

**EPA SAMPLING INSPECTION REPORT**  
**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 5**

**Purpose:**

Northeast Juneau County Groundwater Investigation

**Date of Inspection:**

April 30 – May 3, 2018

**EPA Representatives:**

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**Approval Signature:** \_\_\_\_\_

**Approval Date:** \_\_\_\_\_

## **1. Background**

On April 30, 2018 to May 3, 2018, U.S. EPA conducted a groundwater investigation in Armenia Township in northeast Juneau County, Wisconsin. The investigation studied pollutants in groundwater in northeast Juneau County along five transects upgradient and downgradient of crop fields where nutrients were and continue to be land applied. EPA also collected drinking water samples from 5 private wells.

The Central Sands Region of Wisconsin is in the Cambrian-Ordovician Aquifer System (COAS) whose northern border is about 4 miles north of the northern portion of the Study Area. The COAS is mainly comprised of sandstone aquifers which along with the sandy top soil of the region, creates significant ground water infiltration. The flow of groundwater within the study area is generally in the southeasterly direction toward Lake Petenwell.

On October 23-25, 2017, EPA had initially investigated pollutants in northeast Juneau County by sampling 13 private wells in the Study Area. At that time, EPA's sampling showed that of the 13 private wells, six had levels of nitrates that exceeded the drinking water standard of 10 milligrams per liter (mg/L). EPA had also previously conducted an inspection of a large Concentrated Animal Feeding Operation in the area, Central Sands Dairy, LLC (CSD) on June 21-22, 2017.

## **2. Investigation**

### **2.1 Investigation Overview**

On April 30 through May 3, 2018, EPA conducted a groundwater sampling investigation in Armenia Township, Wisconsin, to identify pollutants in the drinking water aquifer. EPA Region 7 assisted Region 5 with the investigation by providing a direct-push technology hydraulic sampling machine called a Geoprobe. Each Geoprobe sample was collected within a road right-of-way. The investigation consisted of the following:

- EPA collected groundwater samples using a Geoprobe from 41 locations at two depths for a total of 82 samples. Each Geoprobe sample was collected within a road right of way. The GPS coordinates, description, and depths for each location are specified in Table 1. Figure 1 also maps the 41 Temporary Groundwater Sampling Locations.
- Pre-screening of the groundwater samples was conducted using Hach® Nitrate Test Strips for nitrate and a Fisher Scientific Accumet Waterproof Hand-Held Meter (A-85) for pH and water temperature measurements.
- The parameters analyzed for each of the 82 samples included: nitrate + nitrite-nitrogen, the N15 isotope of nitrogen, the O18 isotope of oxygen, nutrients (total phosphorus, total kjeldahl nitrogen, ammonia-nitrogen, nitrate-nitrite nitrogen), total organic carbon, anions (including bromide, chloride, fluoride, nitrate, and sulfate), total dissolved solids, and total metals.



- Note that EPA determined that due to the soil type, previous testing done by EPA and other agencies, and funding limitations that *E.coli* would not be sampled as part of the Geoprobe sampling portion of this inspection.
- The team also collected drinking water tap samples from five private wells downgradient of crop fields.

## **2.2 Investigation Preparation**

In preparation for the inspection, EPA mapped out five transects in the Study Area identified as Transects A through E. Transect A was designed to characterize the groundwater upgradient of crop fields and downgradient of cranberry fields and other potential sources upgradient of CSD. The remaining transects (B-E) were designed to characterize groundwater both downgradient and upgradient of different sources including CSD, crop fields, and cranberry fields. Each sampling location along a transect was then designated a number (A1, A2, etc., to E10).

On April 11 and 12, 2018, EPA visited each of the proposed sampling sites to measure the distance from the centerline of the road, to record the nearest intersection, to record the proposed GPS coordinates, and requested, via the Wisconsin Diggers Hotline, webpage that the utilities be located around each of the sampling sites. On April 12, 2018, EPA inspectors met with the Juneau County Land Conservation Surveyor to review the transects and to ensure that all proposed borehole locations were in the right of way, and to identify potential utility conflicts. The Surveyor took EPA to the Deeds Office in the County Building to review the Highway Register 1, Index to Highway Register, and the Land Atlas and Plat Book for Juneau County, Wisconsin 2015. When EPA arrived back in the office, EPA proceeded to the Wisconsin Digger Hotline webpage to “File a Request” online to request that the utilities be located and marked. Representatives from the Wisconsin Diggers Hotline contacted EPA to verify locations.

On April 29, 2018 prior to EPA’s inspection, EPA visited all the locations to ensure that the utilities had been marked and that all markings were visible and to confirm for locations with no markings that for those locations, there were in fact no utilities. A few of the utilities had not yet been marked by the Wisconsin Diggers Hotline contractors and those were identified to the Wisconsin Diggers Hotline contractors whom confirmed that those locations would be marked before the sampling occurred.

## **2.3 Geoprobe Sampling**

On April 30, 2018, at 7:19 AM, EPA began collecting groundwater samples at sample location A1 using the Geoprobe. EPA completed all sampling activities at one sampling location before proceeding to the next. EPA worked through the 41 sampling locations generally completing an entire transect before starting the next, except where sites from two transects were in close proximity.

At each sampling location, EPA bored a sampling hole to the deepest extent in the range of 36 to 49 feet. EPA pumped out approximately one gallon of water prior to collecting

the samples to try and reduce the sediment in the samples collected. EPA then collected 4 sample bottles. These deeper samples are referred to as “a” samples (e.g. A1a). After collecting the samples, EPA raised the probe to a depth of 20 to 34 feet based on where the depth of groundwater was present. EPA then collected a second set of 4 bottles of samples referred to as “b” samples.

At each depth, EPA collected the following 4 sample bottles which were preserved and analyzed as described below:

- 250 mL High-Density Polyethylene (HDPE) Bottle
  - Analyzed for N15 Isotope, O18 Isotope, and nitrate + nitrite-nitrogen.
  - Preserved with dry ice.
  - Analysis for these parameters was conducted by the Nebraska Water Center at the Water Sciences Laboratory at the University of Nebraska Laboratory (UNL).
- 500 mL HDPE Bottle
  - Analyzed for Nutrients (nitrate-nitrite nitrogen, total phosphorus, total kjeldahl nitrogen, ammonia-nitrogen) and total organic carbon.
  - Preserved with sulfuric acid and on ice at < 6°C.
- 1-liter HDPE Bottle:
  - Analyzed for anions (including bromide, chloride, fluoride, nitrate, and sulfate) and total dissolved solid.
  - Preserved on ice at < 6°C.
- 500 milliliter(mL) HDPE Bottle:
  - Analyzed for total metals.
  - Preserved with nitric acid and on ice at < 6°C.

Analyses for the parameters in the three bottles above were conducted by the Region 5 Chicago Regional Laboratory (CRL).

EPA collected field blanks, equipment blanks, and duplicate samples according to the schedule in the Quality Assurance Project Plan (QAPP) included as Appendix 3.

EPA concluded its Geoprobe sampling on May 3, 2018.

## **2.4 Geoprobe Sampling Results**

### **2.4.1 Field Test Parameters**

The field parameter results for pH, water temperature, and Hach® Nitrate Test Strip results are in Table 1. Figures 2 and 3 map the Hach® Nitrate Test Strip results.

#### **2.4.2 Nitrate-Nitrite-N, Nitrogen N15 Isotope, and Oxygen O18 Isotope**

The results of the nitrate+nitrite-nitrogen, Nitrogen N15 Isotope, and Oxygen O18 Isotope analyses conducted by UNL are summarized in Table 2.

Figures 4 and 5 contain maps displaying the nitrate+nitrite-nitrogen ranges of results.

The isotope data can be used to distinguish commercial fertilizers from organic sources (animal and/or human). There are no approved EPA standard analytical methods for the Nitrogen N15 Isotope, and the Oxygen O18 Isotope analyses. As a result, this data may not meet the third-party reproducibility criterion set forth by EPA's Information Quality Guidelines (EPA/260R-02-008 October 2002).

The UNL nitrate+nitrite-nitrogen analyses used automated Cd-Reduction EPA 353.2 method for analysis. This method requires samples to either be preserved with Sulfuric Acid and kept at a temperature of <6 °C for a 28-day holding time or stored on ice at <6 degrees Celsius and analyzed within 48 hours. UNL instructed EPA to utilize a single bottle for the isotope analyses and the nitrate+nitrite-nitrogen analysis and for that bottle to be put on dry ice as its preservation method. The analyses for these samples were conducted on May 7, 2018.

The Newfoundland and Labrador Department of Environment and Conservation Water Resources Management Division completed a study titled "Assessment of the Effects of Holding Time on Various Water Quality Parameters"<sup>1</sup> on June 2010. The study parameters included total nitrogen, nitrate, total phosphorus, dissolved inorganic carbon, dissolved organic carbon, alkalinity, pH, specific conductance, turbidity, and color. Samples were packed on ice packs and shipped to the laboratory immediately after collection. All samples were stored in refrigerators and kept below 4 °C from the time they arrived at the laboratory until they were analyzed. The study concluded in part that ". . . This study demonstrates that concentrations for the 10 parameters identified did not change significantly when analyzed up to 21 days after the samples had arrived at the laboratory. Seasonal variations did not appear to have any impact on parameter concentrations at each holding time."

#### **2.4.3 Nutrients (Nitrate-Nitrite N, Total Phosphorus, Total Kjeldahl Nitrogen, Ammonia-Nitrogen) and Total Organic Carbon**

The nutrient and total organic carbon sample analyses conducted by the CRL are summarized in Table 3. Figures 6 and 7 contain maps displaying the nitrate-nitrite nitrogen ranges of results.

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<sup>1</sup> Government of Newfoundland & Labrador Department of Environment and Conservation Water Resources Management Division St. John's, NL, A1B4J6 Canada

Nutrient samples were taken to determine the concentration of nitrogen in groundwater across the Study Area. EPA preserved with sulfuric acid in the field and CRL used method ASTM D7781-14.

Field preservation of samples with high levels of sediment is known to be difficult and although samples may meet the pH target in the field, the preservative can continue to react with the sediment resulting in changes in the sample's pH when it arrives at the lab. After the shipment of the first round of samples, CRL notified the EPA Team that the samples were arriving at the laboratory under preserved (i.e., higher than a pH of 2). After receiving this notification, the EPA Team added preservative to the samples that were to be shipped to CRL Laboratory on May 3, 2018. This led to some of the samples being over-preserved. According to CRL, “. . . The over-preservation interferes with the analysis and the sample data may be estimated. This issue has been previously seen with nitrate-nitrite nitrogen results for other projects where samples were over-preserved . . .”

EPA conducted a quality assurance review of nitrate data received from UNL, CRL (nutrient and anion analysis), and Hach® Nitrate Test Strip for Nitrate. Table 5.0 summarizes the four sets of nitrogen analysis. Through comparisons of the four data sets, EPA identified samples where the results from the CRL nitrate-nitrite nitrogen method were inconsistent with the results from the other three data sets. Eleven of the samples had results above 10 mg/L in three (UNL nitrate+nitrite-nitrogen, CRL nitrate-nitrogen via method 300.0 and Hach® Nitrate Test Strips) of the four data sets, including in one of the two CRL data sets. The other CRL data set (nitrate-nitrite nitrogen method ASTM D7781-14 in water) reported “U” for not detected for these eleven sample results. As part of this comparison to other data, EPA also evaluated the correlation between the four nitrogen data sets and found a strong correlation with the exception of the eleven samples with the inconsistencies noted above and sample A2a which is discussed further below. These eleven samples were all part of the same shipment shipped to CRL Laboratory on May 3, 2018.

EPA also further reviewed the five matrix samples spike results. Three of the matrix spike results had a pH of 2 and the other two had pH of 1. For two of the three matrix spikes with pH of 2, the spike recoveries were higher than the recovery range of 90-110%. This is indicative of positive interference and is discussed further after Table 4. The other matrix spike with pH of 2 was within the acceptable range. For one of the pH 1 samples, the spike recoveries were higher than the range and indicative of positive interference. The other sample with pH of 1, was reported as not detected when spiked with 2.0 mg/L of nitrate. It is expected that the method would detect some amount of nitrate when a sample is spiked with a known amount of nitrate. In this instance, the method failed to detect any of the nitrate, raising concern with the use of non-detect data at a pH of 1. The observed matrix interference may help explain the inconsistencies highlighted in pink in Table 5.0, and may be related to over preservation.

Based on the feedback from CRL, the matrix spike data, and the comparison between the four nitrogen data sets, EPA did not map in Figures 6 and 7 the results for the any of the nitrate-nitrite nitrogen samples shipped to CRL on May 3, 2018.

EPA also did not map sample A2a due which also was inconsistent with results from the other three data sets and had following quality assurance concerns:

- CRL's nitrate-nitrite nitrogen method ASTM D7781-14 in water result was 36.90 mg/L. The Hach® Nitrate Test Strip results, the UNL data and the CRL nitrate-nitrogen via method 300.0 data were all non-detect for forms of nitrogen.
- The April 30, 2018 nutrient sample bottles were in a cooler with total metals sample bottles. In order to properly preserve the total metals sample bottles, the total metals sample bottles were opened to add preservative. Based on the results for the A2a nutrient sample, there is a possibility that sample A2a was contaminated with the nitric acid preservative that was being used to preserve the total metals samples.

#### **2.4.4 Anions**

Anions (including bromide, chloride, fluoride, nitrate, and sulfate) results are summarized in Table 4.0. Anions were analyzed to look for trends between samples collected upgradient and downgradient of potential sources, including crop fields. EPA was aware from CSD's Nutrient Management Plan reports that potash which contains chloride was applied to fields.

#### **2.4.5 Total Metals**

Metals were analyzed by CRL using method EPA 200.7 in Water. CRL determined that "many of the samples arrived at CRL under preserved". CRL documents the flags/qualifiers in the total metals CRL Laboratory Final Report. The flags/qualifiers include the following: biased low, biased high, estimated, not detected, not reported, or QC exceeded this information is included with the total metal results in e in Appendix 2.

#### **2.4.6 Total Dissolved Solids:**

Total dissolved solids were analyzed by CRL using method SM 2540 C in water. The results are in Appendix 2.

### **2.5 May 2018 - Private Well Sampling**

On May 3, 2018, EPA collected drinking water samples from 5 private wells. The private well samples were analyzed at the Wisconsin State Laboratory of Hygiene (WSLH) for nitrate + nitrite (as N), nitrate, nitrite, chloride, ammonia-nitrogen, and *E.coli* (Table 5). Upon collection, all samples were immediately placed in coolers with ice in preparation for hand-delivery to Wisconsin State Laboratory of Hygiene.

