and most containerized wastes to the incinerator. Typically, operations in this building are performed in conjunction with subsequent feeding of the resultant waste blends to the incinerator. The building also supports the mixing of wastes for incineration at a later date and transloading wastes from customer bulk carriers into site roll-off boxes.

The BMHB contains two, separate waste processing trains: one for ignitable wastes, also referred to as "low-flash wastes" (closed cup flash point less than 140 °F); and one for non-ignitable wastes, also referred to as "regular wastes" (closed cup flash point greater than or equal to 140 °F). The regular waste train, located in the southern portion of the BMHB, accepts bulk solid waste and containerized wastes that are sized and mixed in units within the building prior to transferring to the apron conveyor that feeds bulk wastes to the kiln. The low flash train, located in the northern portion of the BMHB, accepts low flash and regular wastes in bulk solid, containerized, and liquid forms that are sized and mixed/blended in units within the building prior to transferring to the kiln using a ram feeder. The low flash train operates in a nitrogen-inerted atmosphere when necessary to handle and feed low-flash materials. The layout of the BMHB is depicted on Figure V.A.9, and section views are shown on Figures V.A.10 through V.A.13. A divider wall has been constructed in the regular waste pit and those details are shown in Figures 1-4 in Attachment V.K.1.

<u>Regular Waste Train</u>

In the regular waste feed train, bulk solids are off-loaded into a steel-lined, concrete pit (the regular waste pit). Waste containers are transferred from the staging area in the southern portion of the BMHB, which includes a permitted container storage area, to a shredder that discharges into the regular waste pit. Mixing and movement of bulk materials and shredding operations are remotely controlled by operators in an enclosed room (identified as the 'pulpit' on the referenced application drawings), assisted by video cameras. Operators, using a remotely operated arm grapple, mix wastes in the regular waste pit and can also transfer wastes from the pit to an adjacent roll-off box. A bridge crane and clamshell serve as the primary means for transferring the blended waste feed mix to the feed hopper for the apron conveyor, an enclosed conveyor that moves waste from the building to the bulk solids feed chute at the kiln. The bridge crane and clamshell can also be used by the operator to move materials from the pit to the shredder for sizing. With the installation of the divider wall in the regular waste pit, sludge wastes can be off-loaded into the northern section of the pit, solidified with solid materials and transferred to the southern side of the pit to be mixed with other solid materials or moved directly to the area where the bridge crane can transfer the materials to the apron conveyor for feeding to the kiln.

Low Flash Waste Train

The low-flash waste feed train includes a container conveying and shredding system nearly identical to the system used in the non-ignitable waste feed train. The low-flash feed train incorporates design features and process controls to allow the safe handling of ignitable wastes, as described below. In addition, this process train may be used to blend and feed non-ignitable wastes. In the regular waste mode, the ignitable waste features and controls are not necessary for safe operation and are not enabled.

Containers of ignitable waste are shredded and typically discharged into a paddle blender, although the shredded waste may alternatively be discharged to the low-flash pit. The blender mixes the shredded waste with liquids (clean water, used motor oil, and/or pumpable waste from the tank farm) and sorbent materials, as necessary, to achieve the correct consistency for the ram feeder. The ram feeder pushes the processed waste materials directly to the kiln face plate via a pipe. The entire shredding/blending circuit, from the shredder through the ram feeder, is equipped with a nitrogen blanketing system. Shredding and blending will shut down if the oxygen content within the system exceeds the designated level.

Low-flash waste is also shipped in bulk truckloads and will typically have a flash point between 100 and 140°F. These wastes are safely handled in the low flash pit without nitrogen blanketing. LEL monitors are installed to insure adequate ventilation and safe operation of the bulk low-flash feed system.

A staging area that contains a permitted container storage area is also provided in the northern portion of the BMHB. In addition to supporting the transfer of containers to the shredder, this area is used to stage containers for individual feed to the incinerator, which is desirable for certain waste streams (e.g., highly reactive wastes that are fed in small charges). The containers are placed on a conveyor on the west side of the BMHB wall which directly transfers the containers of waste to the ram feeder located at the kiln faceplate.

4.3.3 Transload Building

The transload building consists of a fully enclosed structure containing a concrete mixing pit and a covered truck ramp/access area. Two rollup doors on the south side of the enclosed mixing pit area provide access for end dumps and rolloff containers to be offloaded into or loaded from the pit. Plan and section views of the Transload Building are depicted in Figures V.A.13 through V.A.15.

Waste materials may be unloaded into the mixing pit through either of the two roll-up doors. An operator controls an articulating arm (the Prentice arm) equipped with a clam bucket that can be rotated by the operator. The operator controls the Prentice arm from a remote, enclosed cab elevated above the solids mixing pit. With the Prentice arm and clam-bucket, the operator can blend and mix the waste materials in the pit to develop a blend that may be suitable for feeding directly to the kiln through the BMHB regular waste pit or that may require further processing in the BMHB. The articulating arm is of sufficient length to reach any portion of the pit and to extend outward to remove residual waste from trucks and to load waste into roll-offs for transfer to an appropriate container storage area or to the BMHB for feeding to the kiln.

Drums are not normally anticipated to be processed in the Transload mixing pit, but under some circumstances may be. If this is the case, the Prentice arm and clam bucket will be used to crush the drum(s) in the mixing pit forcing the contents out of the drum(s) so that they can be blended with the other materials in the pit.

4.3.4 Deepwell Injection

This waste management activity consists of pressure-injection of primarily aqueous wastes with low organic content into an isolated, porous subsurface stratum using the two permitted injection wells, WDW-160 and WDW-358. Wastes are composited in batch tanks and then pH-adjusted and filtered as necessary prior to injection. This method is used for disposal of scrubber blowdown water generated by the incinerator's emission control system, as well as other on-site and off-site generated wastes. These injection wells are fully permitted and authorized to dispose of waste that carry the listed dioxin/furan waste codes.

As noted in Section 4.2, tanks associated with the deepwell are primarily used for storage, blending, and pH adjustment of aqueous waste prior to injection.

4.3.5 General TSDF Services

The truck wash and process support building is located in front of the unloading bays of the transload building, which was formerly the bulk solids building as discussed in Section 4.2.3. Potentially-contaminated waste haul vehicles exiting the bulk solids building could proceed directly into the totally-enclosed truck wash and process support building for decontamination prior to exit from the incineration facility. This building is equipped with roll-up doors to provide drive-through ingress and egress, and the reinforced concrete building foundation slopes from either end to a concrete collection trench across the building floor. Vehicles can be manually rinsed with water spray nozzles; the rinse water collected in the trench can be pumped to one of two holding tanks located adjacent to the building. Liquids in the truck wash storage tanks can be transferred to the aqueous waste storage tanks for further management.

Currently, the truck wash and process support building is predominantly used to conduct specialty waste management and decontamination services. Commonly-performed activities include transfer of pumpable and non-pumpable materials in containers to other containers (repacking) for aggregation or segregation in preparation for feeding to the incinerator. The bulked and repacked materials include both VOC and non-VOC materials that may be transferred to the BMHB for management prior to incineration, transferred to an on-site container storage unit for later management, or may be transferred off-site to an authorized facility. As part of the current permit renewal and amendment application, the truck wash and process support building is being permitted as a container storage unit to allow incidental storage of waste. Air from the building is typically routed to the incinerator area ventilation baghouse and RTO, but may be routed to the incinerator as necessary.

Containers of incoming waste materials that carry the dioxin/furan-containing waste codes (primarily lab packs) may be transferred from Building 46 (the only container storage unit that will be authorized for these incoming wastes) to the truck wash and process support building prior to incineration. Management of these wastes in the truck wash and process support building will generally consist of transferring individual containers in lab packs to other containers for transfer and feeding to the kiln.

Activities similar to those in the truck wash and process support building may also be conducted in the truck and container storage building. Currently, only non-VOC material containers are subject to opening in the truck and container storage building for any purpose other than waste sampling. Activities could be expanded to include additional management of VOC materials in the truck and container storage area, if appropriate emission capture and abatement controls are installed for this building in the future.

4.4 WASTE TRACKING SYSTEM

A waste tracking system is used to identify appropriate and/or necessary storage, treatment and disposal units and to provide accurate documentation of the waste management sequence that each waste stream will undergo. This system employs a computer management system which documents the management of a waste shipment from receipt through final disposal.

The waste tracking system will provide information to operations personnel as to the proper and necessary management techniques for each waste stream. This information gathering method reduces the possibility of human error and provides accurate record keeping and reporting.

4.5 SAFETY FEATURES AND PRACTICES

Facility designs and operating procedures have been developed to minimize potential hazards at the facility and to ensure safe management of ignitable, reactive and incompatible wastes and materials. Personnel are trained in accordance with the Training Plan (Attachment III.B) to understand the hazards associated with their job positions. Facility safety rules are in place and enforced to prevent undue exposure of personnel to hazardous waste. Backup systems and equipment redundancies are incorporated as appropriate to mitigate the effects of equipment failure and power outages. Water at adequate volume and pressure is supplied for the site's fire spray system, for foam producing equipment and for automatic sprinklers.

Design features to minimize potential hazards at the facility are described in the separate engineering reports referenced in Section 4.2. As detailed in these engineering reports, curbed and/or walled containment structures are present around waste management units and loading/unloading areas as necessary to contain any drips, leaks or spills; prevent stormwater run-on; and preclude run-off of stormwater which falls within the containment areas that are not under roof. Features such as ramps and rollover curbs are incorporated in the design of waste management units and loading/unloading areas to minimize hazards in unloading operations and transfer of wastes within the facility. Building exhaust systems, sensors and monitoring devices, and nitrogen blanketing systems are in place to ensure the safe management of ignitable, reactive and incompatible wastes and materials. Procedures used to ensure safe management of wastes are also described in the unit-specific design reports and in the facility Waste Analysis Plan (Attachment IV.D). Procedures to identify adverse reactions when commingling wastes in tanks are described in Section 4.2 of this report. Waste management areas are inspected routinely in accordance with the facility Inspection Plan (Attachment III.D) to identify potential problems or issues. These containment and hazard control features and operational procedures prevent migration of hazardous wastes and waste constituents to soils, surface water, and groundwater and uncontrolled releases to the environment.

Emission controls are incorporated into facility designs, monitoring and control equipment are used and maintained, and standardized operating procedures are in place to prevent unplanned releases. Permitted emissions from the facility are controlled so that potential exposure of off-site personnel to these emissions will not jeopardize their health or safety. These permitted emissions include fugitive emissions and point source emissions (i.e., the incinerator stack and the baghouse/RTO stack) which have been evaluated by TCEQ through assessments of risk for direct and indirect exposure scenarios. Conditions of the facility's RCRA and NSR permits establish limits on operating parameters for the incinerator, including hourly and annual feed rate limitations, to ensure that emissions from the stack are within the allowable ranges determined by the risk assessments to be protective of human health and the environment. Continued compliance with the emission rate limits of the RCRA and NSR permits must be demonstrated by conducting periodic waste feed and emission tests. Conditions are also established in the RCRA and NSR permits to limit fugitive emissions to levels determined to be acceptable through the direct and indirect risk assessments, and include the following:

1. Containers of pumpable bulk waste containing any of the chemicals listed in Attachment A of the NSR permit in a concentration greater than 10% by weight will be fed directly to the incinerator without prior management in the tank systems, thereby minimizing fugitive emissions of these chemicals;

2. Fugitive emissions from equipment associated with the incinerator tank farm, unloading bays, and the incinerator direct feed systems are reduced to levels well below federal standards by implementing a robust leak detection and repair (LDAR) program in accordance with the NSR permit;

3. Fugitives from the truck sampling area are collected by a partial enclosure and torodial hood that vents through a carbon adsorption system to limit emissions from this operation; and

4. The number of rolloffs in storage that are covered using a non-gasketed cover (e.g., tarps) must remain at or below the limits included in the RCRA and NSR permits.

The design and operating procedures and emission controls at the Veolia Port Arthur facility have proven to be highly effective in ensuring the safe handling of hazardous wastes and minimizing the hazards inherent in facility operations.