(Appendix 3, Quality Assurance Performance Plan).

EPA also collected samples that were analyzed by UNL for nitrate-nitrite nitrogen, the Nitrogen N15 isotope, and the Oxygen O18 isotope. All samples sent to UNL were frozen upon collection for preservation during shipment.

All five wells exceeded the 10 mg/L drinking water standard for nitrate-nitrite nitrogen and nitrate. Results for *E.coli* came back negative.



## Tables and Figures

**Table 1: Description of the Physical Sampling Location, Photos, pH, Temperature, and Hach® Nitrate Test Strip Results:**

Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
A1	A1a	Water	A1a: 49-45 ft.	4/30/2018 7:19 AM	South side of 1 <sup>st</sup> Street (County Line Road) 44.249 N; 89.967 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4866 DSC_4867 P4300007	7.9	11.6 °C	5.0
A1	A1b	Water	A1b: 25-20 ft.	4/30/2018 7:32 AM	South side of 1 <sup>st</sup> Street (County Line Road) 44.249 N; 89.967 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4866 DSC_4867 P4300007	6.9	9.8 °C	3.0
A2	A2a	Water	A2a: 49-45 ft.	4/30/2018 8:15 AM	West side of 22 <sup>nd</sup> Avenue North 44.248 N; 89.967 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4868 DSC_4869 DSC_4870 P4300006	7.31	11.1 °C	0.0
A2	A2b	Water	A2b: 25-20 ft.	4/30/2018 8:24 AM	West side of 22 <sup>nd</sup> Avenue North 44.248 N; 89.967 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4868 DSC_4869 DSC_4870	7.38	10.4 °C	1.0

Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
						P4300006			
A3	A3a	Water	A3a: 49-45 ft.	4/30/2018 9:06 AM	North side of 2 <sup>nd</sup> Street 44.241 N; 89.982 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4871 DSC_4872 DSC_4873 DSC_4874 P4300004 P4300005	7.76	13 °C	1.0
A3	A3b	Water	A3b: 25-20 ft.	4/30/2018 9:14 AM	North side of 2 <sup>nd</sup> Street 44.241 N; 89.982 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4871 DSC_4872 DSC_4873 DSC_4874 P4300004 P4300005	6.65	12.5 °C	0.0
A3	A3Dup	Water	A3aDup: 49-45 ft.	4/30/2018 9:06 AM	North side of 2 <sup>nd</sup> Street 44.241 N; 89.982 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4871 DSC_4872 DSC_4873 DSC_4874 P4300004 P4300005	No data reported	No data reported	No data reported
A4 Equipment Blank	A4equip	Equipment blank	Not applicable	4/30/2018 9:38 AM	Cranberry Rock Road 44.238 N; 89.991 W	Grab sample poured distilled water through Geo-Probe screen. Photos:	6.97	17.1 °C	0.0

Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
						DSC 4878			
A4	FB1	Field blank	Not applicable	4/30/2018 9:49 AM	Cranberry Rock Road 44.23856 N; 89.99124 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC 4878	No data reported	No data reported	No data reported
A4	A4a	Water	A4a: 49-45 ft.	4/30/2018 9:58 AM	West side of Cranberry Rock Road 44.238 N; 89.991 W	Grab sample collected through HDPE hose into sample bottle Photos: DSC_4879 DSC_4880 P4300003	6.55	12.8 °C	2.0
A4	A4b	Water	A4b:25-20 ft.	4/30/2018 10:09 AM	West side of Cranberry Rock Road 44.238 N; 89.991 W	Grab sample collected through HDPE hose into sample bottle Photos: DSC_4879 DSC_4880 P4300003	6.09	12.2 °C	4.0
B1	B1a	Water	B1a: 49-45 ft.	4/30/2018 10:51 AM	East side of 20 <sup>th</sup> Street 44.227 N; 89.996 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4881 DSC_4882 DSC_4883 P4300002	7.04	13.2 °C	0.0

Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
B1	B1b	Water	B1b: 25-20 ft.	4/30/2018 10:58 AM	East side of 20 <sup>th</sup> Street 44.227 N; 89.996 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4881 DSC_4882 DSC_4883 P4300002	6.57	12.5 °C	0.0
B2	B2a	Water	B2a: 49-45 ft.	4/30/2018 11:40 AM	South side of 3 <sup>rd</sup> Street 44.227 N; 89.985 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4885 DSC_4886 P4300008	7.38	12.0 °C	0.0
B2	B2b	Water	B2b: 25-20 ft.	4/30/2018 11:48 AM	South side of 3 <sup>rd</sup> Street 44.227 N; 89.985 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4885 DSC_4886 P4300008	6.38	11.5 °C	0.0
B3	B3a	Water	B3a: 49-45 ft.	4/30/2018 12:29 PM	North side of 3 <sup>rd</sup> Street 44.227 N; 89.976 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4887 DSC_4888 DSC_4889 DSC_4890	6.42	13.4 °C	5.0
B3	B3b	Water	B3b: 25-20 ft.	4/30/2018 12:36 PM	North side of 3 <sup>rd</sup> Street 44.227 N; 89.976 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4887	6.25	12.5 °C	2.0



Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
						DSC_4888 DSC_4889 DSC_4890			
B4	B4a	Water	B4a: 49-45 ft.	4/30/2018 13:10	South side of 3 <sup>rd</sup> Street 44.227; 89.966 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4891 DSC_4892 DSC_4893 P4300010	6.77	15.5 °C	50.0
B4	B4b	Water	B4b: 25-20 ft.	4/30/2018 13:19	South side of 3 <sup>rd</sup> Street 44.227; 89.966 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4891 DSC_4892 DSC_4893 P4300010	6.47	14.7 °C	50.0
C1	C1a	Water	C1a: 49-45 ft.	4/30/2018 15:02	South side of 2 <sup>nd</sup> Street 44.242 N; 89.955 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4899 DSC_4900 DSC_4901 DSC_4902 P4300012	6.25	14.6 °C	0.0
C1	C1b	Water	C1b: 34-30 ft.	4/30/2018 15:27	South side of 2 <sup>nd</sup> Street 44.242 N; 89.955 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4899 DSC_4900	6.58	14.8 °C	0.0



Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
						DSC_4901 DSC_4902 P4300012			
C2	C2a	Water	C2a: 49-45 ft.	4/30/2018 16:06	West side of Nelson Road 44.234 N; 89.955 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4903 DSC_4904 DSC_4905 P4300013	6.05	15.6 °C	50.0
C2	C2b	Water	C2b: 34-30 ft.	4/30/2018 16:14	West side of Nelson Road 44.234 N; 89.955 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4903 DSC_4904 DSC_4905 P4300013	6.46	16.5 °C	10.0
C3	C3a	Water	C3a: 49-45 ft.	4/30/2018 14:16	South side of 3 <sup>rd</sup> Street 44.227 N; 89.957 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4894 DSC_4895 DSC_4896 DSC_4897 DSC_4899 P4300011	6.32	16.5 °C	20.0
C3	C3b	Water	C3b: 25-20 ft.	4/30/2018 14:26	South side of 3 <sup>rd</sup> Street 44.227 N; 89.957 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4894	6.16	16.5 °C	3.0

Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
						DSC_4895 DSC_4896 DSC_4897 DSC_4899 P4300011			
C5A	C5Aa	Water	C5Aa: 49-45 ft.	5/1/2018 6:29 AM	West side of Nelson Road 44.222 N; 89.955 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4906 DSC_4907 P5010014 P5010015 P5010016 P5010017	6.11	12.2 °C	20.0
C5A	C5Ab	Water	C5Ab: 34-30 ft.	5/1/2018 6:43 AM	West side of Nelson Road 44.222 N; 89.955 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4906 DSC_4907 P5010014 P5010015 P5010016 P5010017	6.64	12.1 °C	50.0
C6	C6a	Water	C6a: 49-45 ft.	5/1/2018 7:06 AM	West side of Nelson road 44.216 N; 89.955 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC_4908 P5010018 P5010019 P5010020	8.35	11.8 °C	50.0

Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
C6	C6b	water	C6b: 34-30 ft.	5/1/2018 7:15 AM	West side of Nelson road 44.216 N; 89.955 W	Grab sample, collected through HDPE hose into sample bottle Photos: DSC 4908 P5010018 P5010019 P5010020	6.8	12 °C	50.0
C7	C7equip	Equipment	Not applicable	5/1/2018 7:38 Am	North side of 4 <sup>th</sup> Street 44.213 N; 89.958 W	Grab sample, collected through HDPE hose into sample bottle Photos: P5010022 P5010023	6.41	17.3 °C	0.0
C7	Field Blank	Field blank	Not applicable	5/1/2018 7:39 AM	North side of 4 <sup>th</sup> Street 44.213 N; 89.958 W	Grab sample, collected through HDPE hose into sample bottle Photos: P5010022 P5010023	6.38	18.5 °C	0.0
C7	C7a	Water	C7a: 49-45 ft.	5/1/2018 7:48 AM	North side of 4 <sup>th</sup> Street 44.213 N; 89.958 W	Grab sample, collected through HDPE hose into sample bottle Photos: P5010021 P5010024 P5010025	8.28	14.2 °C	50.0
C7	C7b	Water	C7b: 34-30 ft.	5/1/2018 8:02 AM	North side of 4 <sup>th</sup> Street 44.213 N; 89.958 W	Grab sample, collected through HDPE hose into sample bottle Photos: P5010021 P5010024 P5010025	6.3	13.1 °C	50.0

Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
C7	C7bDup	Duplicate	C7bDup: 34-30 ft.	5/1/2018 8:02 AM	North side of 4 <sup>th</sup> Street 44.213 N; 89.958 W	Grab sample, collected through HDPE hose into sample bottle Photos: P5010021 P5010024 P5010025	No data Recorded	No data Recorded	No data Recorded
C8	C8a	Water	C8a: 49-45 ft.	5/1/2018 8:35 AM	North side of 4 <sup>th</sup> Street 44.213 N; 89.964 W	Grab sample, collected through HDPE hose into sample bottle Photos: P5010026 P5010027 P5010028	6.44	13.1 °C	20.0
C8	C8b	Water	C8b: 34-30 ft.	5/1/218 8:42 AM	North side of 4 <sup>th</sup> Street 44.213 N; 89.964 W	Grab sample, collected through HDPE hose into sample bottle Photos: P5010026 P5010027 P5010028	6.48	13.5 °C	5.0
C9	C9a	Water	C9a: 49-45 ft.	5/1/2018 10:00 AM	North side of 4 <sup>th</sup> Street 44.213 N; 89.972 W	Grab sample, collected through HDPE hose into sample bottle Photos: P5010029 P5010030 P5010031 P5010032 P5010033 (accidental photo)	6.1	15.9 °C	2.0
C9	C9b	Water	C9b: 34-30 ft.	5/1/2018 10:21 AM	North side of 4 <sup>th</sup> Street 44.213 N; 89.972 W	Grab sample, collected through HDPE hose into sample bottle Photos:	6.03	12.7 °C	2.0



Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
						P5010029 P5010030 P5010031 P5010032 P5010033 (accidental photo)			
C10	C10a	Water	C10a: 49-45 ft.	5/1/2018 11:05 AM	North side of 4 <sup>th</sup> Street 44.213 N; 89.983 W	Grab sample, collected through HDPE hose into sample bottle Photos: P5010034 P5010035 P5020036	6.8	12.6 °C	5.0
C10	C10b	Water	C10b: 34-30 ft.	5/1/2018 11:12 AM	North side of 4 <sup>th</sup> Street 44.213 N; 89.983 W	Grab sample, collected through HDPE hose into sample bottle Photos: P5010034 P5010035 P5020036	6.63	12.4 °C	20.0
C11	C11a	Water	C11a: 49-45 ft.	5/1/2018 11:46 AM	East side of 20 <sup>th</sup> Avenue 44.213 N; 89.996 W	Grab sample, collected through HDPE hose into sample bottle Photos: P5010037 P5010038 P5010039	6.93	14.6 °C	0.0
C11	C11b	Water	C11b: 34-30 ft.	5/1/2018 11:52 AM	East side of 20 <sup>th</sup> Avenue 44.213 N; 89.996 W	Grab sample, collected through HDPE hose into sample bottle Photos: P5010037 P5010038 P5010039	6.75	13.9 °C	1.0

Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
C12	C12a	water	C12a: 36-32 ft.	5/1/2018 12:41 PM	East side of 19 <sup>th</sup> Avenue 44.213 N; 90.016 W	Grab sample, collected through HDPE hose into sample bottle Photos: P5010040 P5010041 P5010042 P5020043	6.8	14.1 °C	0.0
C12	C12b	Water	C12b: 24-20 ft.	5/1/2018 12:47 PM	East side of 19 <sup>th</sup> Avenue 44.213 N; -90.016 W	Grab sample, collected through HDPE hose into sample bottle Photos: P5010040 P5010041 P5010042 P5020043	7.08	13.5 °C	0.0
C13	C13a	Water	C13a: 49-45 ft.	5/1/2018 13:30	South side of 4 <sup>th</sup> Street 44.213 N; 90.033 W	Grab sample, collected through HDPE hose into sample bottle Photos: P5010044 P5010045 P5010046 (accidental photo) P5010047 P5010048	6.7	13.7 °C	0.0
C13	C13b	Water	C13b: 34-30 ft.	5/1/2018 13:39	South side of 4 <sup>th</sup> Street 44.213 N; 90.033 W	Grab sample, collected through HDPE hose into sample bottle Photos: P5010044 P5010045 P5010046 (accidental photo) P5010047	7.12	13 °C	0.0



Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
						P5010048			
D1	D1a	Water	D1a: 49-45 ft.	5/1/2018 14:19	North side of 5 <sup>th</sup> Street 44.198 N; 90.038 W	Grab sample, collected through HDPE hose into sample bottle Photos: P5010049 P5010050 P5010051 P5010052 (accidental photo)	7.03	14 °C	0.0
D1	D1b	Water	D1b: 34-30 ft.	5/1/2018 14:26	North side of 5 <sup>th</sup> Street 44.198 N; 90.038 W	Grab sample, collected through HDPE hose into sample bottle Photos: P5010049 P5010050 P5010051 P5010052 (accidental photo)	6.83	15.5 °C	0.0
D2	D2a	Water	D2a: 49-45 ft.	5/1/2018 15:00	South side of 5 <sup>th</sup> Street 44.198 N; 90.010 W	Grab sample, collected through HDPE hose into sample bottle Photos: P5010053 P5010054 P5010055 DSC_4909 DSC_4910 DSC_4911	7.56	14.3 °C	5.0
D2	D2b	Water	D2b: 34-30 ft.	5/1/2018 15:06	South side of 5 <sup>th</sup> Street 44.198 N; 90.010 W	Grab sample, collected through HDPE hose into sample bottle Photos: P5010053	6.47	14.1 °C	50.0

Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
						P5010054 P5010055 DSC_4909 DSC_4910 DSC_4911			
D3	D3a	Water	D3a:49-45 ft.	5/1/2018 15:41	South side of 5 <sup>th</sup> Street 44.198 N; 89.997 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4912 DSC_4913 DSC_4914 DSC_4915	6.39	14.5 °C	20.0
D3	D3b	Water	D3b: 34-30 ft.	5/1/2018 15:48	South side of 5 <sup>th</sup> Street 44.198 N; 89.997 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4912 DSC_4913 DSC_4914 DSC_4915	6.12	13.5 °C	50.0
D4	D4a	Water	D4a: 49-45 ft.	5/1/2018 16:19	South side of 5 <sup>th</sup> Street 44.198 N; 89.981 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4916 DSC_4917 DSC_4918 DSC_4919	7.87	15.2 °C	20.0
D4	D4b	Water	D4b: 34-30 ft.	5/1/2018 16:26	South side of 5 <sup>th</sup> Street 44.19855 N; 89.981 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4916 DSC_4917	6.51	14 °C	50.0

Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
						DSC_4918 DSC_4919			
D5	D5a	Water	D5a: 49-45 ft.	5/2/2018 6:38 AM	South side of 5 <sup>th</sup> Street 44.198 N; 89.966 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4920 DSC_4921 DSC_4922 DSC_4923	8.5	10.7 °C	2.0
D5	D5b	Water	D5b: 34-30 ft.	5/2/2018 6:46 AM	South side of 5 <sup>th</sup> Street 44.198 N; 89.966 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4920 DSC_4921 DSC_4922 DSC_4923	6.66	10.0 °C	2.0
D6	D6a	Water	D6a: 49-45 ft.	5/2/2018 7:17 AM	South side of 5 <sup>th</sup> Street 44.198 N; 89.955 W	Grab sample collected through HDPE hose into sample bottle. DSC_4924 DSC_4925 DSC_4926 DSC_4927	8.23	12.4 °C	50.0
D6	D6b	Water	D6b: 34-30 ft.	5/2/2018 7:29 AM	South side of 5 <sup>th</sup> Street 44.198 N; 89.955 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4924 DSC_4925 DSC_4926 DSC_4927	7.35	12 °C	50.0

Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
D7	D7a	Water	D7a: 49-45 ft.	5/2/2018 8:12 AM	East side of 23 <sup>rd</sup> Avenue 44.197 N; 89.938 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4928 DSC_4929 DSC_4930 DSC_4931 DSC_4938	8.18	12.9 °C	50.0
D7	D7b	Water	D7b: 34-30 ft.	5/2/2018 8:19 AM	East side of 23 <sup>rd</sup> Avenue 44.197 N; 89.938 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4928 DSC_4929 DSC_4930 DSC_4931 DSC_4938	6.56	13.8 °C	50.0
D7	D7aDup	Duplicate	D7a: 49-45 ft.	5/2/2018 8:12 AM	East side of 23 <sup>rd</sup> Avenue 44.197 N; 89.938 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4928 DSC_4929 DSC_4930 DSC_4931 DSC_4938	No data reported	No data reported	No data reported
D7	D7equip	Equipment	Not applicable	5/2/2018 8:01 AM	East side of 23 <sup>rd</sup> Avenue 44.197 N; 89.938 W	Grab sample used distilled water through Geoprobe screen. Photos: No photos were taken of the equipment blank.	7.88	17.4 °C	0.0
D7	FB3	Field Blank	Not applicable	5/2/2018 8:03 AM	East side of 23 <sup>rd</sup> Avenue 44.197 N; 89.938 W	Grab sample poured from distilled water.	6.09	18.9 °C	0.0



Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
						Photos: No photos were taken of the field blank.			
D8	D8a	Water	D8a: 49-45 ft.	5/2/2018 8:55 AM	West side of 23 <sup>rd</sup> Avenue 44.204 N; 89.938 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4932 DSC_4933 DSC_4934 DSC_4935 DSC_4936	8.3	13.3 °C	50.0
D8	D8b	Water	D8b: 34-30 ft.	5/2/2018 9:11 AM	West side of 23 <sup>rd</sup> Avenue 44.204 N; 89.938 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4932 DSC_4933 DSC_4934 DSC_4935 DSC_4936	6.9	13.6 °C	50.0
D9	D9a	water	D9a: 49-45 ft.	5/2/2018 9:45 AM	West side of 23 <sup>rd</sup> Avenue 44.214 N; 89.938 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4937 DSC_4938 (missing photo) DSC_4939 DSC_4940 DSC_4941	8.16	13.8 °C	20.0
D9	D9b	Water	D9b: 34-30 ft.	5/2/2018 9:54 AM	West side of 23 <sup>rd</sup> Avenue 44.214 N; 89.938 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4937	7.39	12.7 °C	5.0

Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
						DSC_4938 (missing photo) DSC_4939 DSC_4940 DSC_4941			
D10	D10a	Water	D10a: 49-45 ft.	5/2/2018 10:29 AM	East side of 23 <sup>rd</sup> Avenue 44.226 N; 89.938	Grab sample collected through HDPE hose into sample bottle. DSC_4942 DSC_4943 DSC_4944	8.69	15.5 °C	20.0
D10	D10b	water	D10b: 34-30ft.	5/2/2018 10:41 AM	East side of 23 <sup>rd</sup> Avenue 44.226 N; 89.938	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4942 DSC_4943 DSC_4944	6.67	14 °C	20.0
D10	D10aDup	Duplicate	D10aDup: 49-45 ft.	5/2/2018 10:29 AM	East side of 23 <sup>rd</sup> Avenue 44.226 N; 89.938	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4942 DSC_4943 DSC_4944	No data recorded	No data recorded	No data recorded
D10	D10bDup	Duplicate	D10bDup: 34-30 ft.	5/2/2018 10:41 AM	East side of 23 <sup>rd</sup> Avenue 44.226 N; 89.938	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4942 DSC_4943	No data	No data recorded	No data recorded



Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
						DSC 4944			
D11	D11a	Water	D11a: 49-45 ft.	5/2/2018 11:19 AM	West side of 23 <sup>rd</sup> Avenue 44.239 N; 89.938 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4945 DSC_4946 DSC_4949	7.04	14.3 °C	20.0
D11	D11b	water	D11b: 34-30 ft.	5/2/2018 11:42 AM	West side of 23 <sup>rd</sup> Avenue 44.239 N; 89.938 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4945 DSC_4946 DSC_4949	6.08	13.5 °C	20.0
E1	E1a	Water	E1a: 49-45 ft.	5/2/2018 12:41	East side of 23 <sup>rd</sup> Avenue 44.188 N; 89.938 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4947 DSC_4948 DSC_4950 DSC_4951, 4952, 4953 (accidental photos)	8.09	13.5 °C	20.0
E1	E1b	Water	E1b: 34-30 ft.	5/2/2018 12:58	East side of 23 <sup>rd</sup> Avenue 44.188 N; 89.938 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4947 DSC_4948 DSC_4950 DSC_4951, 4952, 4953 (accidental photos)	6.36	13.3 °C	50.0

Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
E2	E2a	water	E2a: 49-45 ft.	5/2/2018 13:28	East side of Porter Road 44.185 N; 89.948 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4954 DSC_4955 DSC_4956 DSC_4957	8.66	13.8 °C	2.0
E2	E2b	Water	E2b: 34-30 ft.	5/2/2018 13:37	East side of Porter Road 44.185 N; 89.948 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4954 DSC_4955 DSC_4956 DSC_4957	6.87	12.6 °C	2.0
E2	E2aDup	Duplicate	E2aDup:49-45 ft.	5/2/2018 13:28	East side of Porter Road 44.185 N; 89.948 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4954 DSC_4955 DSC_4956 DSC_4957	No data recorded	No data recorded	No data recorded
E2	E2bDup	Duplicate	E2bDup: 34-30ft.	5/2/2018 13:37	East side of Porter Road 44.185 N; 89.948 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4954 DSC_4955 DSC_4956 DSC_4957	No data recorded	No data recorded	No data recorded

Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
E3	E3a	Water	E3a: 49-45 ft.	5/2/2018 14:03	North side of 7 <sup>th</sup> Street 44.172 N; 89.948 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4958 P5020056	8.56	14.3 °C	5.0
E3	E3b	Water	E3b: 34-30 ft.	5/2/2018 14:09	North side of 7 <sup>th</sup> Street 44.172 N; 89.948 W	Grab sample collected through HDPE hose into sample bottle. Photos: DSC_4958 P5020056	8.11	12.7 °C	5.0
E4	E4a	Water	E4a: 49-45 ft.	5/2/2018 14:37	North side of 7 <sup>th</sup> Street 44.173 N; 89.963 W	Grab sample collected through HDPE hose into sample bottle. P5020057 P5020058 P5020059 P5020060 P5020061 (accidental photo)	7.2	17.5 °C	20.0
E4	E4b	water	E4b: 34-30 ft.	5/2/2018 14:43	North side of 7 <sup>th</sup> Street 44.173 N; 89.963 W	Grab sample collected through HDPE hose into sample bottle. Photos: P5020057 P5020058 P5020059 P5020060 P5020061 (accidental photo)	6.82	14.3 °C	20.0

Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
E5	E5a	Water	E5a: 49-45 ft.	5/2/2018 15:08	North side of 7 <sup>th</sup> Street 44.173 N; 89.978 W	Grab sample collected through HDPE hose into sample bottle. P5020062 P5020063 P5020064	8.06	14 °C	50.0
E5	E5b	Water	E5b: 34-30 ft.	5/2/2018 15:13	North side of 7 <sup>th</sup> Street 44.173 N; 89.978 W	Grab sample collected through HDPE hose into sample bottle. Photos: P5020062 P5020063 P5020064	6.9	13.7 °C	20.0
E6	E6a	Water	E6a: 49-45 ft.	5/2/2018 15:38	East side of 20 <sup>th</sup> Avenue 44.173 N; 89.995 W	Grab sample collected through HDPE hose into sample bottle. Photos: P5020066 P5020067	8.62	13.4 °C	0.0
E6	E6b	Water	E6b: 34-30 ft.	5/2/2018 15:44	East side of 20 <sup>th</sup> Avenue 44.173 N; 89.995 W	Grab sample collected through HDPE hose into sample bottle. Photos: P5020066 P5020067	6.47	12.6 °C	0.0
E7	E7a	Water	E7a: 49-45 ft.	5/2/2018 16:09	East side of 7 <sup>th</sup> Street 44.169 N; 90.011 W	Grab sample collected through HDPE hose into sample bottle. Photos: P5020068 P5020069 P5020070 P5020071 P5020072 P5020073	5.98	14.2 °C	20.0



Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
						P5020074			
E7	E7b	Water	E7b: 34-30 ft.	5/2/2018 16:35	East side of 7 <sup>th</sup> Street 44.169 N; 90.011 W	Grab sample collected through HDPE hose into sample bottle. Photos: P5020068 P5020069 P5020070 P5020071 P5020072 P5020073 P5020074	5.73	13.2 °C	50.0
E8	E8a	water	E8a: 49-45 ft.	5/3/2018 8:40 AM	North side of 7 <sup>th</sup> Street 44.169 N; 90.027 W	Grab sample collected through HDPE hose into sample bottle. Photos: P5020075 P5020076 P5020077 P5020083 P5020084 P5020085	5.76	11.3 °C	20.0
E8	E8b	Water	E8b: 34-30 ft.	5/3/2018 8:48 AM	North side of 7 <sup>th</sup> Street 44.169 N; 90.027 W	Grab sample collected through HDPE hose into sample bottle. Photos: P5020075 P5020076 P5020077 P5020083 P5020084 P5020085 P5020086	6.18	10.9 °C	50.0

Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
E9	E9a	Water	E9a: 49-45 ft.	5/3/2018 9:53 AM	North side of 7 <sup>th</sup> Street 44.169 N; 90.044 W	Grab sample collected through HDPE hose into sample bottle. Photos: P5030087 P5030088 P5030089 P5030090	6.75	11 °C	10.0
E9	E9b	water	E9b: 34-30 ft.	5/3/2018 10:02 AM	North side of 7 <sup>th</sup> Street 44.169 N; 90.044 W	Grab sample collected through HDPE hose into sample bottle. Photos: P5030087 P5030088 P5030089 P5030090	6.15	10.9 °C	20.0
E10	E10a	Water	E10a: 49-45 ft.	5/3/2018 7:15 AM	North side of 8 <sup>th</sup> Street 44.155 N; 90.063 W	Grab sample collected through HDPE hose into sample bottle. Photos: P5030078 P5030079 P5030080 P5030082	7.06	10.3 °C	2.0
E10	E10b	Water	E10b: 34-30 ft.	5/3/2018 7:27 AM	North side of 8 <sup>th</sup> Street 44.155 N; 90.063 W	Grab sample collected through HDPE hose into sample bottle. Photos: P5030078 P5030079 P5030080 P5030082	7.05	10 °C	0.0
E10	E10Dup	Duplicate	E10aDup: 49-45 ft.	5/3/2018 7:15 AM	North side of 8 <sup>th</sup> Street 44.155 N; 90.063 W	Grab sample collected through HDPE hose into sample bottle.	No data reported	No data reported	No data reported

Sample Location	Sample ID	Sample Type	Depth of samples in feet	Collection Date/Time	Sample Description and Location	Sampling Method and Photos	pH (SU)	Water Temp.	Nitrate (mg/L)
						Photos: P5030078 P5030079 P5030080 P5030082			
E10	E10equip	Equipment	Not applicable	5/3/2018 7:13 AM	North side of 8 <sup>th</sup> Street 44.155 N; 90.063 W	Grab sample poured distilled water through Geoprobe screen. Photo: P5030079	6.71	14.2 °C	0.0
E10	FB4	Field Blank	Not applicable	5/3/2018 7:36 AM	North side of 8 <sup>th</sup> Street 44.155 N; 90.063 W	Grab sample poured from distilled water. Photo: P5030081	6.52	14.2 °C	0.0



Figure 1. Temporary Groundwater Sample Locations \*

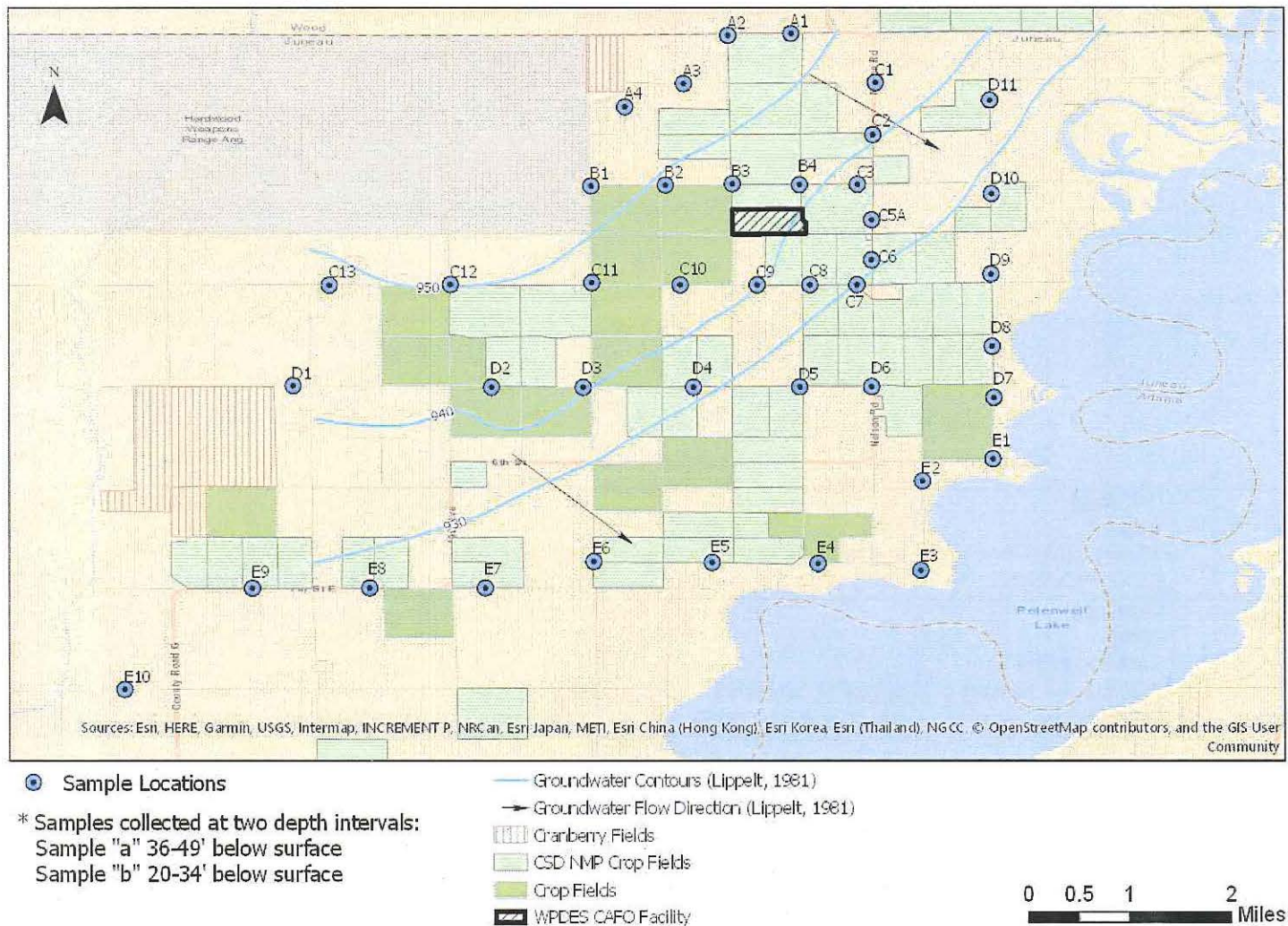




Figure 2. Hach Field Test Strip Nitrate Results  
(boring groundwater samples 20-34' below surface)

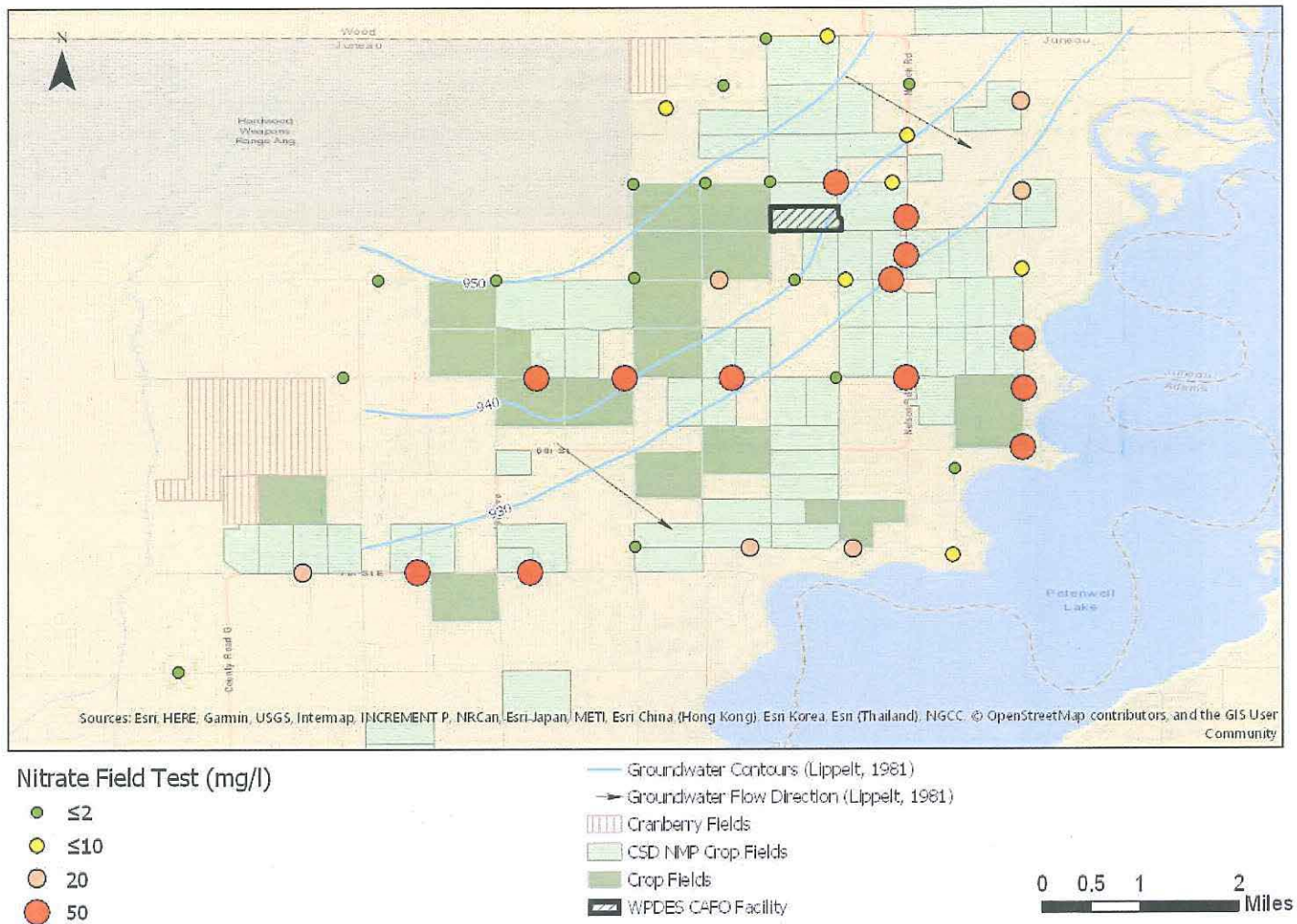
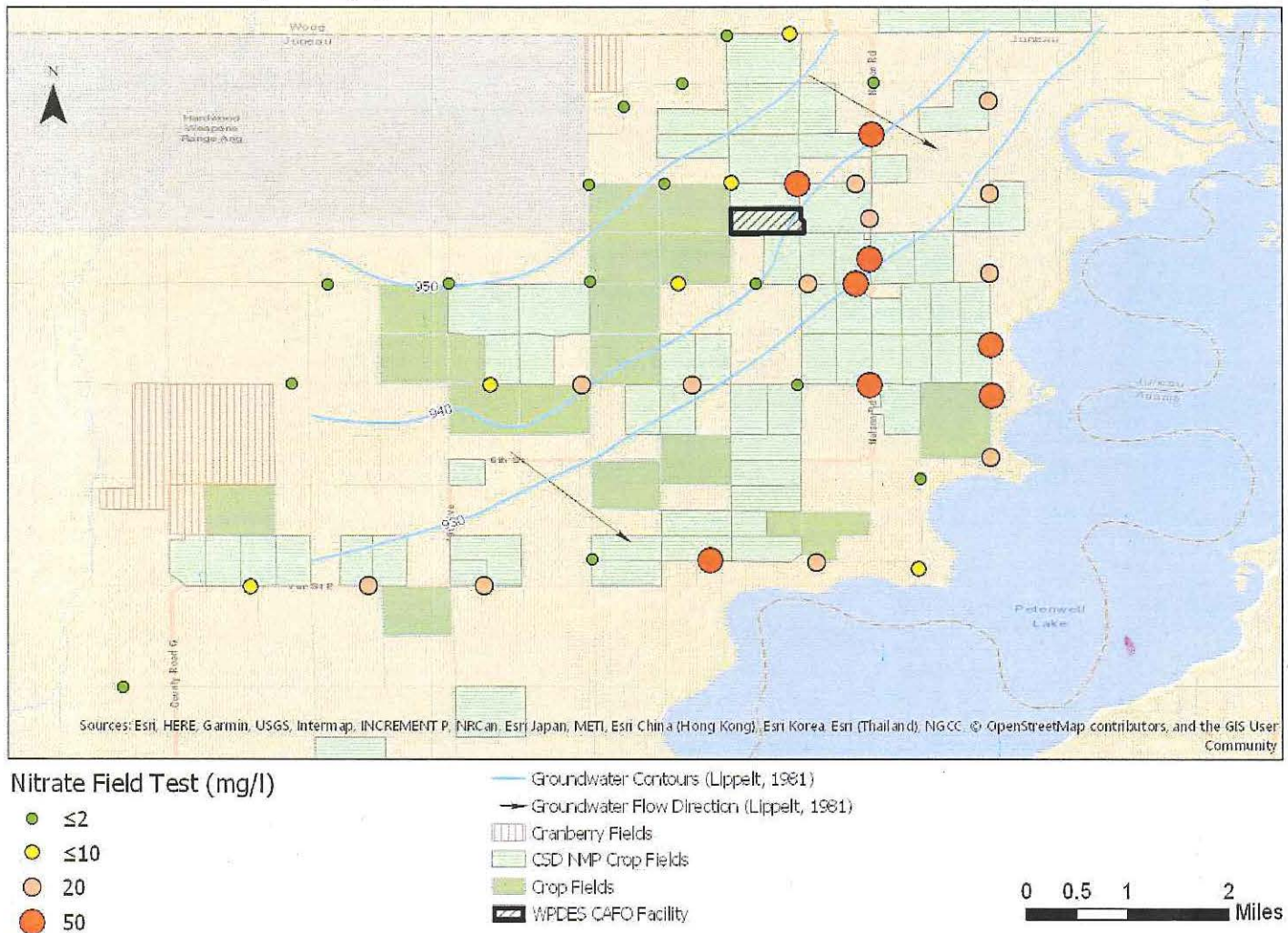


Figure 3. Hach Field Test Strip Nitrate Results  
(boring groundwater samples 36-49' below surface)





**Table 2: UNL Nitrate + Nitrite-Nitrogen Analyses**

Sample ID	Collection Date	Collection Time	Nitrate+Nitrite-Nitrogen (mg/L)
A1a	4/30/2018	7:19 AM	*0.000
A1b	4/30/2018	7:32 AM	0.052
A2a	4/30/2018	8:15 AM	*0.000
A2b	4/30/2018	8:24 AM	*0.006
A3a	4/30/2018	9:06 AM	0.021
A3b	4/30/2018	9:14 AM	0.047
A4a	4/30/2018	9:58 AM	0.568
A4b	4/30/2018	10:09 AM	0.124
B1a	4/30/2018	10:51 AM	0.018
B1b	4/30/2018	10:58 AM	0.043
B2a	4/30/2018	11:40 AM	*0.000
B2b	4/30/2018	11:48 AM	0.082
B3a	4/30/2018	12:29	1.28
B3b	4/30/2018	12:36	*0.000
B4a	4/30/2018	13:10	17.5
B4b	4/30/2018	13:41	8.81
C1a	4/30/2018	15:02	*0.000
C1b	4/30/2018	15:27	0.045
C2a	4/30/2018	16:06	22.8
C2b	4/30/2018	16:14	0.866
C3a	4/30/2018	14:16	9.08
C3b	4/30/2018	14:26	0.440
C5Aa	5/1/2018	6:29	13.1
C5Ab	5/1/2018	6:43	22.0
C6a	5/1/2018	7:06	15.1
C6b	5/1/2018	7:15	11.7
C7a	5/1/2018	7:48	19.5

Sample ID	Collection Date	Collection Time	Nitrate+Nitrite-Nitrogen (mg/L)
C7b	5/1/2018	8:02	14.7
C8a	5/1/2018	8:35	6.64
C8b	5/1/2018	8:42	2.39
C9a	5/1/2018	10:00	2.47
C9b	5/1/2018	10:21	0.646
C10a	5/1/2018	11:05	7.76
C10b	5/1/2018	11:12	15.6
C11a	5/1/2018	11:46	*0.000
C11b	5/1/2018	11:52	0.119
C12a	5/1/2018	12:41	*0.000
C12b	5/1/2018	12:47	*0.000
C13a	5/1/2018	13:30	*0.000
C13b	5/1/2018	13:39	*0.000
D1a	5/1/2018	14:19	*0.000
D1b	5/1/2018	14:26	*0.000
D2a	5/1/2018	15:00	1.65
D2b	5/1/2018	15:06	13.5
D3a	5/1/2018	15:41	8.98
D3b	5/1/2018	15:48	13.1
D4a	5/1/2018	16:19	10.2
D4b	5/1/2018	16:26	17.7
D5a	5/2/2018	6:38	0.451
D5b	5/2/2018	6:46	1.18
D6a	5/2/2018	7:17	41.1
D6b	5/2/2018	7:29	24.5
D7a	5/2/2018	8:12	30.7
D7b	5/2/2018	8:19	32.2
D8a	5/2/2018	8:55	48.8