TABLES

TABLE V.A.1
PREVIOUSLY AUTHORIZED, CURRENTLY PERMITTED, AND PROPOSED HAZARDOUS WASTE MANAGEMENT UNITS

FACILITY AREA	PERMIT UNIT NO.	UNIT NAME	WASTE MANAGED	CAPACITY	STATUS	RENEWAL/ AMENDMENT	REMOVAL	REAUTH- ORIZATION
Deepwell Area	57	Deepwell Container Storage Building	All authorized wastes, other than listed dioxin wastes[1], with no free liquids	120 cubic yards (6 - 20 cubic yard rolloffs or equivalent)	Active	X		
	58	Deepwell Tank (T-101A)	All authorized aqueous wastes other than listed dioxin wastes[1]	302,000 gallons	Active	X		
	59	Deepwell Tank (T-101B)	All authorized aqueous wastes other than listed dioxin wastes[1]	302,000 gallons	Active	X		
	60	Deepwell Tank (T-102)	All authorized aqueous wastes other than listed dioxin wastes[1]	302,000 gallons	Active	X		
	65	Deepwell Tank (T-201)	All authorized aqueous wastes other than listed dioxin wastes[1]	999,256 galons	Active	X		
	70	Deepwell Ancillary Components and Related Appurtenances	All authorized aqueous wastes other than listed dioxin wastes[1]	NA	Active	X		
	51	Groundwater Collection Tank (T-400)	Contaminated Groundwater	2,005 gallons	Closed		X[2]	
Incinerator Area	35	Stabilization Container Storage Building	All authorized wastes other than listed dioxin wastes[1]	1,609 cubic yards	Active	X		
	2	Ash Container Storage Building	All authorized wastes other than listed dioxin wastes[1]	238 cubic yards	Active	X		
	1	Incinerator Container Storage Building	All authorized wastes other than listed dioxin wastes[1]	1,840 55-gallon drum equivalents	Closed		X	
	87	Container Storage Building	All authorized wastes other than listed dioxin wastes[1]	556 cubic yards	Active	X		
	NA 3	Transload Building	All authorized wastes, other than listed dioxin wastes, with no free liquids	72 cubic yards	Active	X		
	NA 3	Truckwash & Process Support Building	All authorized wastes other than listed dioxin wastes[1]	46.7 cubic yards	Active	X		
	4	Energetic/Aqueous Holding Tank (T-521)	All authorized pumpable wastes other than listed dioxin wastes[1]	103,100 gallons	Active	X		
	5	Energetic/Aqueous Holding Tank (T-522)	All authorized pumpable wastes other than listed dioxin wastes[1]	103,100 gallons	Active	X		
	6	Energetic/Aqueous Holding Tank (T-523)	All authorized pumpable wastes other than listed dioxin wastes[1]	103,100 gallons	Active	X		
	7	Energetic/Aqueous Holding Tank (T-524)	All authorized pumpable wastes other than listed dioxin wastes[1]	103,100 gallons	Active	X		
	12	Energetic Liquids Storage Tank (T-509)	All authorized pumpable wastes other than listed dioxin wastes[1]	17,700 gallons	Active	X		
	13	Energetic Liquids Storage Tank (T-510)	All authorized pumpable wastes other than listed dioxin wastes[1]	17,700 gallons	Active	X		
	14	Energetic Liquids Storage Tank (T-511A)	All authorized pumpable wastes other than listed dioxin wastes[1]	17,700 gallons	Closed [4]			X[4]

TABLE V.A.1
PREVIOUSLY AUTHORIZED, CURRENTLY PERMITTED, AND PROPOSED HAZARDOUS WASTE MANAGEMENT UNITS

FACILITY AREA	PERMIT UNIT NO.	UNIT NAME	WASTE MANAGED	CAPACITY	STATUS	RENEWAL/ AMENDMENT	REMOVAL	REAUTH-ORIZATION
Incinerator Area, continued	15	Energetic Liquids Storage Tank (T-512)	All authorized pumpable wastes other than listed dioxin wastes[1]	17,700 gallons	Active	X		
	16	Energetic Liquids Storage Tank (T-513)	All authorized pumpable wastes other than listed dioxin wastes[1]	17,700 gallons	Active	X		
	17	Energetic Liquids Storage Tank (T-551)	All authorized pumpable wastes other than listed dioxin wastes[1]	17,700 gallons	Active	X		
	18	Energetic Liquids Storage Tank (T-552)	All authorized pumpable wastes other than listed dioxin wastes[1]	17,700 gallons	Prev. Auth.			X[5]
	19	Energetic Liquids Storage Tank (T-553)	All authorized pumpable wastes other than listed dioxin wastes[1]	17,700 gallons	Prev. Auth.			X[5]
	20	Aqueous Liquids Storage Tank (T-514)	All authorized pumpable wastes other than listed dioxin wastes[1]	25,000 gallons	Active	X		
	21	Aqueous Liquids Storage Tank (T-515)	All authorized pumpable wastes other than listed dioxin wastes[1]	25,000 gallons	Active	X		
	22	Aqueous Liquids Storage Tank (T-516)	All authorized pumpable wastes other than listed dioxin wastes[1]	25,000 gallons	Prev. Auth.			X[5]
	23	Aqueous Liquids Storage Tank (T-550)	All authorized pumpable wastes other than listed dioxin wastes[1]	25,000 gallons	Prev. Auth.			X[5]
	24	Sludge Storage Tank (T-501)	All authorized pumpable wastes other than listed dioxin wastes[1]	10,200 gallons	Active	X		
	25	Sludge Storage Tank (T-502)	All authorized pumpable wastes other than listed dioxin wastes[1]	10,200 gallons	Active	X		
	26	Sludge Storage Tank (T-503A)	All authorized pumpable wastes other than listed dioxin wastes[1]	10,200 gallons	Inactive [7]			X[7]
	27	Sludge Storage Tank (T-504)	All authorized pumpable wastes other than listed dioxin wastes[1]	10,200 gallons	Active	X		
	28	Sludge Storage Tank (T-505)	All authorized pumpable wastes other than listed dioxin wastes[1]	10,200 gallons	Active	X		
	29	Sludge Storage Tank (T-506)	All authorized pumpable wastes other than listed dioxin wastes[1]	10,200 gallons	Active	X		
	30	Sludge Storage Tank (T-507)	All authorized pumpable wastes other than listed dioxin wastes[1]	10,200 gallons	Active	X		
	31	Sludge Storage Tank (T-508)	All authorized pumpable wastes other than listed dioxin wastes[1]	10,200 gallons	Active	X		
	34	Incinerator Train consisting of rotary kiln, secondary combustion chamber, waste feed mechanisms, ash handling equipment, and emission control system.	All authorized wastes	175 million BTU/hr	Active	X		
	32	Truck Wash Storage Tank (T-535)	All authorized pumpable wastes other than listed dioxin wastes[1]	5,500 gallons	Active	X		
	33	Truck Wash Storage Tank (T-536)	All authorized pumpable wastes other than listed dioxin wastes[1]	5,500 gallons	Active	X		

TABLE V.A.1
PREVIOUSLY AUTHORIZED, CURRENTLY PERMITTED, AND PROPOSED HAZARDOUS WASTE MANAGEMENT UNITS

FACILITY AREA	PERMIT UNIT NO.	UNIT NAME	WASTE MANAGED	CAPACITY	STATUS	RENEWAL/ AMENDMENT	REMOVAL	REAUTH-ORIZATION
Bulk Material Handling Building	91	Regular Waste Pit (6505-PT1)	All authorized wastes other than listed dioxin wastes[1]	753 cubic yards	Active	X		
	92	Low Flash Pit (6505-PT2)	All authorized wastes other than listed dioxin wastes[1]	146 cubic yards	Active	X		
	88	Shredder (6525-V)	All authorized wastes other than listed dioxin wastes[1]	NA	Active	X		
	89	Shredder (6555-V)	All authorized wastes other than listed dioxin wastes[1]	NA	Active	X		
	90	Blender (6560-V)	All authorized wastes other than listed dioxin wastes[1]	NA	Active	X		
	93	North Container Staging Area	All authorized wastes other than listed dioxin wastes[1]	52 cubic yards (192 - 55 gal drum equivalents)	Active	X		
	94	South Container Staging Area	All authorized wastes other than listed dioxin wastes[1]	43 cubic yards (160 55-gallon drum equivalents)	Active	X		
West Support Area	56	Class I Leachate Pond - Western Compartment: (Post Closure Care)	Class I Leachate	3,258,000 gallons	Closed	X		
East Support Area	3	Truck and Container Storage Building	All authorized wastes other than listed dioxin wastes[1]	1,009 cubic yards	Active	X		
	46	Building 46 and associated Solids Storage Area	All authorized wastes[6]	2,887 cubic yards	Active	X		
Uncon-structed Stabilization Area	95	Stabilization Reagent Tank (T-801)	Solid Stabilization Reagents	75 cubic yards	Prev. Auth.		X	
	96	Stabilization Reagent Tank (T-802)	Solid Stabilization Reagents	75 cubic yards	Prev. Auth.		X	
	97	Stabilization Reagent Tank (T-803)	Solid Stabilization Reagents	75 cubic yards	Prev. Auth.		X	
	98	Stabilization Water Tank (T-804)	Aqueous wastes amenable to stabilization	25,000 gallons	Prev. Auth.		X	
	99	Stabilization Building Container Management Area	All previously authorized wastes	180 cubic yards	Prev. Auth.		X	
	100	Mixing Pit (MX-201)	All previously authorized wastes	130 cubic yards	Prev. Auth.		X	
	101	Mixing Pit (MX-202)	All previously authorized wastes	130 cubic yards	Prev. Auth.		X	

TABLE V.A.1
PREVIOUSLY AUTHORIZED, CURRENTLY PERMITTED, AND PROPOSED HAZARDOUS WASTE MANAGEMENT UNITS

FACILITY AREA	PERMIT UNIT NO.	UNIT NAME	WASTE MANAGED	CAPACITY	STATUS	RENEWAL/ AMENDMENT	REMOVAL	REAUTH-ORIZATION
Uncon-structed Landfill Area	47	02 Above-Grade Landfill	All authorized waste meeting land disposal regulations.	540,000 cubic yards	Prev. Auth.		X	
	42	Contaminated Stormwater/Leachate Storage Tank (T-1001)	Contaminated stormwater/leachate from 02 Above-Grade Landfill	500,800 gallons	Prev. Auth.		X	
	43	Contaminated Stormwater/Leachate Storage Tank (T-1002)	Contaminated stormwater/leachate from 02 Above-Grade Landfill	500,800 gallons	Prev. Auth.		X	

Notes:

1 The dioxin codes are F020, F021, F022, F023, F026, and F027.

2 Renewed permit authorization is not being requested for T-400. This tank was previously used for the storage of contaminated groundwater from the groundwater contaminant recovery program being performed at the 01 Site DW Area under the Compliance Plan. T-400 was closed in 1998. A closure certification report was submitted October 29, 1998 with supplemental closure documentation submitted December 8, 1998. The TCEQ approved the closure certification report on December 17, 1998.

3 Each of these buildings is currently authorized as an ancillary component to the incinerator. They are to be permitted as separate waste management units as described in this application.

4 Tank T-511 was taken out of service in approximately 1998, and the vessel and associated piping were removed. T-511A represents a proposed replacement tank for the originally permitted T-511.

5 This unit is a previously permitted unit that was not constructed. Re-authorization is being requested.

6 The solids storage area associated with Building 46 can manage all authorized waste, other than listed dioxin waste, with no free liquids.

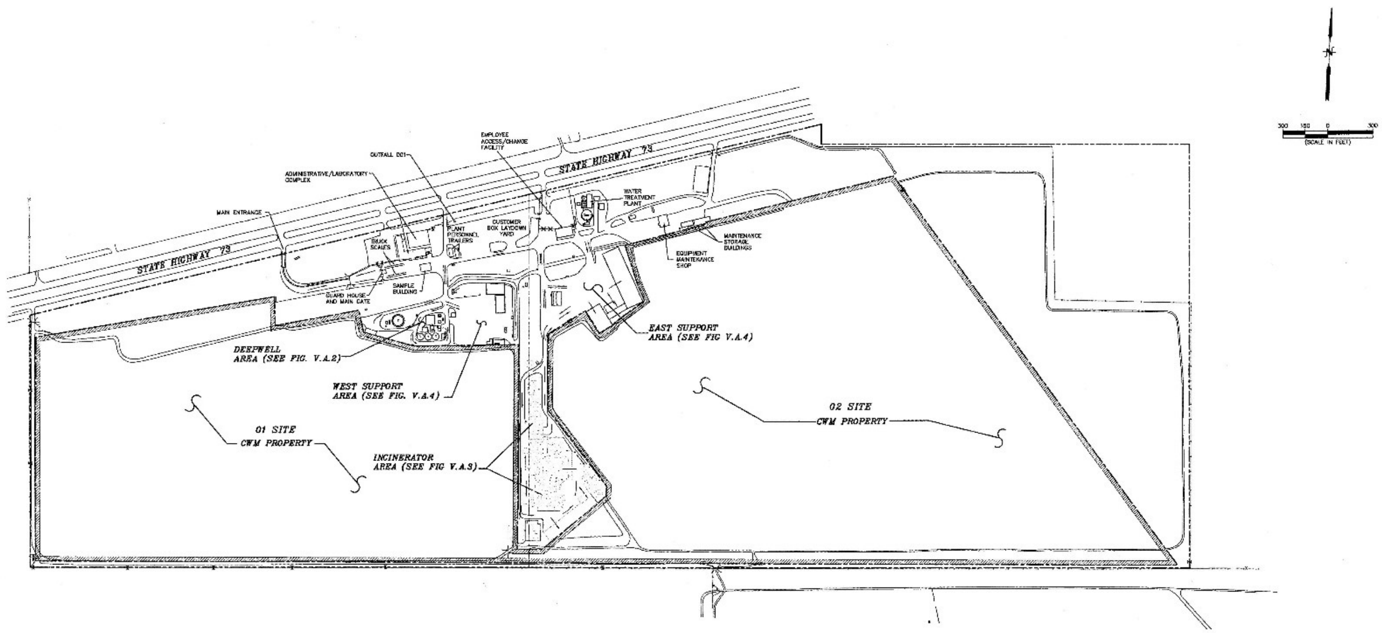
7 Tank T-503 was taken out of service in March 1997. T-503A represents a proposed replacement for the originally permitted T-503.

NA Not Applicable

TABLE V.A.2
UNIT CONSTRUCTION SCHEDULE

Unit Name	Construction Schedule (from permit re-issuance)
Energetic Liquids Storage Tanks T-552, T-553 and T-511A	10 years
Aqueous Storage Tanks T-516 and T-550	10 years
Sludge Storage Tank T-503A	10 years

FIGURES



NOTES:

1. PROPERTY BOUNDARY IS THE EXTERIOR BOUNDARY OF PROPERTY OWNED BY VEOLIA ES TECHNICAL SOLUTIONS, LLC (VEOLIA). CHEMICAL WASTE MANAGEMENT, INC. (CWM) OWNS PROPERTY LOCATED WITHIN THE EXTERIOR VEOLIA PROPERTY BOUNDARY, AS SHOWN.
2. DETAILED LAYOUT OF THE INCINERATOR AREA, THE SUPPORT AREAS, AND THE DEEPWELL AREA ARE SHOWN ON SEPARATE FIGURES AS INDICATED.
3. FENCELINE ALONG WESTERN AND SOUTHERN PROPERTY BOUNDARY RUNS ALONG THE PROPERTY BOUNDARY AND IS OBSCURED BY THE PROPERTY BOUNDARY LINE.
4. LOCATIONS OF FENCES AND GATES ARE APPROXIMATE.
5. WASTE CARRIER TRAFFIC IS PROJECTED TO AVERAGE BETWEEN 25 AND 50 TRUCKS PER DAY WITH A MAXIMUM BETWEEN 50 AND 100 TRUCKS PER DAY.
6. ROAD SURFACE IS ASPHALT, CONCRETE, CRUSHED STONE OR SIMILAR FOR INCINERATOR, DEEPWELL, AND EAST/WEST SUPPORT AREA ACCESS.

LEGEND:

EXTERIOR VEOLIA PROPERTY BOUNDARY (SEE NOTE 1)
BOUNDARY BETWEEN TRACTS DESIGNATED AS '01' SITE AND '02' SITE
VEOLIA/CWM PROPERTY BOUNDARY (SHADING DENOTES CWM SIDE OF BOUNDARY)
VEHICLE GATE
MAINTENANCE/PERSONNEL GATE
FENCE
DIRECTION OF WASTE CARRIER TRAFFIC

KATHY L. McGEE 57783
11/14/14
FOR PERMIT RENEWAL APPLICATION ONLY

REV.	DATE	DESCRIPTION	DR BY	APP BY
1	11/16	Removed Dashed Line ESppt Area, Rev. Bldg 46 Solids Area and Unloading/Staging Area		

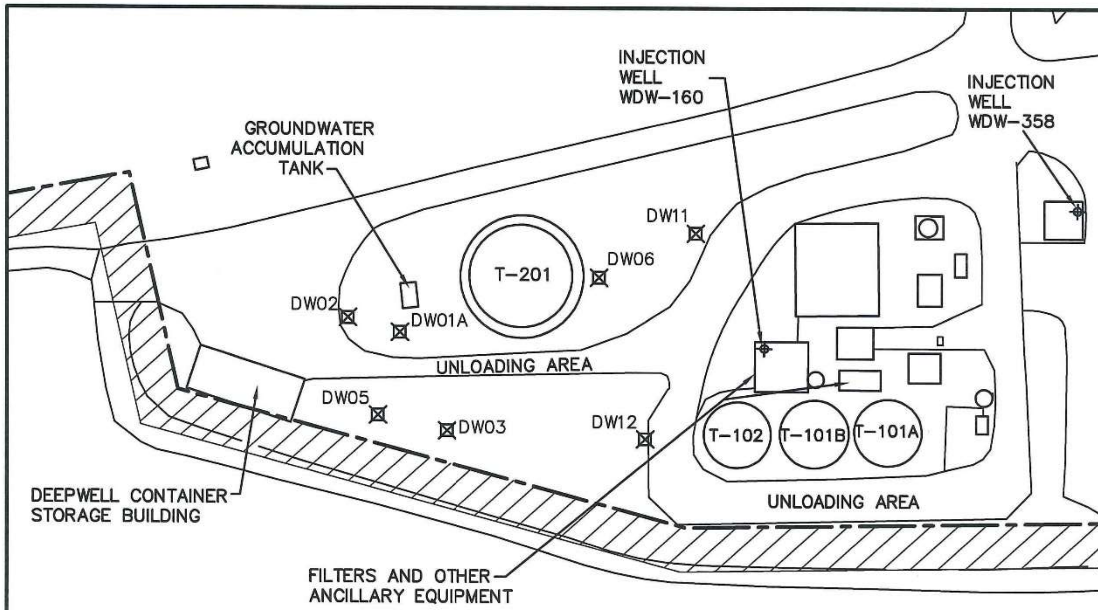
VEOLIA
ENVIRONMENTAL SERVICES
TECHNICAL SOLUTIONS

COOK-JOYCE INC.
ENGINEERING AND CONSULTING
812 WEST ELEVENTH 512-474-9097
AUSTIN, TEXAS 78701
HUB & WBE CERTIFIED
TEXAS REGISTERED ENGINEERING FIRM F-883

PROJECT: RCRA PERMIT RENEWAL/ AMENDMENT APPLICATION

SHEET TITLE: OVERALL SITE PLAN

DES BY	CKK	SCALE: SEE BAR SCALE
DR BY	SDG	PROJECT NO. 12063.01
CHK BY	CKK	CJI NO. 12063004R1
APP BY	KLM	SHEET 1 OF 1 SHEETS
DATE ISSUED: 08-18-2014		DRAWING NO. V.A.1
PURPOSE: TCEQ SUBMITTAL		



LEGEND

DW AREA COMPLIANCE PLAN WELLS (ASSOCIATED WITH FORMER SURFACE IMPOUNDMENTS OPERATED IN AREA)

VEOLIA/CWM PROPERTY BOUNDARY (SHADING DENOTES CWM SIDE OF BOUNDARY)

NOTE:

SEE FIGURE V.A.1 FOR LOCATION OF THIS AREA WITHIN FACILITIES.

STATE OF TEXAS
KATHY L. McGEE
57783
REGISTERED PROFESSIONAL ENGINEER
8.15.14

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REV.	DATE	DESCRIPTION	DR BY	APP BY

VEOLIA
ENVIRONMENTAL SERVICES
TECHNICAL SOLUTIONS

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AUSTIN, TEXAS 78701
HUB & WBE CERTIFIED
TEXAS REGISTERED ENGINEERING FIRM F-883

PROJECT: RCRA PERMIT RENEWAL/ AMENDMENT APPLICATION

SHEET TITLE: DEEPWELL AREA LAYOUT

DES BY			SCALE: SEE BAR SCALE
DR BY	SDB	SDB	PROJECT NO. 12063.01
CHK BY	CKK		CJI NO. 12063036
APP BY	KLM		SHEET 1 OF 1 SHEETS
DATE ISSUED: 08-18-2014			FIGURE NO. V.A.2
PURPOSE: TCEQ SUBMITTAL			