Sample ID	Collection Date	Collection Time	Nitrate+Nitrite-Nitrogen (mg/L)
D8b	5/2/2018	9:11	39.0
D9a	5/2/2018	9:45	30.3
D9b	5/2/2018	9:54	1.52
D10a	5/2/2018	10:29	8.79
D10b	5/2/2018	10:41	8.40
D11a	5/2/2018	11:19	28.0
D11b	5/2/2018	11:42	14.5
E1a	5/2/2018	12:41	11.7
E1b	5/2/2018	12:58	11.8
E2a	5/2/2018	13:28	0.995
E2b	5/2/2018	13:37	2.58
E3a	5/2/2018	14:03	3.83
E3b	5/2/2018	14:09	6.14
E4a	5/2/2018	14:37	26.1
E4b	5/2/2018	14:43	20.0
E5a	5/2/2018	15:08	28.3
E5b	5/2/2018	15:13	17.5
E6a	5/2/2018	15:38	0.149
E6b	5/2/2018	15:44	0.093
E7a	5/2/2018	16:09	16.1
E7b	5/2/2018	16:35	13.8
E8a	5/3/2018	8:40	28.6
E8b	5/3/2018	8:48	21.1
E9a	5/3/2018	9:53	20.8
E9b	5/3/2018	10:02	20.2
E10a	5/3/2018	7:15	0.427
E10b	5/3/2018	7:27	0.042

\*Below Method Detection Limit; mg/L =milligrams per liter



Figure 4. EPA UNL Nitrate+Nitrite-N Result  
(boring groundwater samples 20-34' below surface)

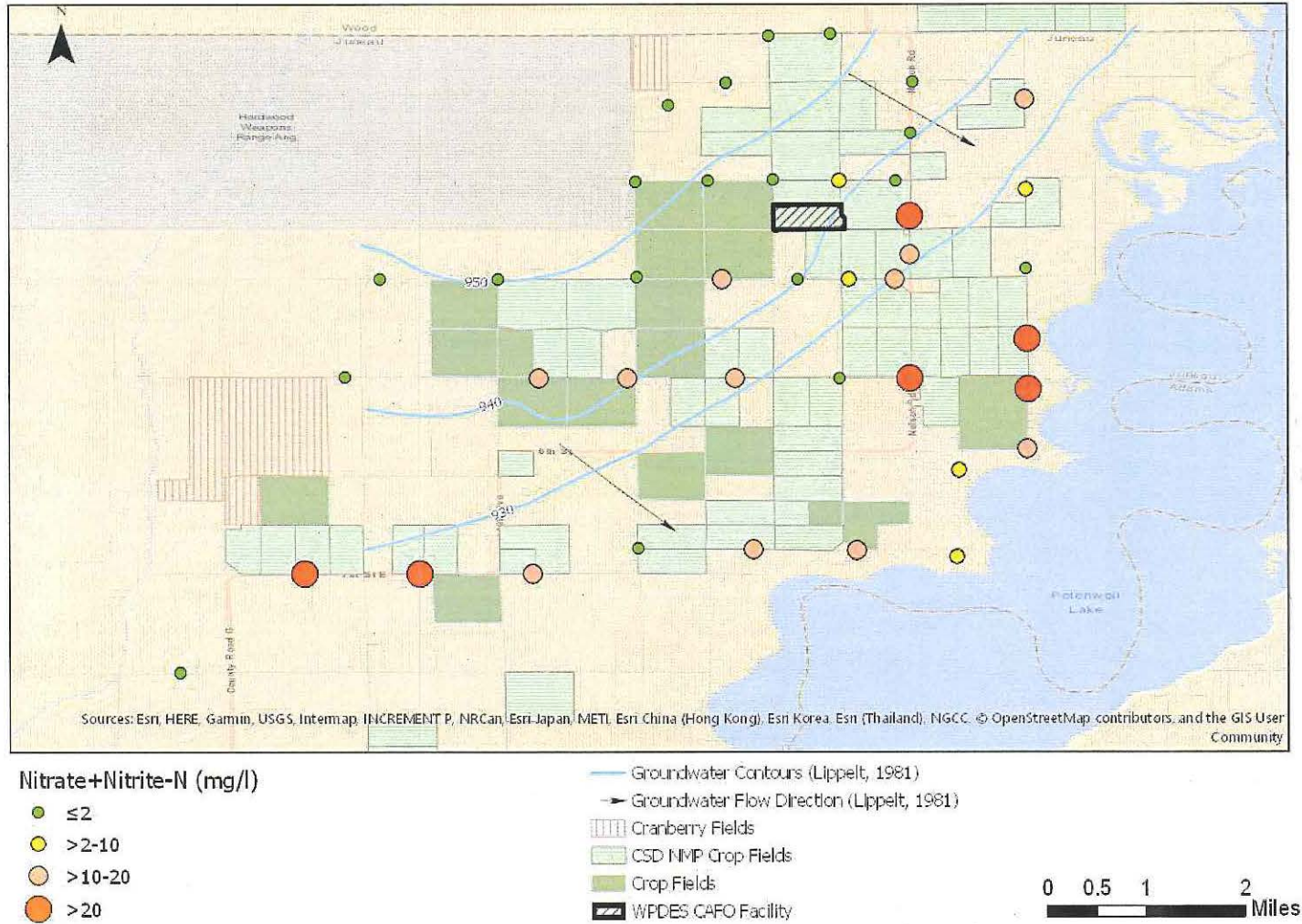
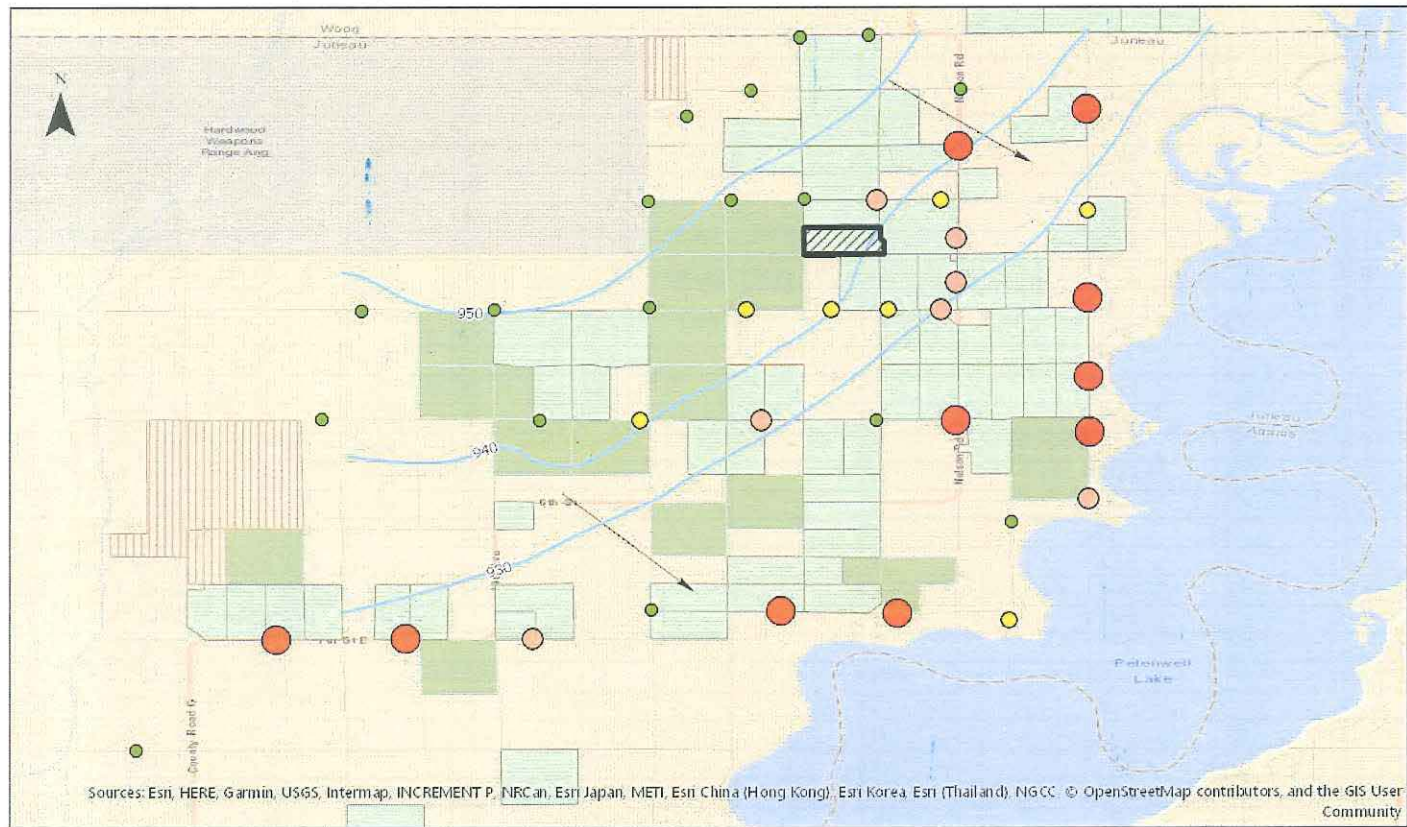


Figure 5. EPA UNL Nitrate+Nitrite-N Results  
(boring groundwater samples 36-49' below surface)



Nitrate+Nitrite-N (mg/l)

- ≤2
- >2-10
- >10-20
- >20

- Groundwater Contours (Lippelt, 1981)
- Groundwater Flow Direction (Lippelt, 1981)
- ▨ Cranberry Fields
- ▨ CSD NMP Crop Fields
- ▨ Crop Fields
- ▨ WPDES CAFO Facility

0 0.5 1 2 Miles



**Table 3: CRL Nutrient Analyses**

Sample ID	Collection Date	Collection Time	Nitrate-Nitrite Nitrogen (mg/L)	Flags/Qualifiers	Total Phosphorus (mg/L)	Flags/Qualifiers	TOC (mg/L)	Flags/Qualifiers	Total Kjeldahl Nitrogen (mg/L)	Flags/Qualifiers	Ammonia-Nitrogen (mg/L)	Flags/Qualifiers	pH (SU)
A1a	4/30/2018	7:19 AM	U	U	4.52		3		1.50		0.25	J	2
A1b	4/30/2018	7:32 AM	1.79		3.22		2		1.41		0.36		2
A2a	4/30/2018	8:15 AM	36.9		3.37		5		1.72		0.31		2
A2b	4/30/2018	8:24 AM	U	U	7.94		4		1.82		0.29	J	2
A3a	4/30/2018	9:06 AM	U	U	3.68		2		1.25		U		2
A3b	4/30/2018	9:14 AM	0.12		4.59		4		1.69		U		2
A3a(Dup)	4/30/2018	9:06 AM	U	U	1.62		U		U		U		2
A4 Equip	4/30/2018	9:38 AM	U	U	U		2		U		U		2
FBI	4/30/2018	9:49 AM	U	U	U		U		U		U		2
A4a	4/30/2018	9:58 AM	1.25		2.21		U		1.05		U		2
A4b	4/30/2018	10:09 AM	4.61		2.37		4		1.44		0.25		2
B1a	4/30/2018	10:51 AM	U	U	4.28		2	J	1.59		0.25	J	3
B1b	4/30/2018	10:58 AM	U	U	6.53		2		2.79		0.21		2
B2a	4/30/2018	11:40 AM	U	U	2.93		2		U	J	U	J	2
B2b	4/30/2018	11:48 AM	0.23	K	2.57		3		U		U		2
B3a	4/30/2018	12:29 PM	4.53	K	4.54		U		1.52		0.62		2
B3b	4/30/2018	12:36 PM	0.96	K	5.29		5		1.50		0.37	J	2
B4a	4/30/2018	13:10	33.3	K	2.63		U		1.29		0.61		2
B4b	4/30/2018	13:41	28.0	K	5.11		5		5.34		3.56	J	2
C1a	4/30/2018	15:02	0.12	K	5.57		U		U		U		2
C1b	4/30/2018	15:27	U	U	9.13	J	U		1.00	J	U		2
C2a	4/30/2018	16:06	42.1	K	2.60		U		U		0.25		2
C2b	4/30/2018	16:14	3.39	K	4.87		U		1.23		0.81		2
C3a	4/30/2018	14:16	27.7	K	2.88		U		2.11		1.19	J	2
C3b	4/30/2018	14:26	2.62	K	2.72		3		1.06		0.24		2
C5Aa	5/1/2018	6:29 AM	44.3	K	3.85		2		1.12		0.60		2
C5Ab	5/1/2018	6:43 AM	59.2	K	3.52		3		2.64		2.13		2
C6a	5/1/2018	7:06 AM	36.8	K	1.97		U		1.35		0.71		2
C6b	5/1/2018	7:15 AM	25.3	K	U		2	J	1.18		3.96	J	2
C7a	5/1/2018	7:48 AM	31.7	K	U		U		U		U		2
C7b	5/1/2018	8:02 AM	37.3	K	1.47	J	2		U	J	0.27		2
FB2	5/1/2018	7:39 AM	U	U	U		U		U		U		2
C7 Equip	5/1/2018	7:38 AM	U	U	U		U		U		U		2
C7bDup	5/1/2018	8:02 AM	36.5	K	1.40		2		1.37		0.48		2
C8a	5/1/2018	8:35 AM	17.1	K	8.84		U		1.22		0.25		2