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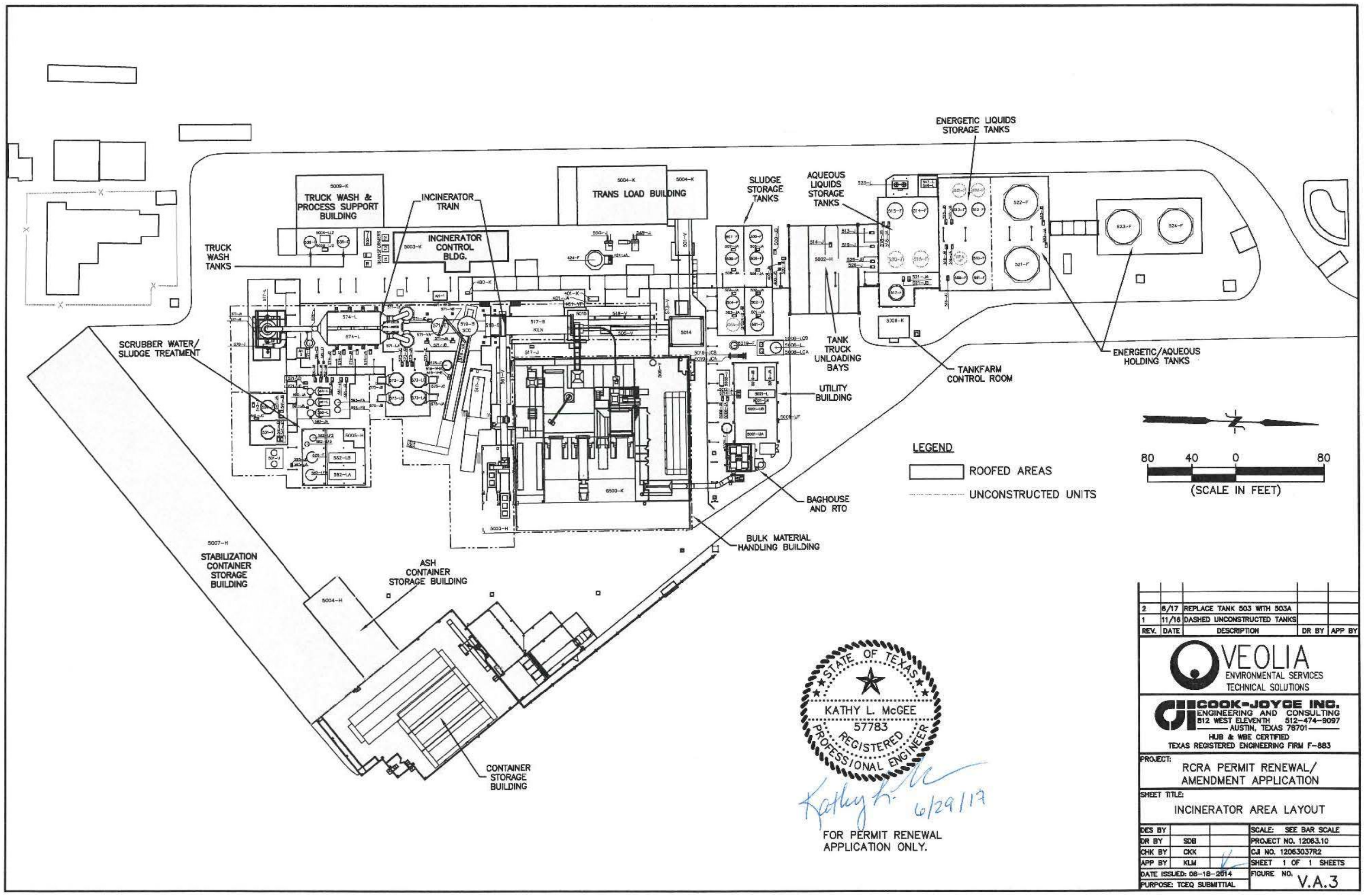
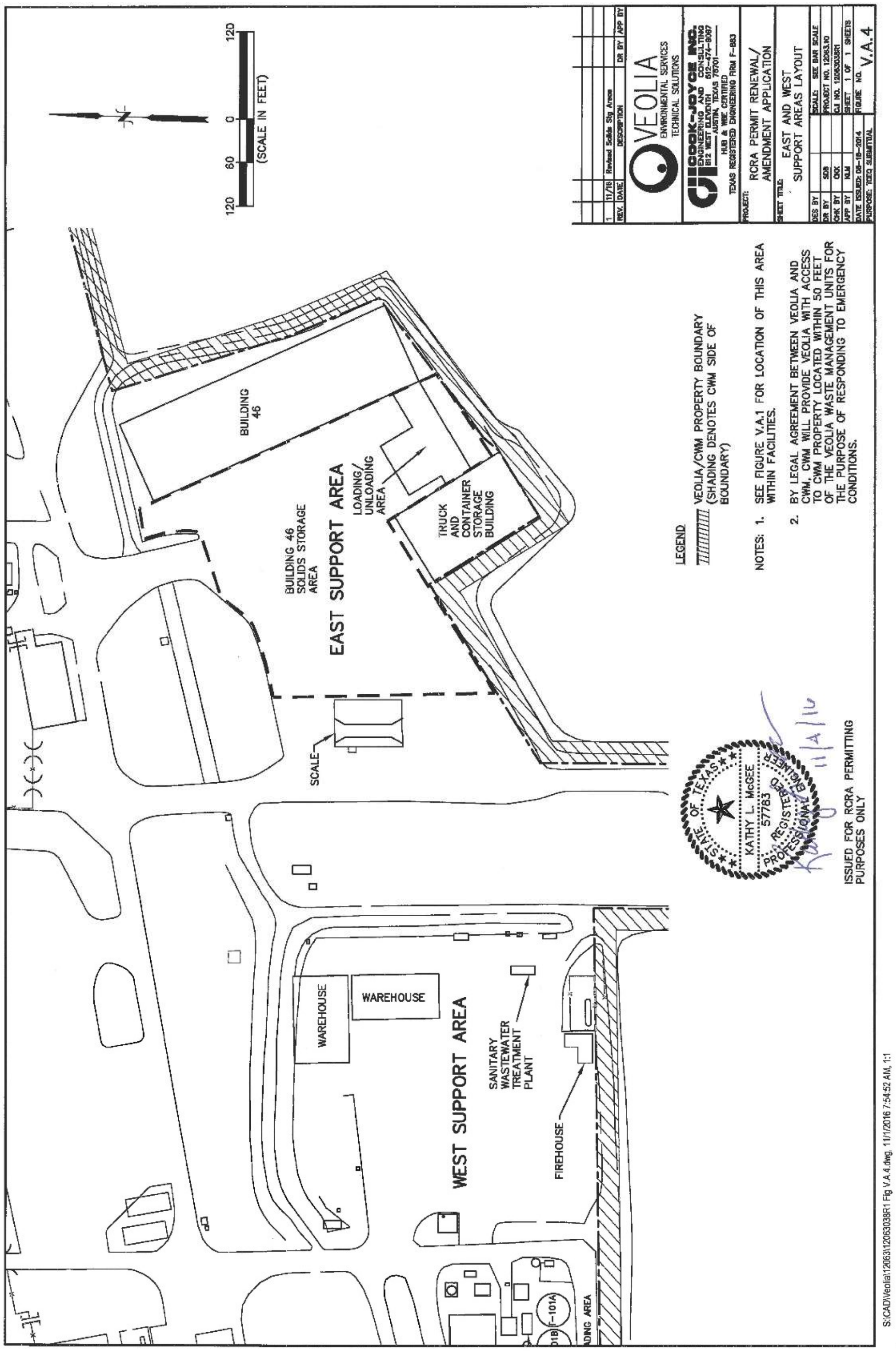
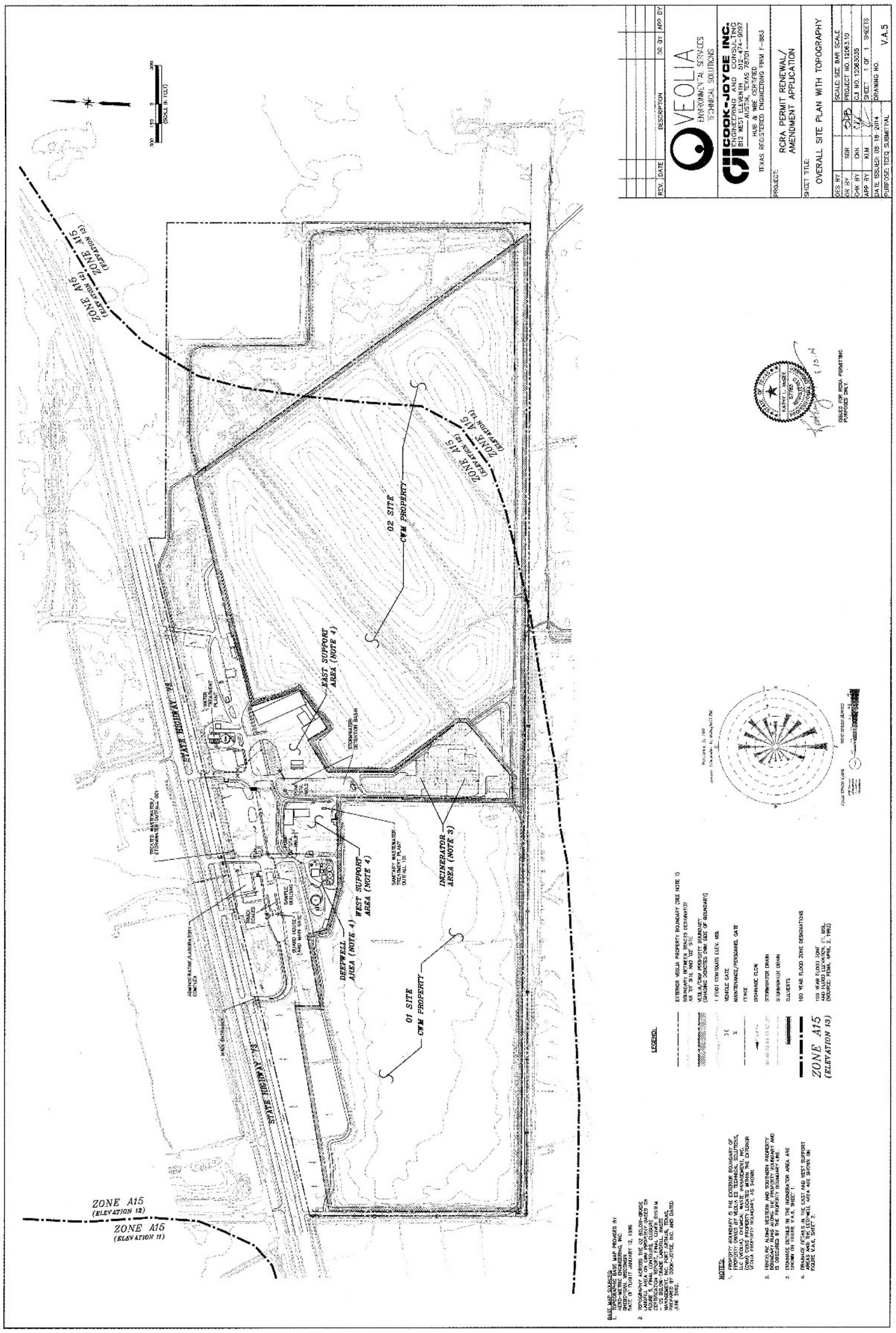
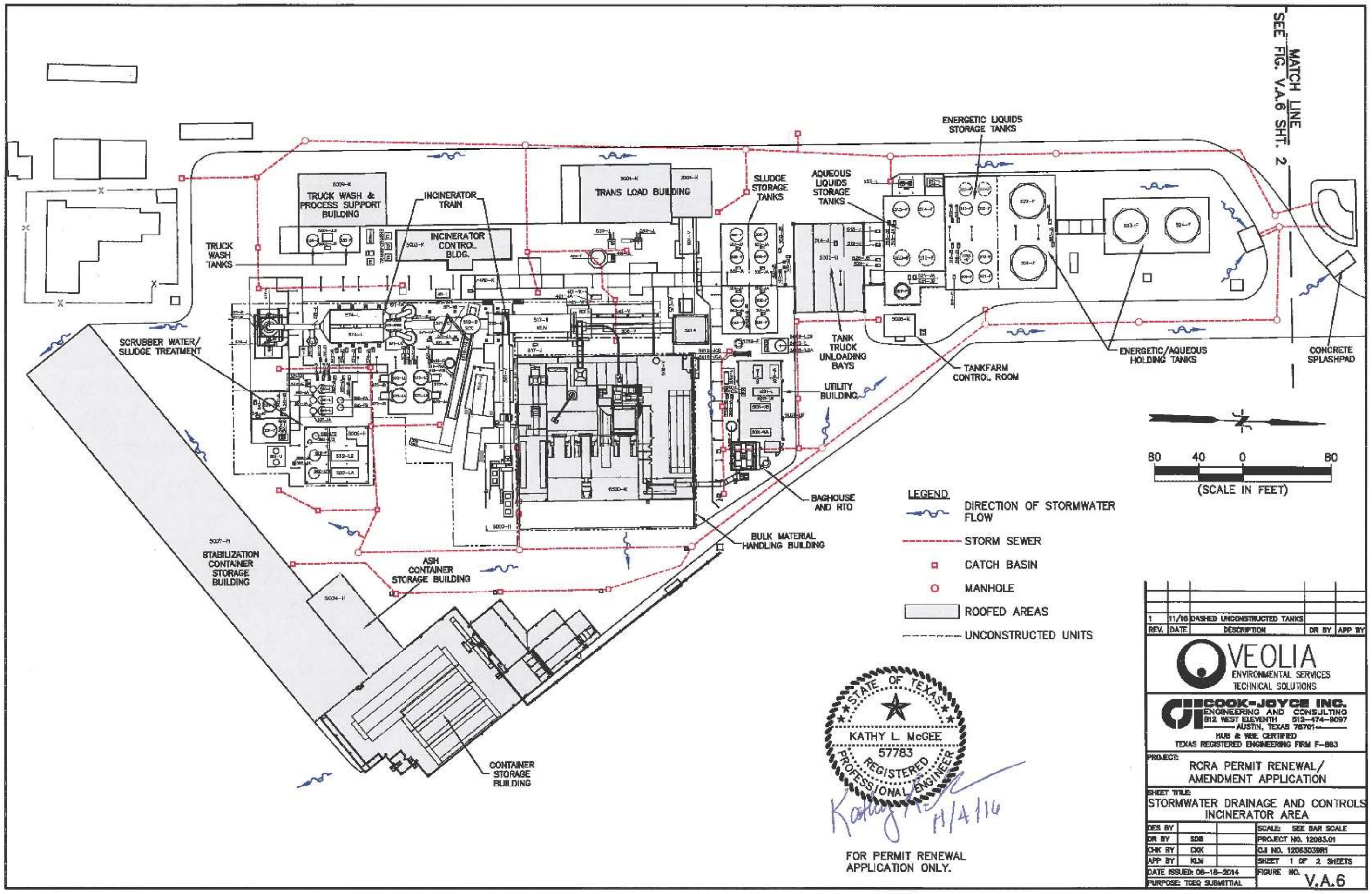


S:\CAD\Veolia\12063\12063037R2 Fig V.A.3.dwg, 6/28/2017 4:51:42 PM, 1:1

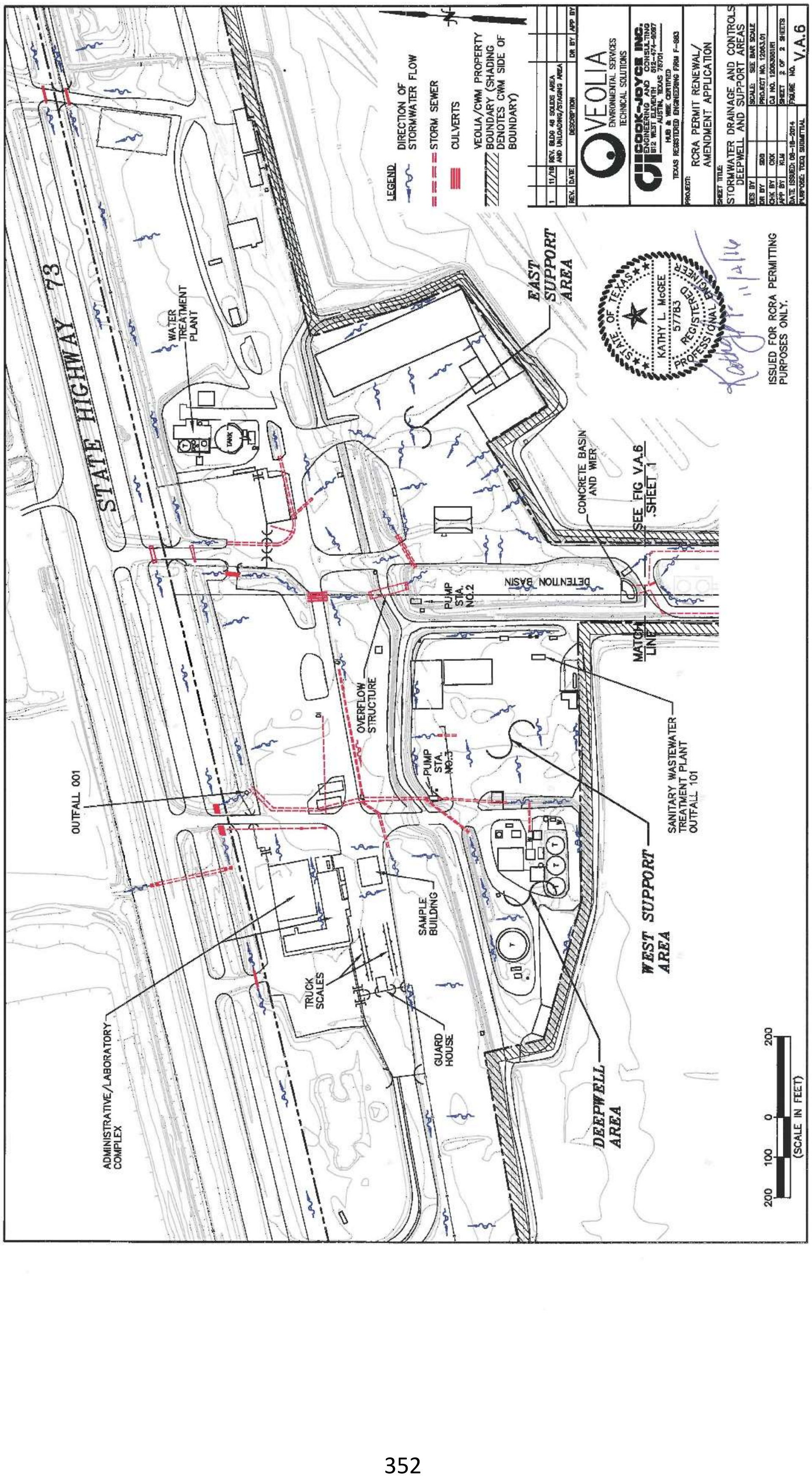


120
60
0
120
(SCALE IN FEET)
N
BUILDING 46
BUILDING 46 SOLIDS STORAGE AREA
EAST SUPPORT AREA
LOADING/ UNLOADING AREA
TRUCK AND CONTAINER STORAGE BUILDING
SCALE
WAREHOUSE
WAREHOUSE
WEST SUPPORT AREA
SANITARY WASTEWATER TREATMENT PLANT
FIREHOUSE
LEGEND
VEOLIA/CWM PROPERTY BOUNDARY (SHADING DENOTES CWM SIDE OF BOUNDARY)
NOTES: 1. SEE FIGURE V.A.1 FOR LOCATION OF THIS AREA WITHIN FACILITIES.
2. BY LEGAL AGREEMENT BETWEEN VEOLIA AND CWM, CWM WILL PROVIDE VEOLIA WITH ACCESS TO CWM PROPERTY LOCATED WITHIN 50 FEET OF THE VEOLIA WASTE MANAGEMENT UNITS FOR THE PURPOSE OF RESPONDING TO EMERGENCY CONDITIONS.
STATE OF TEXAS
KATHY L. McGEE
57783
REGISTERED PROFESSIONAL ENGINEER
11/1/16
ISSUED FOR RCRA PERMITTING PURPOSES ONLY
1 11/16 Revised Solids Stg Areas
REV. DATE DESCRIPTION DR BY APP BY
VEOLIA
ENVIRONMENTAL SERVICES
TECHNICAL SOLUTIONS
COOK-JOYCE INC.
ENGINEERING AND CONSULTING
812 WEST ELEVENTH 512-474-8087
AUSTIN, TEXAS 78701
HUB & WBE CERTIFIED
TEXAS REGISTERED ENGINEERING FIRM F-883
PROJECT: RCRA PERMIT RENEWAL/ AMENDMENT APPLICATION
SHEET TITLE: EAST AND WEST SUPPORT AREAS LAYOUT
DES BY
DR BY SDB
CHK BY CKK
APP BY KLM
DATE ISSUED: 08-18-2014
PURPOSE: TCEQ SUBMITTAL
SCALE: SEE BAR SCALE
PROJECT NO. 12063.10
CJI NO. 12063038R1
SHEET 1 OF 1 SHEETS
FIGURE NO. V.A.4

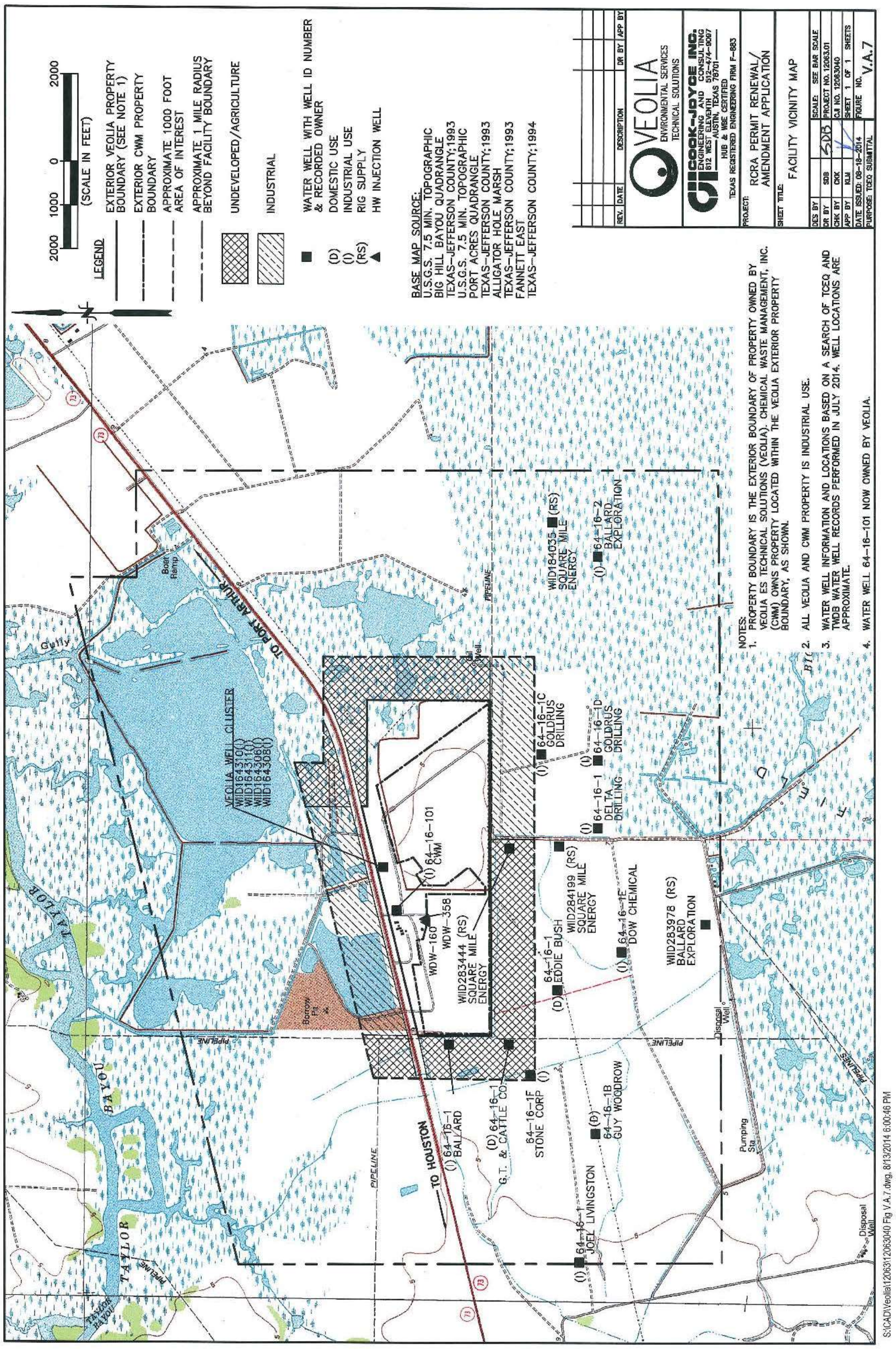

VEOLIA
ENVIRONMENTAL SERVICES
TECHNICAL SOLUTIONS
COOK-JOYCE INC.
RCRA PERMIT RENEWAL/
AMENDMENT APPLICATION
OVERALL SITE PLAN WITH TOPOGRAPHY
V.A.5
O2 SITE
CWM PROPERTY
O1 SITE
CWM PROPERTY
EAST SUPPORT AREA (NOTE 4)
WEST SUPPORT AREA (NOTE 4)
INCINERATOR AREA (NOTE 3)
DEEPWELL AREA (NOTE 4)
STATE HIGHWAY 73
ZONE A15
(ELEVATION 12)
ZONE A15
(ELEVATION 11)
ZONE A15
(ELEVATION 13)
LEGEND:
NOTES:

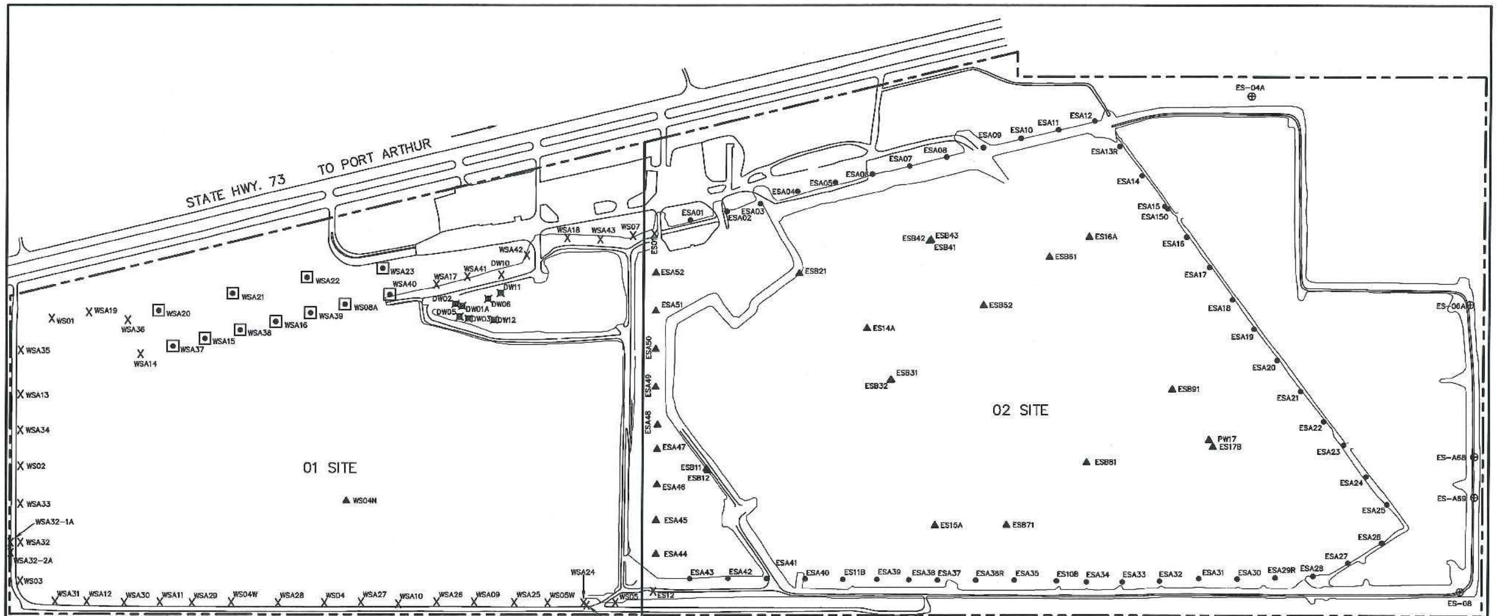


S:\CAD\Veolia\12063\12063039R1 Fig V.A.6 Sheet 1 of 2.dwg, 10/31/2016 9:00:13 AM, 1:1



STATE HIGHWAY 73
WATER TREATMENT PLANT
EAST SUPPORT AREA
CONCRETE BASIN AND WIER
SEE FIG V.A.6 SHEET 1
DETENTION BASIN
MATCH LINE
PUMP STA. NO.2
OVERFLOW STRUCTURE
PUMP STA. NO.3
SANITARY WASTEWATER TREATMENT PLANT OUTFALL 101
OUTFALL 001
WEST SUPPORT AREA
SAMPLE BUILDING
TRUCK SCALES
GUARD HOUSE
ADMINISTRATIVE/LABORATORY COMPLEX
DEEPWELL AREA
200 100 0 200
(SCALE IN FEET)
LEGEND
DIRECTION OF STORMWATER FLOW
STORM SEWER
CULVERTS
VEOLIA/CWM PROPERTY BOUNDARY (SHADING DENOTES CWM SIDE OF BOUNDARY)
VEOLIA
ENVIRONMENTAL SERVICES
TECHNICAL SOLUTIONS
COOK-JOYCE INC.
ENGINEERING AND CONSULTING
TEXAS REGISTERED ENGINEERING FIRM F-883
RCRA PERMIT RENEWAL/ AMENDMENT APPLICATION
STORMWATER DRAINAGE AND CONTROLS DEEPWELL AND SUPPORT AREAS
V.A.6
STATE OF TEXAS
KATHY L. McGEE
57763
REGISTERED PROFESSIONAL ENGINEER
ISSUED FOR RCRA PERMITTING PURPOSES ONLY.


LEGEND
2000 1000 0 2000
(SCALE IN FEET)
EXTERIOR VEOLIA PROPERTY BOUNDARY (SEE NOTE 1)
EXTERIOR CWM PROPERTY BOUNDARY
APPROXIMATE 1000 FOOT AREA OF INTEREST
APPROXIMATE 1 MILE RADIUS BEYOND FACILITY BOUNDARY
UNDEVELOPED/AGRICULTURE
INDUSTRIAL
WATER WELL WITH WELL ID NUMBER & RECORDED OWNER
(D) DOMESTIC USE
(I) INDUSTRIAL USE
(RS) RIG SUPPLY
HW INJECTION WELL
BASE MAP SOURCE:
U.S.G.S. 7.5 MIN. TOPOGRAPHIC
BIG HILL BAYOU QUADRANGLE
TEXAS–JEFFERSON COUNTY;1993
U.S.G.S. 7.5 MIN. TOPOGRAPHIC
PORT ACRES QUADRANGLE
TEXAS–JEFFERSON COUNTY;1993
ALLIGATOR HOLE MARSH
TEXAS–JEFFERSON COUNTY;1993
FANNETT EAST
TEXAS–JEFFERSON COUNTY;1994
NOTES:
1. PROPERTY BOUNDARY IS THE EXTERIOR BOUNDARY OF PROPERTY OWNED BY VEOLIA ES TECHNICAL SOLUTIONS (VEOLIA). CHEMICAL WASTE MANAGEMENT, INC. (CWM) OWNS PROPERTY LOCATED WITHIN THE VEOLIA EXTERIOR PROPERTY BOUNDARY, AS SHOWN.
2. ALL VEOLIA AND CWM PROPERTY IS INDUSTRIAL USE.
3. WATER WELL INFORMATION AND LOCATIONS BASED ON A SEARCH OF TCEQ AND TWDB WATER WELL RECORDS PERFORMED IN JULY 2014. WELL LOCATIONS ARE APPROXIMATE.
4. WATER WELL 64-16-101 NOW OWNED BY VEOLIA.
VEOLIA
ENVIRONMENTAL SERVICES
TECHNICAL SOLUTIONS
COOK-JOYCE INC.
ENGINEERING AND CONSULTING
TEXAS REGISTERED ENGINEERING FIRM F-883
PROJECT: RCRA PERMIT RENEWAL/ AMENDMENT APPLICATION
SHEET TITLE: FACILITY VICINITY MAP
SCALE: SEE BAR SCALE
PROJECT NO. 12063.01
SHEET 1 OF 1 SHEETS
FIGURE NO. V.A.7
DATE ISSUED: 08-18-2014
PURPOSE: TCEQ SUBMITTAL
TO PORT ARTHUR
TO HOUSTON
VEOLIA WELL CLUSTER
64-16-101 CWM
WDW-160
WDW-358
WID283444 (RS) SQUARE MILE ENERGY
64-16-1 EDDIE BUSH
WID284199 (RS) SQUARE MILE ENERGY
64-16-1E DOW CHEMICAL
WID283978 (RS) BALLARD EXPLORATION
64-16-1 DELTA DRILLING
64-16-1C GOLDRUS DRILLING
64-16-1D GOLDRUS DRILLING
WID184035 (RS) SQUARE MILE ENERGY
64-16-2 BALLARD EXPLORATION
64-16-1 BALLARD
64-16-1 G.T. & CATTLE CO.
64-16-1F STONE CORP
64-16-1B GUY WOODROW
64-16-1 JOEL LIVINGSTON
TAYLOR BAYOU
Borrow Pit
Boat Ramp
PIPELINE
Pumping Sta.
Disposal Well
S:\CAD\Veolia\12063\12063040 Fig V.A.7.dwg, 8/13/2014 6:00:46 PM



LEGEND

- VEOLIA DW AREA WELLS (SEE NOTE 1)
- ⊕ OTHER VEOLIA WELLS (SEE NOTE 1)
- X CWM 01 SITE PERIMETER MONITORING WELLS
- CWM 01 SITE NORTH BORDER AREA WELLS
- • CWM 02 SITE PERIMETER MONITORING WELLS
- ▲ CWM INTERIOR WELLS
- BOUNDARY BETWEEN TRACTS DESIGNATED AS "01 SITE" AND "02 SITE"
- EXTERIOR VEOLIA PROPERTY BOUNDARY (SEE NOTE 2)

NOTES:

1. VEOLIA DW AREA WELLS WILL BE MONITORED UNDER THE COMPLIANCE PLAN. OTHER VEOLIA WELLS WILL NOT BE MONITORED UNDER THE PERMIT OR COMPLIANCE PLAN.
2. EXTERIOR VEOLIA PROPERTY BOUNDARY IS THE BOUNDARY OF THE 442-ACRE WASTE MANAGEMENT FACILITY ORIGINALLY PERMITTED UNDER RCRA IN NOVEMBER 1993. THIS AREA NOW COMPRISES THE VEOLIA AND CWM FACILITIES.

STATE OF TEXAS
KATHY L. McGEE
57783
LICENSED
PROFESSIONAL ENGINEER
8.15.14

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500 0 500
(SCALE IN FEET)

REV.	DATE	DESCRIPTION	DR BY	APP BY

VEOLIA
ENVIRONMENTAL SERVICES
TECHNICAL SOLUTIONS

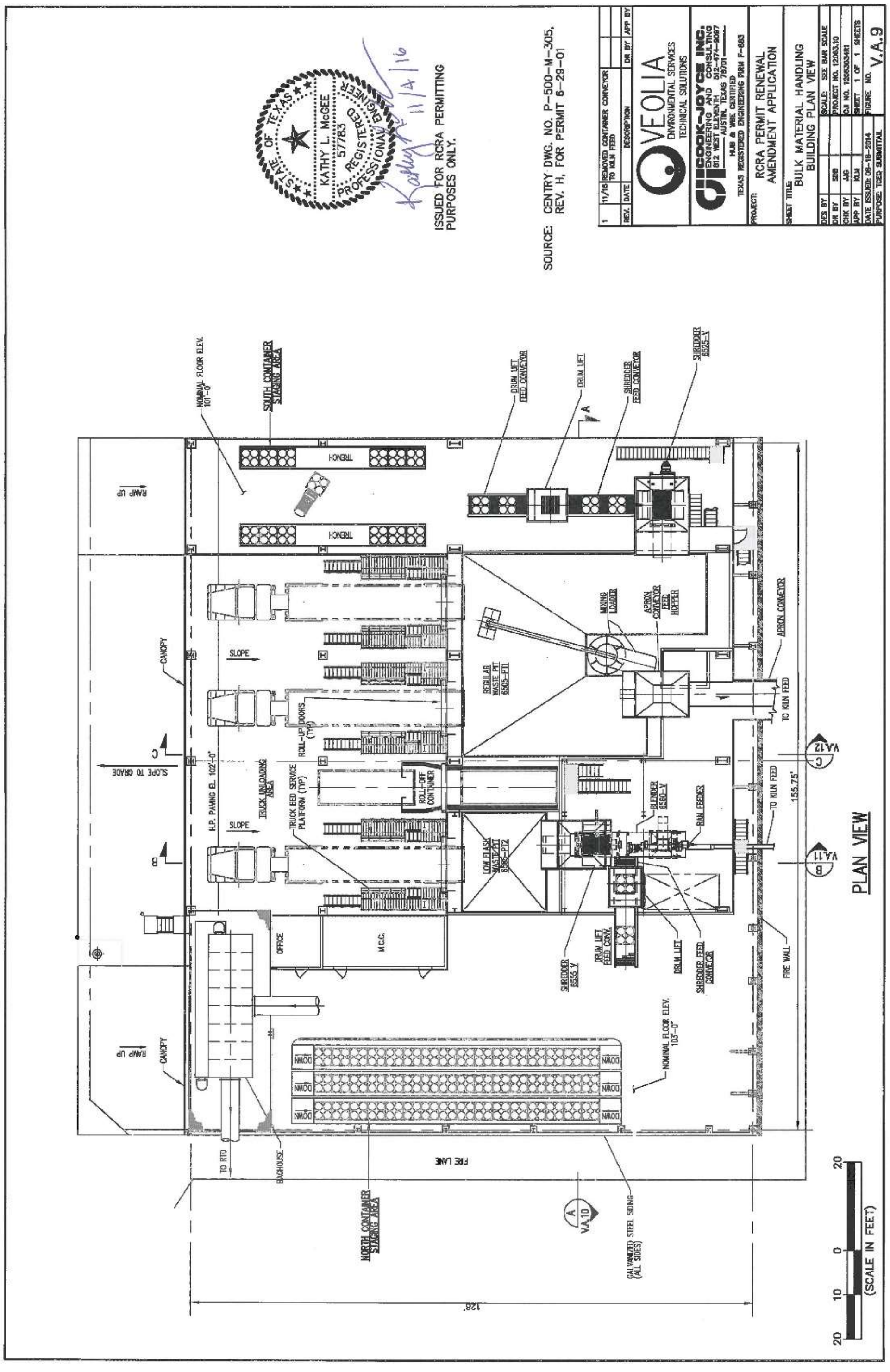
COOK-JOYCE INC.
ENGINEERING AND CONSULTING
812 WEST ELEVENTH 512-474-9097
AUSTIN, TEXAS 78701
HUB & WBE CERTIFIED
TEXAS REGISTERED ENGINEERING FIRM F-883