Sample ID	Collection Date	Collection Time	Nitrate-Nitrite Nitrogen (mg/L)	Flags/Qualifiers	Total Phosphorus (mg/L)	Flags/Qualifiers	TOC (mg/L)	Flags/Qualifiers	Total Kjeldahl Nitrogen (mg/L)	Flags/Qualifiers	Ammonia-Nitrogen (mg/L)	Flags/Qualifiers	pH (SU)
C8b	5/1/2018	8:42 AM	2.95	K	2.50		U		1.30		0.26		2
C9a	5/1/2018	10:00 AM	2.48	K	1.16		2		1.23		0.20		2
C9b	5/1/2018	10:21 AM	0.69	K	2.16		2		1.34		0.20		2
C10a	5/1/2018	11:05AM	8.33		4.76		U		1.50		0.76		2
C10b	5/1/2018	11:12 AM	16.7		4.12		U		5.23		3.91		2
C11a	5/1/2018	11:46 AM	U	U	2.64	J	3	J	1.54	J	0.41	J	3
C11b	5/1/2018	11:52 AM	0.57	K	3.90		U		2.00		1.08		2
C12a	5/1/2018	12:41 PM	U	U	2.50		9		6.77		1.22		2
C12b	5/1/2018	12:47 PM	U	U	5.67		11		6.75		1.51		2
C13a	5/1/2018	13:30	U	U	1.69		5	J	1.12		0.26	J	3
C13b	5/1/2018	13:39	U	U	6.97		3		4.52		1.32		2
D1a	5/1/2018	14:19	U	U	3.19		6		1.73		0.26		2
D1b	5/1/2018	14:26	U	U	7.13		3	J	3.47		0.68	J	3
D2a	5/1/2018	15:00	2.86		1.07		2	J	1.01		U	J	3
D2b	5/1/2018	15:06	32.7		3.03		2		2.60		1.33		2
D3a	5/1/2018	15:41	21.1		3.73		U		1.86		0.85		2
D3b	5/1/2018	15:48	23.4		10.0		U		4.51		1.12		2
D4a	5/1/2018	16:19	20.5		1.77		U		1.49		0.41		2
D4b	5/1/2018	16:26	50.6		2.76		3		1.62		2.82	J	2
D5a	5/2/2018	6:38 AM	0.29		1.80		U		0.68		0.50		1
D5b	5/2/2018	6:46 AM	1.36		2.90		U		U		0.23		1
D6a	5/2/2018	7:17 AM	U	U	1.14		U		0.68		0.49		1
D6b	5/2/2018	7:29 AM	U	U	1.59		U		0.79		0.67		1
D7 Equip	5/2/2018	8:01 AM	U	U	U		U		U		U		1
FB3	5/2/2018	8:03 AM	U	U	U		U		U		U		1
D7aDup	5/2/2018	8:12 AM	33.7		0.77		U		U		U		1
D7a	5/2/2018	8:12 AM	U	U	0.55	J	U		U	J	U		1
D7b	5/2/2018	8:19 AM	36.8		2.27		2		1.14		0.49		1
D8a	5/2/2018	8:55 AM	42.3		2.01		U		1.28		0.77		1
D8b	5/2/2018	9:11 AM	U	U	2.17	J	2		1.18	J	0.68		1
D9a	5/2/2018	9:45 AM	U	U	1.15		U		0.50		0.21		1
D9b	5/2/2018	9:54 AM	2.29		3.48		2		1.10		0.34		1
D10a	5/2/2018	10:29 AM	14.3		0.85		U		0.57		0.22		1
D10aDup	5/2/2018	10:29 AM	U	U	0.64		U		0.52		0.21		1
D10b	5/2/2018	10:41 AM	U	U	1.65		U		U		0.31		1
D10bDup	5/2/2018	10:41 AM	16.2		2.42		U		0.97		0.42		1
D11a	5/2/2018	11:19 AM	32.2		1.28		U		0.51		U		1



Sample ID	Collection Date	Collection Time	Nitrate-Nitrite Nitrogen (mg/L)	Flags/Qualifiers	Total Phosphorus (mg/L)	Flags/Qualifiers	TOC (mg/L)	Flags/Qualifiers	Total Kjeldahl Nitrogen (mg/L)	Flags/Qualifiers	Ammonia-Nitrogen (mg/L)	Flags/Qualifiers	pH (SU)
D11b	5/2/2018	11:42 AM	23.9		1.73		U		0.83		U		1
E1a	5/2/2018	12:41 PM	27.2		0.95		U		0.72		U		1
E1b	5/2/2018	12:58 PM	25.7		4.07	J	2		1.76		1.02		1
E2a	5/2/2018	13:28	1.52		0.94		U		U		U		1
E2b	5/2/2018	13:37	3.15		3.55		U		1.40		0.73		1
E2aDup	5/2/2018	13:28	1.58		1.23		U		U		U		1
E2bDup	5/2/2018	13:37	3.16		3.20		U		1.31		0.69		1
E3a	5/2/2018	14:03	6.58		1.85		U		0.53		0.21		1
E3b	5/2/2018	14:09	7.40		1.79	J	U		0.74		0.35		1
E4a	5/2/2018	14:37	23.3		3.57		U		1.11		0.87		1
E4b	5/2/2018	14:43	26.8		4.44		U		2.17		1.37		1
E5a	5/2/2018	15:08	38.7		0.99		U		0.64		0.22		1
E5b	5/2/2018	15:13	26.9		2.80		U		1.42		0.73		1
E6a	5/2/2018	15:38	0.15		1.76		U		0.52		0.26		1
E6b	5/2/2018	15:44	0.15		5.41		2		1.23		0.39		1
E7a	5/2/2018	16:09	U	U	1.47		U		U		U		1
E7b	5/2/2018	16:35	U	U	2.06		U		U		U		1
E8a	5/3/2018	8:40 AM	U	U	1.42		U		0.59		U		1
E8b	5/3/2018	8:48 AM	U	U	2.91	J	3		1.64		0.46		1
E9a	5/3/2018	9:53 AM	U	U	0.92		U		0.53		U		1
E9b	5/3/2018	10:02 AM	20.2		2.90		4		1.85		0.34		1
E10a	5/3/2018	7:15 AM	1.13		1.09		U		U		U		1
E10aDup	5/3/2018	7:15 AM	1.22		1.12		U		U		U		1
E10b	5/3/2018	7:27 AM	U	U	2.96		7		1.09		U		1
FB4	5/3/2018	7:36 AM	U	U	U		U		U		U		1
E10 Equip	5/3/2018	7:13 AM	U	U	U		U		U		U		1

J- The identification of the analyte is acceptable, the reported value is an estimate

U- Not Detected

K- The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value



Figure 6. EPA CRL Nitrate-Nitrite N Results  
(boring groundwater samples 20-34' below surface)

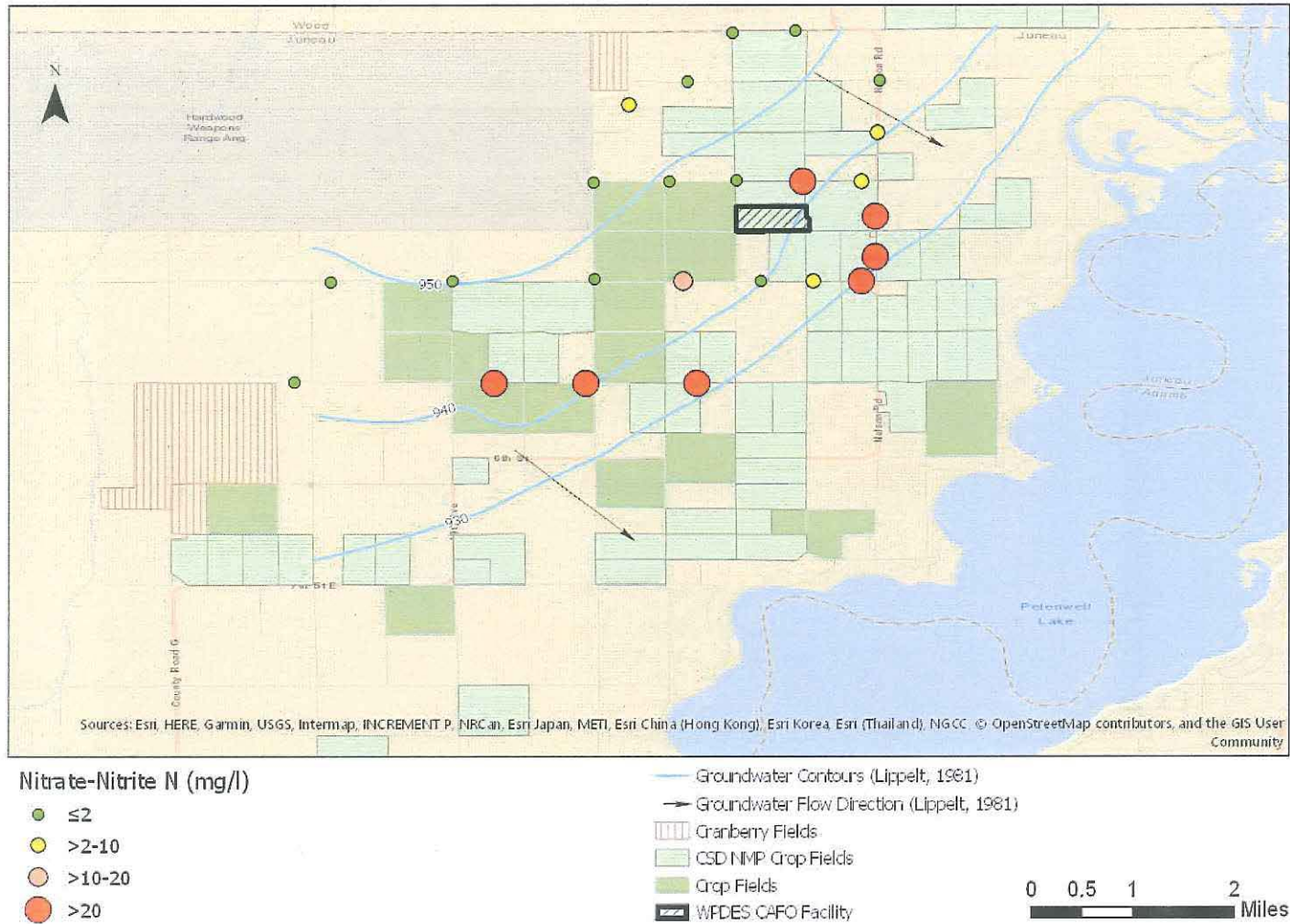


Figure 7. EPA CRL Nitrate-Nitrite N Results  
(boring groundwater samples 36-49' below surface)

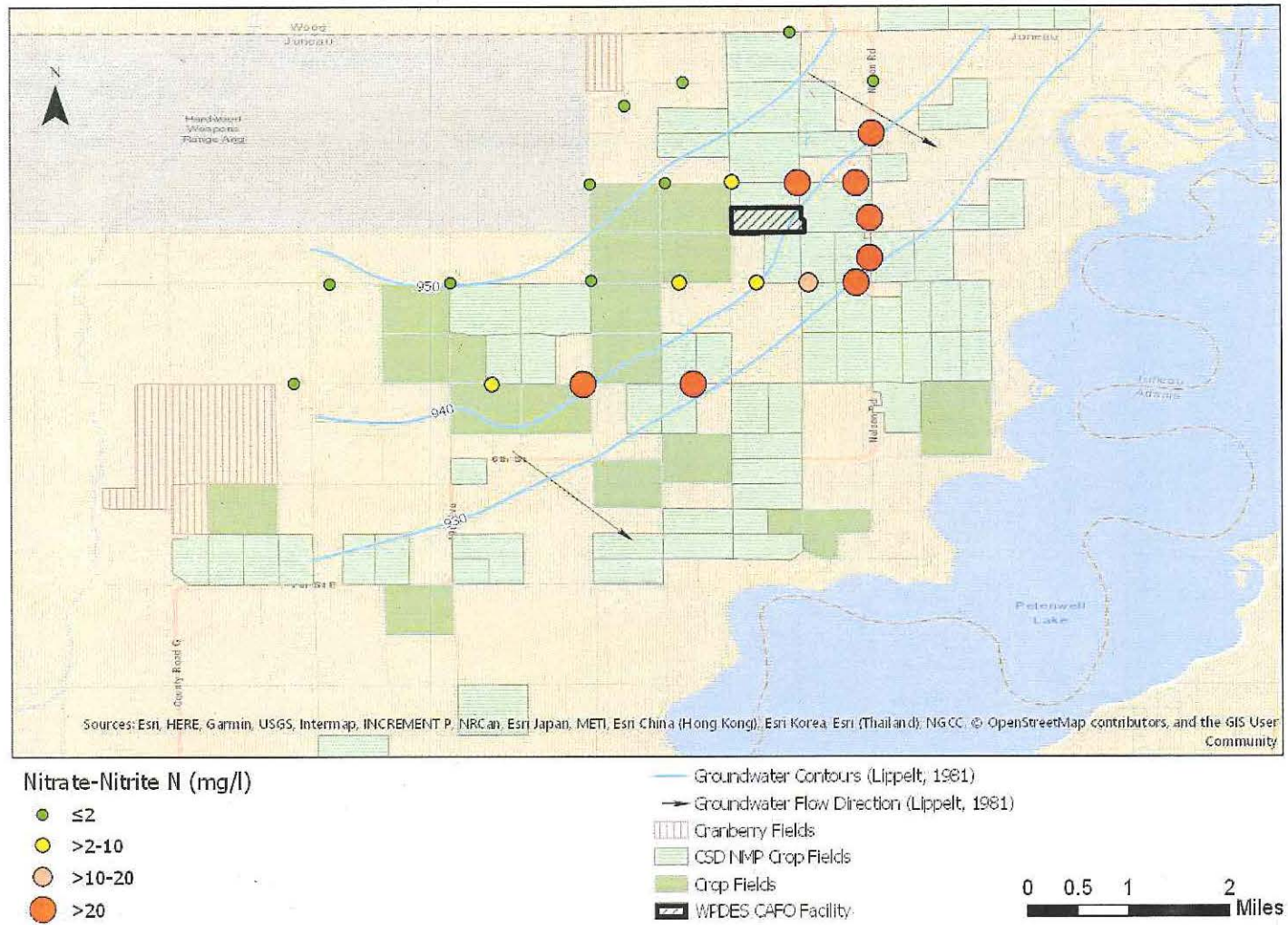




Table 4: CRL Anion Analyses

Sample ID	Collection Date	Collection Time	Fluoride mg/L	Flags/Qualifiers	Chloride mg/L	Flags/Qualifiers	Sulfate as SO4 mg/L	Flags/Qualifiers	Bromide mg/L	Flags/Qualifiers	Nitrate-Nitrogen	Flags/Qualifiers
A1a	4/30/2018	7:19 AM	0.06		4.61		7.02		U		0.0609	(H), J
A1b	4/30/2018	7:32 AM	0.03		1.16		5.98		U		1.34	(H), J
A2a	4/30/2018	8:15 AM	0.04		1.21		9.84		U		U	(H), J
A2b	4/30/2018	8:24 AM	0.06		0.85		5.01		U		U	(H), UJ
A3a	4/30/2018	9:06 AM	0.08		0.75		8.79		U		U	(H), U J
A3b	4/30/2018	9:14 AM	0.03		0.77		6.44		U		0.0551	(H), J
A4 Equip	4/30/2018	9:38 AM	0.04		1.00		5.18		U		0.0592	(H), J
A3a (Dup)	4/30/2018	9:06 AM	0.08		0.76		7.98		U		U	(H), UJ
FB1	4/30/2018	9:49 AM	U		U		U		U		U	(H), UJ
A4a	4/30/2018	9:58 AM	0.07		1.01		26.5		U		0.884	(H), J
A4b	4/30/2018	10:09 AM	0.06		0.53		10.7		U		4.31	(H), J
B1a	4/30/2018	10:51 AM	0.08		0.71		8.18		U		U	(H), UJ
B1b	4/30/2018	10:58 AM	0.09		1.10		7.87		U		U	(H), UJ
B2a	4/30/2018	11:40 AM	0.08		2.77		8.81		U		U	(H), UJ
B2b	4/30/2018	11:48 AM	0.04		0.50	J	5.10	J	U		0.140	(H), J
B3a	4/30/2018	12:29	0.05		19.5		26.3		U		4.05	(H), J
B3b	4/30/2018	12:36	0.05		2.09		6.72		U		0.568	(H), J
B4a	4/30/2018	13:10	0.03		35.0		66.3		U		27.1	(E), (H), J
B4b	4/30/2018	13:41	0.10		26.7		112		U		17.4	(H), J
C1a	4/30/2018	15:02	0.03		0.73		7.79		U		0.0799	(H), J
C1b	4/30/2018	15:27	0.03		0.70		6.53		U		0.0515	(H), J
C2a	4/30/2018	16:06	0.03		34.4		29.2		U		36.1	(E), (H), J
C2b	4/30/2018	16:14	0.04		3.33		15.7		U		2.75	(H), J
C3a	4/30/2018	14:16	0.03		30.0		40.9		U		23.2	(E), (H), J
C3b	4/30/2018	14:26	0.03		5.75		11.5		U		1.72	(H), J
C5Aa	5/1/2018	6:29	0.03		38.8		90.4		0.12		38.5	(E), (H), J
C5Ab	5/1/2018	6:43	0.04		50.5		101		0.14		62.6	(E), (H), J
C6a	5/1/2018	7:06	0.03		43.5		54.7		0.16		38.3	(E), (H), J
C6b	5/1/2018	7:15	0.09		29.5		88.9		0.17		25.4	(E), (H), J
C7a	5/1/2018	7:48	0.03		33.6		52.5		0.13		34.0	(E), (H), J
C7b	5/1/2018	8:02	0.04		35.9		95.2		0.15		38.0	(E), (H), J
FB2	5/1/2018	7:39	U		U		U		U		U	(H), UJ
C7 Equip	5/1/2018	7:38	0.02		0.73		1.05		U		U	(H), UJ
C7b Dup	5/1/2018	8:02	0.04		37.3		93.7		0.15		38.8	(E), (H), J
C8a	5/1/2018	8:35	0.05		15.9		44.5	L	U		18.2	(H), (MS) J, L
C8b	5/1/2018	8:42	0.04		1.84		15.9		U		2.49	J, (H)
C9a	5/1/2018	10:00	0.05		3.66		16.4		U		2.29	(H), J
C9b	5/1/2018	10:21	U		0.56		6.69		U		0.565	(H), J
C10a	5/1/2018	11:05	0.05		6.93		3.35		U		6.90	(H), J
C10b	5/1/2018	11:12	0.07		31.3		2.03		U		16.9	(H), J

Sample ID	Collection Date	Collection Time	Fluoride mg/L	Flags/Qualifiers	Chloride mg/L	Flags/Qualifiers	Sulfate as SO4 mg/L	Flags/Qualifiers	Bromide mg/L	Flags/Qualifiers	Nitrate-Nitrogen	Flags/Qualifiers
C11a	5/1/2018	11:46	0.04		0.78		8.99		U		U	(H), UJ
C11b	5/1/2018	11:52	0.10		0.92		6.69		U		0.347	(H), J
C12a	5/1/2018	12:41	0.09		1.68		0.91		U		U	(H), UJ
C12b	5/1/2018	12:47	0.07		1.34		0.93		U		U	(H), UJ
C13a	5/1/2018	13:30	0.08		0.60		6.46		U		U	(H), UJ
C13b	5/1/2018	13:39	0.11		1.27		7.34		U		U	(H), UJ
D1a	5/1/2018	14:19	0.07		0.53		7.67		U		U	(H), UJ
D1b	5/1/2018	14:26	0.07		0.83		4.92		U		U	(H), UJ
D2a	5/1/2018	15:00	0.06		17.3		44.3		U		2.56	(H), J
D2b	5/1/2018	15:06	0.11		38.8		90.1		0.13		34.0	(E), (H), J
D3a	5/1/2018	15:41	0.06		31.5		25.5		U		21.8	(E), (H), J
D3b	5/1/2018	15:48	0.05		34.4		2.55		U		22.3	(E), (H), J
D4a	5/1/2018	16:19	0.04		29.4		25.1		U		21.4	(E), (H), J
D4b	5/1/2018	16:26	0.05		63.7		93.0		0.15		55.4	(E), (H), J
D5a	5/2/2018	6:38	0.05		1.67		10.3		U		0.477	(H), J
D5b	5/2/2018	6:46	0.04		0.79		6.65		U		1.52	(H), J
D6a	5/2/2018	7:17	U		45.7		96.9		0.13		49.0	(E), (H), J
D6b	5/2/2018	7:29	0.04		27.9		67.0		U		27.0	(E), (H), J
D7Equip	5/2/2018	8:01	0.05		2.07		1.27		U		0.0427	(H), J
FB3	5/2/2018	8:03	U		U		U		U		U	(H), UJ
D7aDup	5/2/2018	8:12	U		47.0		68.5		U		38.2	(E), (H), J
D7a	5/2/2018	8:12	U		46.8	L	68.7	L	U		38.1	(E), (H), (MS), J, L
D7b	5/2/2018	8:19	0.05		41.2		112		U		39.4	(E), (H), J
D8a	5/2/2018	8:55	0.03		50.6		88.8		0.15		48.9	(E), (H), J
D8b	5/2/2018	9:11	0.05		66.2		86.4		0.14		48.2	(E), (H), J
D9a	5/2/2018	9:45	0.03		41.4		71.0		U		31.4	(E), (H), J
D9b	5/2/2018	9:54	0.06		4.86		10.8		U		2.87	(H), J
D10a	5/2/2018	10:29	0.04		22.8		28.9		U		13.3	(H), J
D10aDup	5/2/2018	10:29	0.03		22.9		29.8		U		10.3	(H), J
D10b	5/2/2018	10:41	0.04		21.6		31.6		U		15.1	(H), J
D10bDup	5/2/2018	10:41	0.05		20.6		31.5		U		14.7	(H), J
D11a	5/2/2018	11:19	0.03		22.5	L	21.4	L	U		30.2	(E), (H), (MS), J, L
D11b	5/2/2018	11:42	0.02		34.9	L	60.6	L	U		22.7	(E), (H), J
E1a	5/2/2018	12:41	0.03		33.2		76.3		U		24.8	(E), (H), J
E1b	5/2/2018	12:58	0.06		27.3		38.0		U		23.8	(E), (H), J
E2a	5/2/2018	13:28	0.05		29.0		8.54		U		1.37	(H), J
E2b	5/2/2018	13:37	0.08		1.76		13.0		U		2.83	(H), J
E2aDup	5/2/2018	13:28	0.05		27.6		8.29		U		1.44	(H), J
E2bDup	5/2/2018	13:37	0.07		1.59		12.6		U		2.84	(H), J
E3a	5/2/2018	14:03	0.05		2.01		46.7		U		6.17	(H), J
E3b	5/2/2018	14:09	0.06		0.97		27.4		U		7.60	(H), J



Sample ID	Collection Date	Collection Time	Fluoride mg/L	Flags/Qualifiers	Chloride mg/L	Flags/Qualifiers	Sulfate as SO4 mg/L	Flags/Qualifiers	Bromide mg/L	Flags/Qualifiers	Nitrate-Nitrogen	Flags/Qualifiers
E4a	5/2/2018	14:37	0.04		16.4		71.0	L	U		22.6	(E), (H), (MS), J, L
E4b	5/2/2018	14:43	0.05		33.7		62.8		U		25.1	(E), (H), J
E5a	5/2/2018	15:08	0.03		30.8		69.3		U		35.1	(E), (H), J
E5b	5/2/2018	15:13	0.04		28.9		61.3		U		24.5	(E), (H), J
E6a	5/2/2018	15:38	0.06		0.48		6.00		U		0.144	(CCV), (H), J, K
E6b	5/2/2018	15:44	0.04		0.69		5.59		U		0.0856	(CCV), (H), J, K
E7a	5/2/2018	16:09	0.02		33.0		41.1		U		21.5	(CCV), (E), (H), J, K
E7b	5/2/2018	16:35	U		32.4		47.5		0.15		22.4	(CCV), (E), (H), J, K
E8a	5/3/2018	8:40	U		26.9		34.6		U		19.1	, K, (CCV), (H)
E8b	5/3/2018	8:48	0.05		37.1		60.6		0.14		25.7	(CCV), (E), (H), J, K
E9a	5/3/2018	9:53	0.06		31.2		64.8		U		16.0	(H), J
E9b	5/3/2018	10:02	0.05		32.1	L	62.3	L	U		16.8	(H), J
E10a	5/3/2018	7:15	0.06		0.58		8.54		U		1.06	(CCV), (H), J, K
E10aDup	5/3/2018	7:15	0.05		0.57		8.23		U		1.01	(CCV), (H), J, K
E10b	5/3/2018	7:27	0.04		1.05		10.2		U		0.0459	(CCV), (H), J, K
FB4	5/3/2018	7:36	U		U		U		U		U	(CCV), (H), UJ
E10 Equip	5/3/2018	7:13	U		U		U		U		U	(H), UJ

UJ- The analyte was not detected at or above the reported limit. The reported limit is an estimate

L- The identification of the analyte is acceptable; the reported value may be biased low. The actual value is expected to be greater than the reported value

K- The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be greater than the reported value

J- The identification of the analyte is acceptable; the reported value is an estimate

(MS) Matrix spike recovery criteria not met for this analyte

(H) Holding time exceeded for sample preparation and/or analysis; Target analyte concentrations and/or reporting limits may not be accurate

(E) This analyte exceeded calibration range

(CCV) Continuing calibration verification criteria not met for this analyte

U- Not Detected



**Table 5.0 Comparison of the CRL Methods Nitrate-Nitrite N, Nitrate-N with UNL Nitrate + Nitrite-N and Hach® Nitrate Test Strips**

SAMPLENAME	LABSAMPID	CRL'NO3NO2N Result D7781-14 (mg/L) - Gallery	CRL Nitrate - N Result (mg/L) - IC Calculated	Abs difference	pH (SU) of the CRL Nitrate-Nitrite Nitrogen results D7781-14 (mg/L) - Gallery samples	UNL Nitrate+Nitrite-N (mg/L) 353.2 Method	EPA Field Data Nitrate (mg/L) Hach Nitrate Test Strips
A1a	1805005-01	0.0738 (U)*	0.06102	0.01	2	*0.000	5
A1b	1805005-02	1.79	1.34244	0.45	2	0.052	3
A2a	1805005-03	36.9	0	36.90	2	*0.000	0
A2b	1805005-04	0.03411 (U)*	0.0122266	0.02	2	*0.006	1
A3a	1805005-05	0.00583 (U)*	0	0.01	2	0.021	1
A3b	1805005-06	0.12	0.05424	0.07	2	0.047	0
A4a	1805005-10	1.25	0.88366	0.37	2	0.568	2
A4b	1805005-11	4.61	4.3166	0.29	2	0.124	4
B1a	1805005-12	0.02071 (U)*	0	0.02	3	0.018	0
B1b	1805005-13	0.04143 (U)*	0.0113226	0.03	2	0.043	0
B2a	1805005-14	0.02529 (U)*	0	0.03	2	*0.000	0
B2b	1805005-15	0.23	0.14012	0.09	2	0.082	0
B3a	1805005-16	4.53	4.0454	0.48	2	1.28	5
B3b	1805005-17	0.96	0.56726	0.39	2	*0.000	2
B4a	1805005-18	33.3	27.12	6.18	2	17.5	50
B4b	1805005-19	28.0	17.3568	10.64	2	8.81	20
C1a	1805005-20	0.12	0.0791	0.04	2	9.08	0
C1b	1805005-21	0.02426 (U)*	0.05198	0.03	2	0.44	0
C2a	1805005-22	42.1	36.16	5.94	2	22.8	50
C2b	1805005-23	3.39	2.7572	0.63	2	0.866	10
C3a	1805005-24	27.7	23.278	4.42	2	9.08	20
C3b	1805005-25	2.62	1.72212	0.90	2	0.44	3

SAMPLENAME	LABSAMPID	CRL'NO3NO2N Result D7781-14 (mg/L) - Gallery	CRL Nitrate - N Result (mg/L) - IC Calculated	Abs difference	pH (SU) of the CRL Nitrate-Nitrite Nitrogen results D7781-14 (mg/L) - Gallery samples	UNL Nitrate+Nitrite- N (mg/L) 353.2 Method	EPA Field Data Nitrate (mg/L) Hach Nitrate Test Strips
C5Aa	1805005-26	44.3	38.42	5.88	2	13.1	20
C5Ab	1805005-27	59.2	62.602	3.40	2	22	50
C6a	1805005-28	36.8	38.42	1.62	2	15.1	50
C6b	1805005-29	25.3	25.312	0.01	3	11.7	50
C7a	1805005-30	31.7	34.126	2.43	2	19.5	50
C7b	1805005-31	37.3	37.968	0.67	2	14.7	50
C8a	1805005-35	17.1	18.193	1.09	2	6.64	20
C8b	1805005-36	2.95	2.486	0.46	2	2.39	5
C9a	1805005-37	2.48	2.2826	0.20	2	2.47	2
C9b	1805005-38	0.69	0.565	0.13	2	0.646	2
C10a	1805005-39	8.33	6.893	1.44	2	7.76	5
C10b	1805005-40	16.7	16.95	0.25	2	15.6	20
C11a	1805005-41	0.00348 (U)*	0	0.00	3	*0.000	0
C11b	1805005-42	0.57	0.34804	0.22	2	0.119	1
C12a	1805005-43	0.02879 (U)*	0	0.03	2	*0.000	0
C12b	1805005-44	0.05712 (U)*	0	0.06	2	*0.000	0
C13a	1805005-45	0.02451 (U)*	0	0.02	3	*0.000	0
C13b	1805005-46	0.02199 (U)*	0	0.02	2	*0.000	0
D1a	1805005-47	-0.01954 (U)*	0	0.02	2	*0.000	0
D1b	1805005-48	0.02459 (U)*	0	0.02	3	*0.000	0
D2a	1805005-49	2.86	2.5538	0.31	3	1.65	5
D2b	1805005-50	32.7	33.9	1.20	2	13.5	50
D3a	1805005-51	21.1	21.7638	0.66	2	8.98	20
D3b	1805005-52	23.4	22.2836	1.12	2	13.1	50