PROJECT: RCRA PERMIT RENEWAL/ AMENDMENT APPLICATION

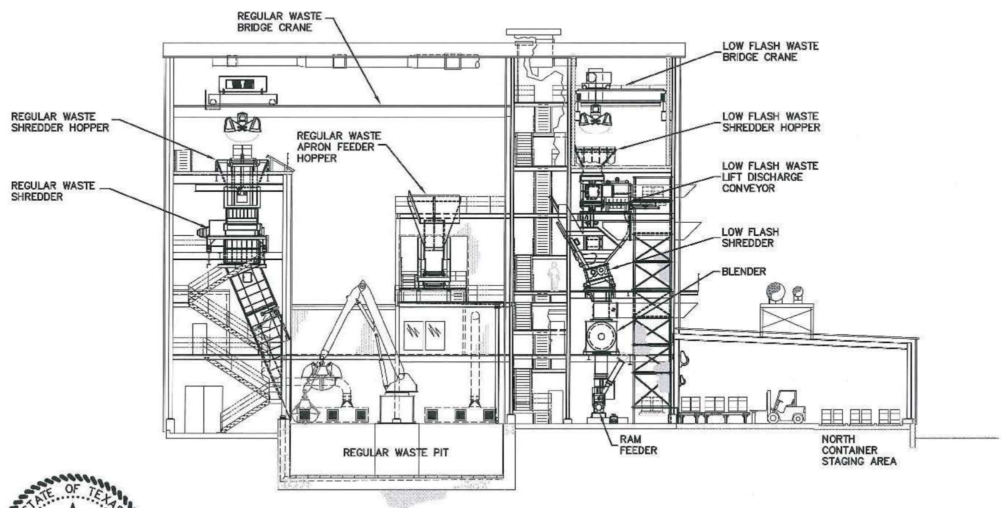
SHEET TITLE: LOCATION OF MONITORING WELLS AT VEOLIA AND CWM FACILITIES

DES BY		SCALE:	SEE BAR SCALE
DR BY	SDB	PROJECT NO.	12063.01
CHK BY	CKK	CJI NO.	12063041
APP BY	KLM	SHEET 1 OF 1	SHEETS
DATE ISSUED:	08-15-2014	FIGURE NO.	V.A.8
PURPOSE:	TCEQ SUBMITTAL		

S:\CAD\Veolia\12063\12063041 Fig V.A.8.dwg, 8/13/2014 9:55:06 AM



KATHY L. McGEE
57783
REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS
11/4/16
ISSUED FOR RCRA PERMITTING PURPOSES ONLY.
SOURCE: CENTRY DWG. NO. P-500-M-305, REV. H, FOR PERMIT 6-29-01
1 11/15 REMOVED CONTAINER CONVEYOR TO KILN FEED
REV. DATE DESCRIPTION DR BY APP BY
VEOLIA ENVIRONMENTAL SERVICES TECHNICAL SOLUTIONS
COOK-JOYCE INC. ENGINEERING AND CONSULTING
812 WEST ELEVENTH AUSTIN, TEXAS 78701 512-474-9097
HUB & WBE CERTIFIED
TEXAS REGISTERED ENGINEERING FIRM F-883
PROJECT: RCRA PERMIT RENEWAL AMENDMENT APPLICATION
SHEET TITLE: BULK MATERIAL HANDLING BUILDING PLAN VIEW
DES BY SDB
DR BY SDB
CHK BY JJG
APP BY KLM
DATE ISSUED: 06-18-2014
PURPOSE: TCEQ SUBMITTAL
SCALE: SEE BAR SCALE
PROJECT NO. 12063.10
CJI NO. 12063034R1
SHEET 1 OF 1 SHEETS
FIGURE NO. V.A.9
NOMINAL FLOOR ELEV. 101'-0"
SOUTH CONTAINER STAGING AREA
TRENCH
RAMP UP
CANOPY
SLOPE
SLOPE TO GRADE
H.P. PAVING EL. 102'-0"
TRUCK UNLOADING AREA
TRUCK BED SERVICE PLATFORM (TYP)
ROLL-UP DOORS (TYP)
ROLL-OFF CONTAINER
REGULAR WASTE PIT
LOW FLASH WASTE PIT
DRUM LIFT FEED CONVEYOR
DRUM LIFT
SHREDDER FEED CONVEYOR
SHREDDER
APRON CONVEYOR FEED HOPPER
APRON CONVEYOR
MIXING LOADER
TO KILN FEED
BLENDER
RAM FEEDER
155.75'
PLAN VIEW
OFFICE
M.C.C.
DRUM LIFT FEED CONV.
SHREDDER FEED CONVEYOR
FIRE WALL
NOMINAL FLOOR ELEV. 100'-0"
DOWN
BAGHOUSE
TO RTO
FIRE LANE
NORTH CONTAINER STAGING AREA
GALVANIZED STEEL SIDING (ALL SIDES)
128'
A VA.10
B VA.11
C VA.12
20 10 0 20
(SCALE IN FEET)
S:\CAD\Veolia\12063\12063034R1 Fig V.A.9.dwg, 11/1/2016 9:58:53 AM, 1:1



SECTION A VA9

STATE OF TEXAS
KATHY L. McGEE
57783
LICENSED
PROFESSIONAL ENGINEER
8.15.14

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20 10 0 20
(SCALE IN FEET)

SOURCE: CENTRY DWG. NO. P-500-M-323, APPROVED FOR CONSTRUCTION, 10-18-02

REV.	DATE	DESCRIPTION	DR BY	APP BY

VEOLIA
ENVIRONMENTAL SERVICES
TECHNICAL SOLUTIONS

COOK-JOYCE INC.
ENGINEERING AND CONSULTING
812 WEST ELEVENTH 512-474-9097
AUSTIN, TEXAS 78701
HUB & WBE CERTIFIED
TEXAS REGISTERED ENGINEERING FIRM F-883

PROJECT: RCRA PERMIT RENEWAL/ AMENDMENT APPLICATION

SHEET TITLE: BULK MATERIAL HANDLING BUILDING NORTH-SOUTH SECTION A

DES BY			SCALE: SEE BAR SCALE
DR BY	SDB	SDB	PROJECT NO. 12063.10
CHK BY	KLM		CJI NO. 12063044
APP BY	KLM		SHEET 1 OF 1 SHEETS
DATE ISSUED: 08-15-2014			FIGURE NO. V.A.10
PURPOSE: TCEQ SUBMITTAL			

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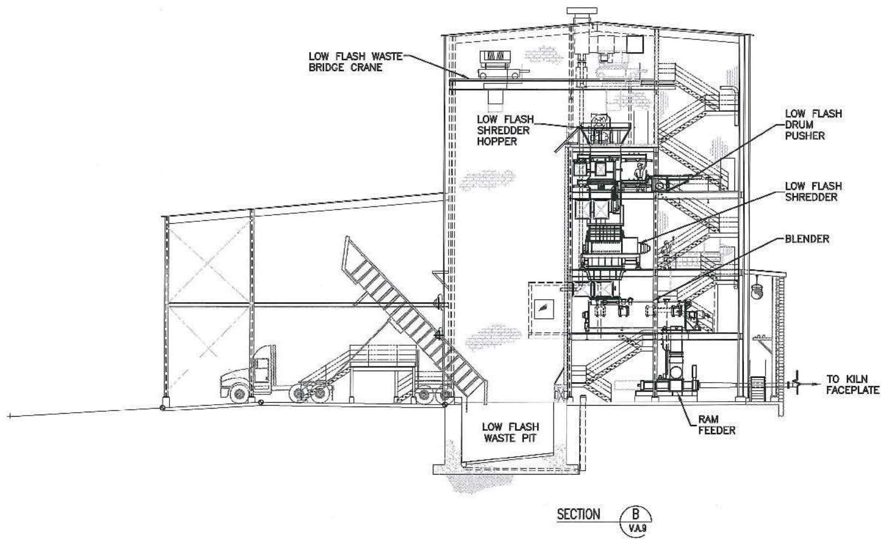

SOURCE: CENTRY DWG. NO. P-500-M-324, APPROVED FOR CONSTRUCTION, 10-18-02

20 10 0 20
(SCALE IN FEET)

STATE OF TEXAS
KATHY L. McGEE
57783
LICENSED
PROFESSIONAL ENGINEER
8.15.14

ISSUED FOR RCRA PERMITTING PURPOSES ONLY.

REV.	DATE	DESCRIPTION	DR BY	APP BY

VEOLIA
ENVIRONMENTAL SERVICES
TECHNICAL SOLUTIONS

COOK-JOYCE INC.
ENGINEERING AND CONSULTING
812 WEST ELEVENTH 512-474-9097
AUSTIN, TEXAS 78701
HUB & WBE CERTIFIED
TEXAS REGISTERED ENGINEERING FIRM F-883

PROJECT: RCRA PERMIT RENEWAL/ AMENDMENT APPLICATION

SHEET TITLE: BULK MATERIAL HANDLING BUILDING EAST-WEST SECTION B

DES BY			SCALE: SEE BAR SCALE
DR BY	SDB		PROJECT NO. 12063.10
CHK BY	KLM		CJI NO. 12063043
APP BY	KLM		SHEET 1 OF 1 SHEETS
DATE ISSUED: 08-18-2014			FIGURE NO. V.A.11
PURPOSE: TCEQ SUBMITTAL			

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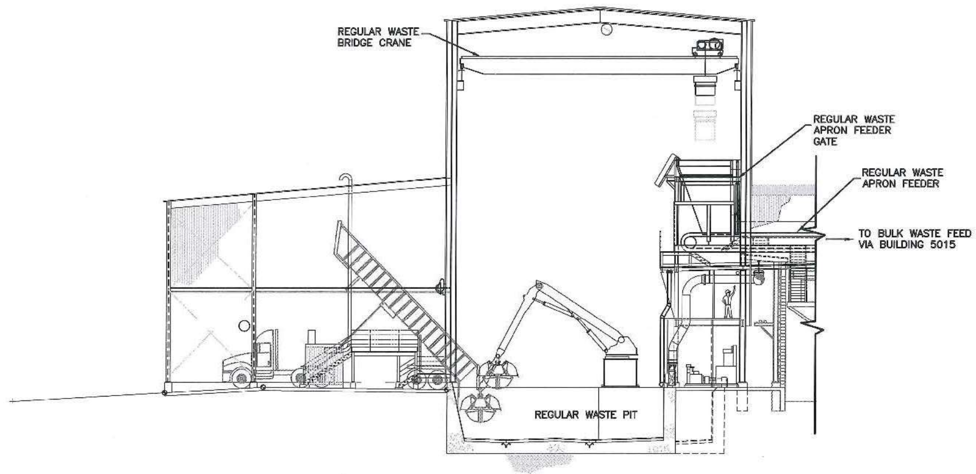

SECTION C V.A.9

KATHY L. McGEE 57783 STATE OF TEXAS LICENSED PROFESSIONAL ENGINEER

8.15.14

ISSUED FOR RCRA PERMITTING PURPOSES ONLY.

20 10 0 20
(SCALE IN FEET)

SOURCE: CENTRY DWG. NO. P-500-M-325, APPROVED FOR CONSTRUCTION, 10-18-02

REV.	DATE	DESCRIPTION	DR BY	APP BY

VEOLIA ENVIRONMENTAL SERVICES TECHNICAL SOLUTIONS

COOK-JOYCE INC.
ENGINEERING AND CONSULTING
812 WEST ELEVENTH 512-474-9097
AUSTIN, TEXAS 78701
HUB & WBE CERTIFIED
TEXAS REGISTERED ENGINEERING FIRM F-883

PROJECT: RCRA PERMIT RENEWAL/ AMENDMENT APPLICATION

SHEET TITLE: BULK MATERIAL HANDLING BUILDING EAST-WEST SECTION C

DES BY			SCALE: SEE BAR SCALE
DR BY	SDB		PROJECT NO. 12063.10
CHK BY	KLM		CJI NO. 12063042
APP BY	KLM		SHEET 1 OF 1 SHEETS
DATE ISSUED: 08-18-2014			FIGURE NO. V.A.12
PURPOSE: TCEQ SUBMITTAL			

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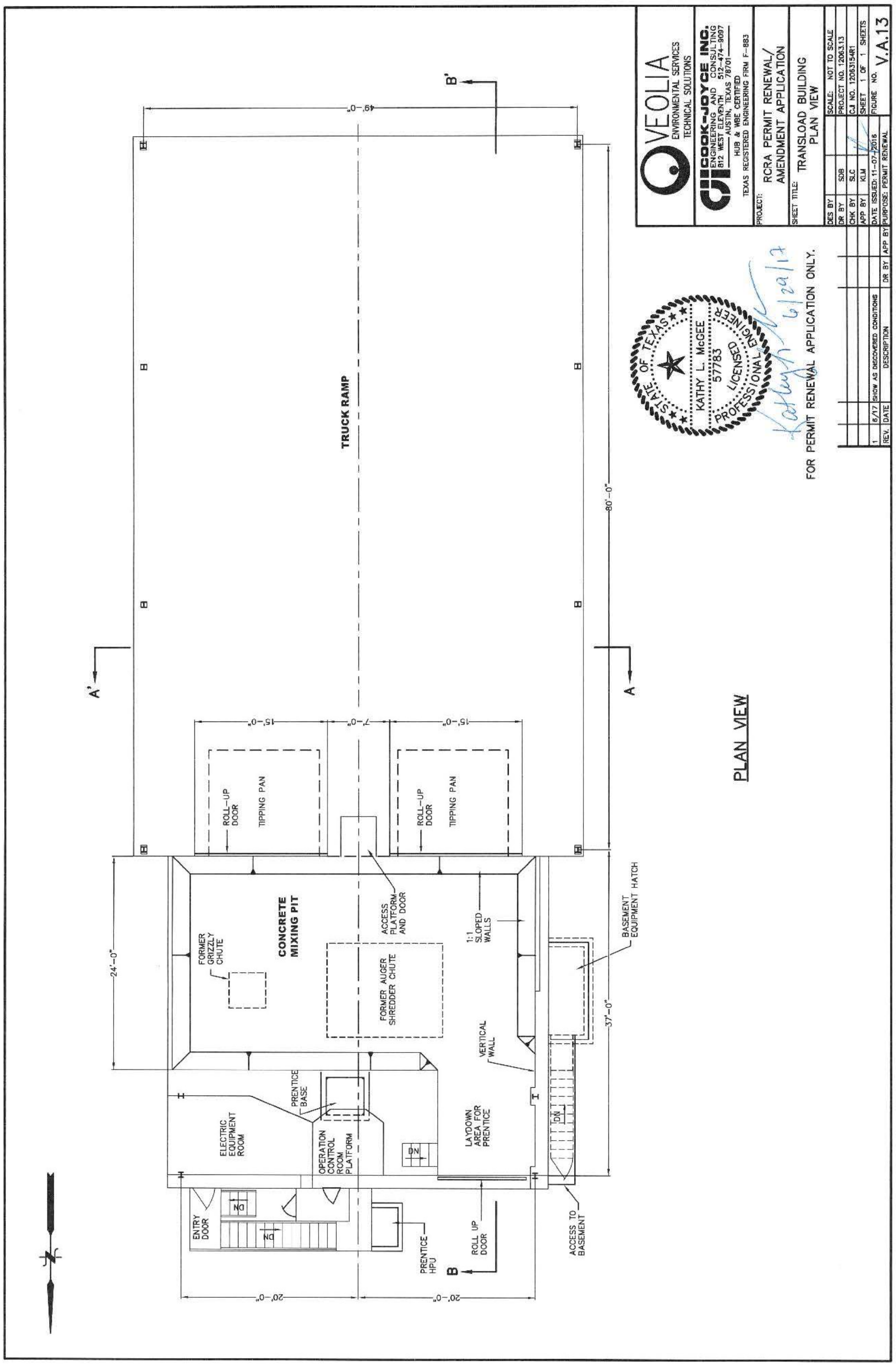

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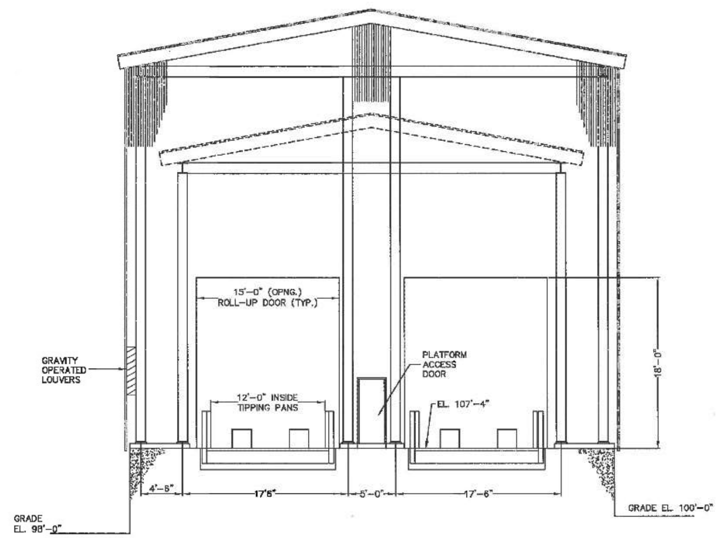
10 0 10
(APPROXIMATE SCALE IN FEET)



SECTION A–A'

STATE OF TEXAS
KATHY L. McGEE
57783
LICENSED
PROFESSIONAL ENGINEER
Kathy McGee 11/4/16

FOR PERMIT RENEWAL APPLICATION ONLY.

REV.	DATE	DESCRIPTION	DR BY	APP BY

VEOLIA
ENVIRONMENTAL SERVICES
TECHNICAL SOLUTIONS

COOK-JOYCE INC.
ENGINEERING AND CONSULTING
812 WEST ELEVENTH 512-474-9097
AUSTIN, TEXAS 78701
HUB & WBE CERTIFIED
TEXAS REGISTERED ENGINEERING FIRM F-883

PROJECT: RCRA PERMIT RENEWAL/ AMENDMENT APPLICATION

SHEET TITLE: TRANSLOAD BUILDING SECTION A–A'

DES BY		SCALE: SEE BAR SCALE
DR BY	SDB	PROJECT NO. 12063.13
CHK BY	SLC	CJI NO. 12063154
APP BY	KLM	SHEET 1 OF 1 SHEETS
DATE ISSUED: 11-07-2016		FIGURE NO. V.A.14
PURPOSE: PERMIT RENEWAL		

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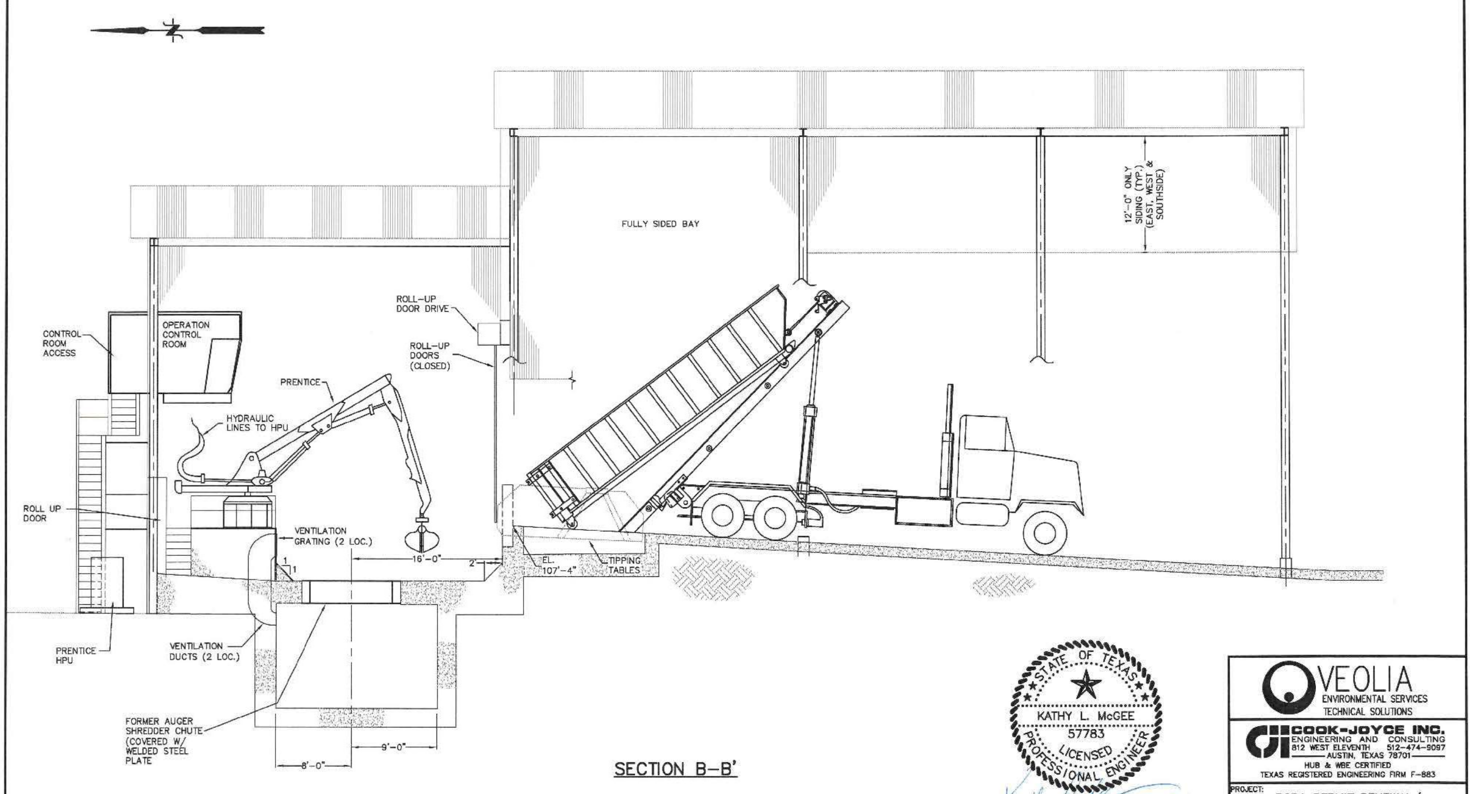

SECTION B-B'

STATE OF TEXAS
KATHY L. McGEE
57783
LICENSED
PROFESSIONAL ENGINEER

Kathy L. McGee 6/29/17

FOR PERMIT RENEWAL APPLICATION ONLY.

VEOLIA
ENVIRONMENTAL SERVICES
TECHNICAL SOLUTIONS

COOK-JOYCE INC.
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812 WEST ELEVENTH 512-474-9097
AUSTIN, TEXAS 78701
HUB & WBE CERTIFIED
TEXAS REGISTERED ENGINEERING FIRM F-883

PROJECT: RCRA PERMIT RENEWAL/ AMENDMENT APPLICATION

SHEET TITLE: TRANSLOAD BUILDING SECTION B-B'

1	6/17	SHOW AS DISCOVERED CONDITIONS			
REV.	DATE	DESCRIPTION	DR BY	APP BY	

DES BY		SCALE: NOT TO SCALE
DR BY	SDB	PROJECT NO. 12063.13
CHK BY	SLC	CJI NO. 12063154R1
APP BY	KLM	SHEET 1 OF 1 SHEETS
DATE ISSUED: 11-07-2016		FIGURE NO. V.A.15
PURPOSE: PERMIT RENEWAL		

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