SAMPLENAME	LABSAMPID	CRL'NO3NO2N Result D7781-14 (mg/L) - Gallery	CRL Nitrate - N Result (mg/L) - IC Calculated	Abs difference	pH (SU) of the CRL Nitrate-Nitrite Nitrogen results D7781-14 (mg/L) - Gallery samples	UNL Nitrate+Nitrite- N (mg/L) 353.2 Method	EPA Field Data Nitrate (mg/L) Hach Nitrate Test Strips
D4a	1805005-53	20.5	21.4022	0.90	2	10.2	20
D4b	1805005-54	50.6	55.37	4.77	2	17.7	50
D5a	1805007-01	0.29	0.47686	0.19	1	0.451	2
D5b	1805007-02	1.36	1.52324	0.16	1	1.18	2
D6a	1805007-03	-0.06753 (U)*	49.042	49.11	1	41.1	50
D6b	1805007-04	-0.01465 (U)*	26.894	26.91	1	24.5	50
D7a	1805007-08	-0.06481 (U)*	37.968	38.03	1	30.7	50
D7b	1805007-09	36.8	39.324	2.52	1	32.2	50
D8a	1805007-10	42.3	48.816	6.52	1	48.8	50
D8b	1805007-11	0.03843 (U)*	48.138	48.10	1	39	50
D9a	1805007-12	-0.09567 (U)*	31.414	31.51	1	30.3	20
D9b	1805007-13	2.29	2.8702	0.58	1	1.52	5
D10a	1805007-14	14.3	13.2888	1.01	1	8.79	20
D10b	1805007-16	-0.02915 (U)*	15.142	15.17	1	8.4	20
D11a	1805007-18	32.2	30.284	1.92	1	28	20
D11b	1805007-19	23.9	22.826	1.07	1	14.5	20
E1a	1805007-20	27.2	24.86	2.34	1	11.7	20
E1b	1805007-21	25.7	23.73	1.97	1	11.8	50
E2a	1805007-22	1.52	1.36956	0.15	1	0.995	2
E2b	1805007-23	3.15	2.825	0.33	1	2.58	2
E3a	1805007-26	6.58	6.1698	0.41	1	3.83	5
E3b	1805007-27	7.40	7.5936	0.19	1	6.14	5
E4a	1805007-28	23.3	22.6	0.70	1	26.1	20
E4b	1805007-29	26.8	25.086	1.71	1	20	20

SAMPLENAME	LABSAMPID	CRL'NO3NO2N Result D7781-14 (mg/L) - Gallery	CRL Nitrate - N Result (mg/L) - IC Calculated	Abs difference	pH (SU) of the CRL Nitrate-Nitrite Nitrogen results D7781-14 (mg/L) - Gallery samples	UNL Nitrate+Nitrite-N (mg/L) 353.2 Method	EPA Field Data Nitrate (mg/L) Hach Nitrate Test Strips
E5a	1805007-30	38.7	35.03	3.67	1	28.3	50
E5b	1805007-31	26.9	24.408	2.49	1	17.5	20
E6a	1805007-32	0.15	0.14464	0.01	1	0.149	0
E6b	1805007-33	0.15	0.08588	0.06	1	0.093	0
E7a	1805007-34	-0.08565 (U)*	21.47	21.56	1	16.1	20
E7b	1805007-35	-0.03298 (U)*	22.3514	22.38	1	13.8	50
E8a	1805007-36	-0.03298 (U)*	19.097	19.13	1	28.6	20
E8b	1805007-37	-0.11255 (U)*	25.764	25.88	1	21.1	50
E10a	1805007-38	1.13	1.05994	0.07	1	0.427	2
E10b	1805007-40	0.06174 (U)*	0.0452	0.02	1	0.042	0
E9a	1805007-43	-0.06142 (U)*	15.9782	16.04	1	20.8	10
E9b	1805007-44	20.2	16.7692	3.43	1	20.2	20

As noted above in Section 2.4.3, EPA compared the CRL nitrate-nitrite nitrogen data using ASTM Method D7781-14 to other datasets. Shown below are scatter graphs to evaluate the correlation between this data and CRL's data for nitrate-nitrogen via EPA Method 300.0 and CRL's total dissolved solids data. The correlation coefficient between CRL's ASTM Method D7781-14 and EPA Method 300.0 is .5209 when including all data. However, when the inconsistent data is not plotted, the correlation coefficient is .9784. The correlation coefficient of TDS to CRL nitrate-nitrite nitrogen data using ASTM Method D7781-14 is .5359. However, when the inconsistent data is not plotted, the correlation coefficient is .9343. There is also a strong correlation between EPA Method 300.0 and TDS with a correlation coefficient of .9341.



Figure 8.0 Comparison of Nitrate-Nitrite and CRL IC Nitrate-N with and without Inconsistent Data

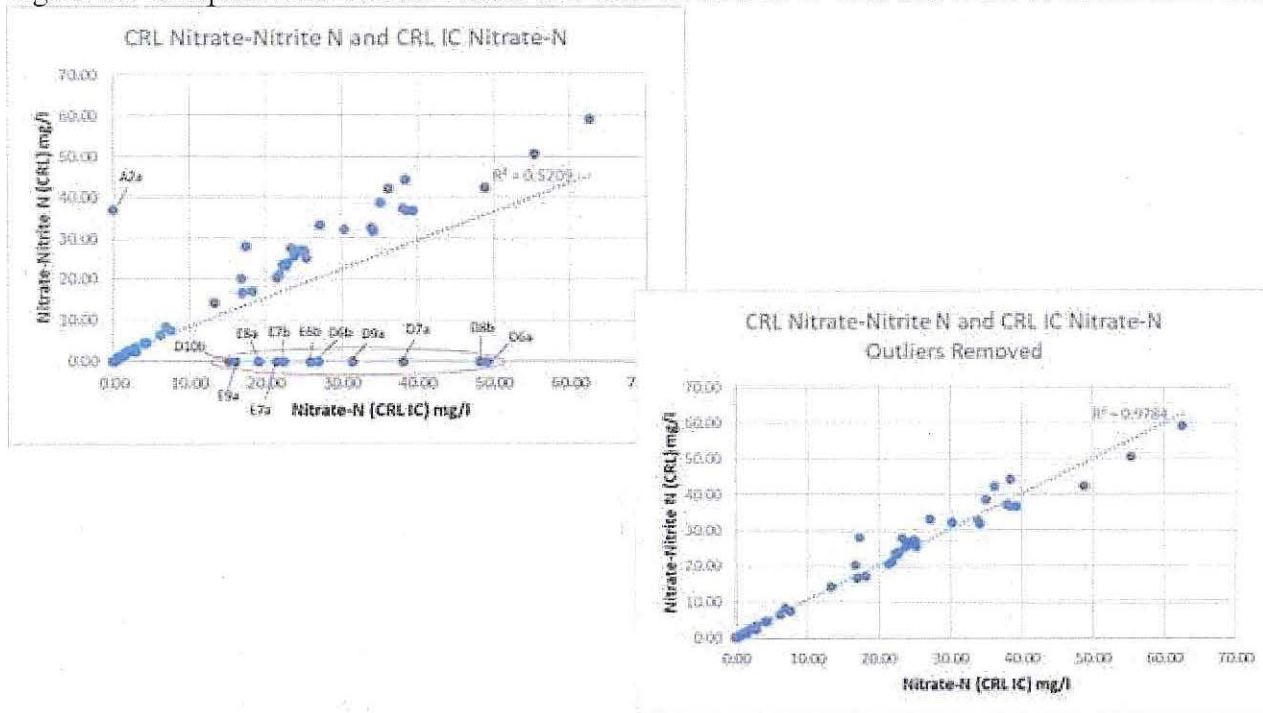


Figure 9.0 TSD and CRL Nitrate-Nitrite N with and without Inconsistent Data

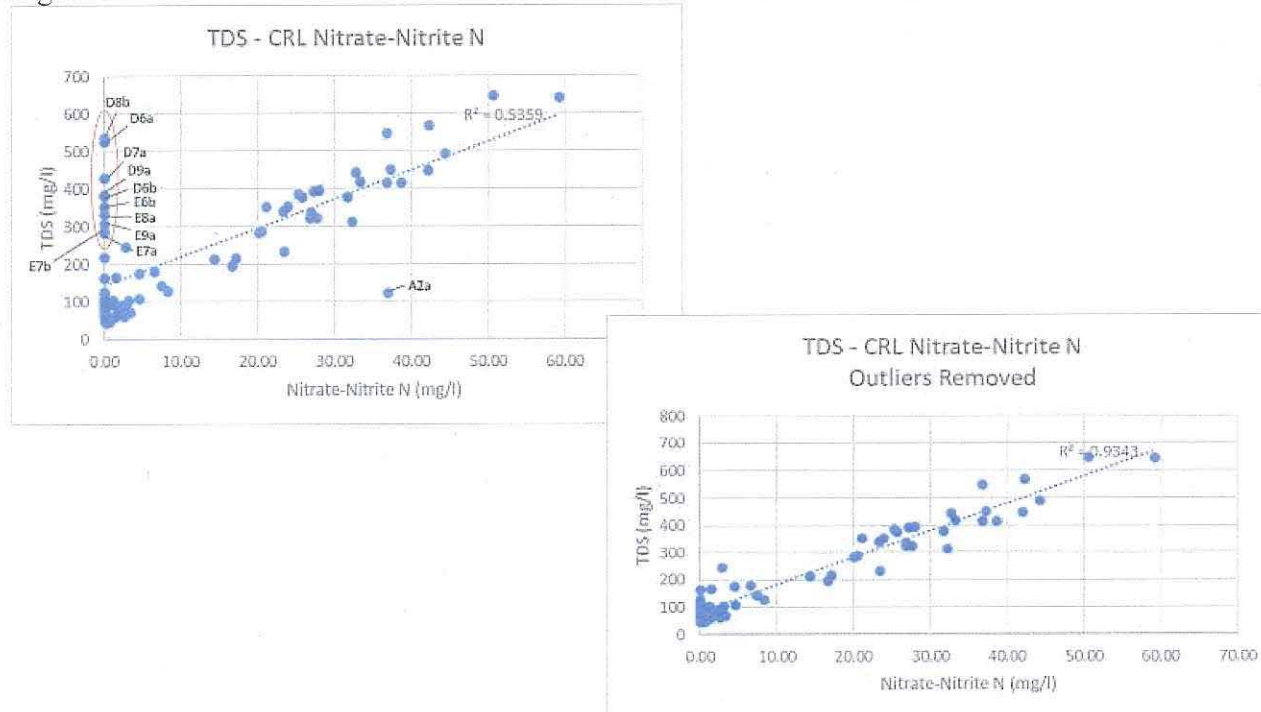


Figure 10.0 TDS and CRL Nitrate-Nitrogen Method 300.0

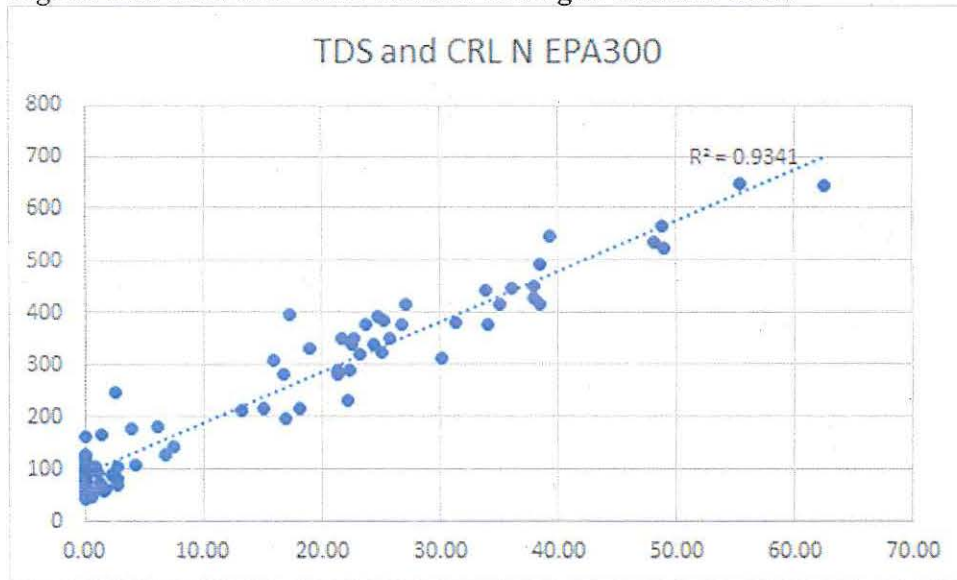


Table 6 -Wisconsin State Laboratory of Hygiene Private Well Analyses

Sample ID	Collection Date/Time	<i>E.coli</i> (MPN/100mL)	Nitrate-Nitrite as N (mg/L)	Nitrate as N (mg/L)	Nitrite as N (mg/L)	Chloride (mg/L)	Ammonia (mg/L)
S01	5/3/2018 11:06 AM	<1	34.4	34.4	ND	32.6	0.0150F
S02	5/3/2018 11:38 AM	<1	34.3	34.3	ND	49.6	ND
S03	5/3/2018 1:14 PM	<1	21.9	21.9	ND	24.7	ND
S04	5/3/2018 12:13 PM	<1	40.4	40.3	ND	39.7	ND
S05	5/3/2018 12:46 PM	<1	29.1	29.1	ND	36.8	ND

F Next to result = Result is between LOD and LOQ

Z Next to result = Result is between 0 (zero) and LOD

ND = Non-detect





**APPENDIX 1:**  
**Photo Log**  
**NE Juneau County**  
**Groundwater Sampling**  
**Inspection**

**April 30, 2018 through May 3, 2018**



**Central Sand Dairy  
EPA Inspection April 30-May 3, 2018  
U.S. EPA, Region 5**

All photos were taken by Cheryl Burdett, Joan Rogers, and Jennifer Wilson, Ben Atkinson, and Andi Hodaj. The times listed below for photos are based on the collection times and photolog book recorded times except where it is noted below as estimated based on the recorded times.

Camera 1: Olympus digital camera-TG-4

Camera 2: NIKON D300S– The photographs from this camera all start with the letter “P.” Note that the times listed in the digital photo properties are one hour earlier from what is listed below.



1: DSC\_4866

Description: Collecting groundwater samples using direct push Geoprobe.

Location: A1, Latitude: 44.249 N, Longitude: 89.967 W

Date/Time: April 30, 2018/7:13 AM (photo time is estimated)



2: DSC\_4867

Description: Groundwater samples collected at depths a and b of A1

Location: A1, Latitude: 44.249 N, Longitude: 89.967 W

Date/Time: April 30, 2018/7:32 AM (photo time is estimated)



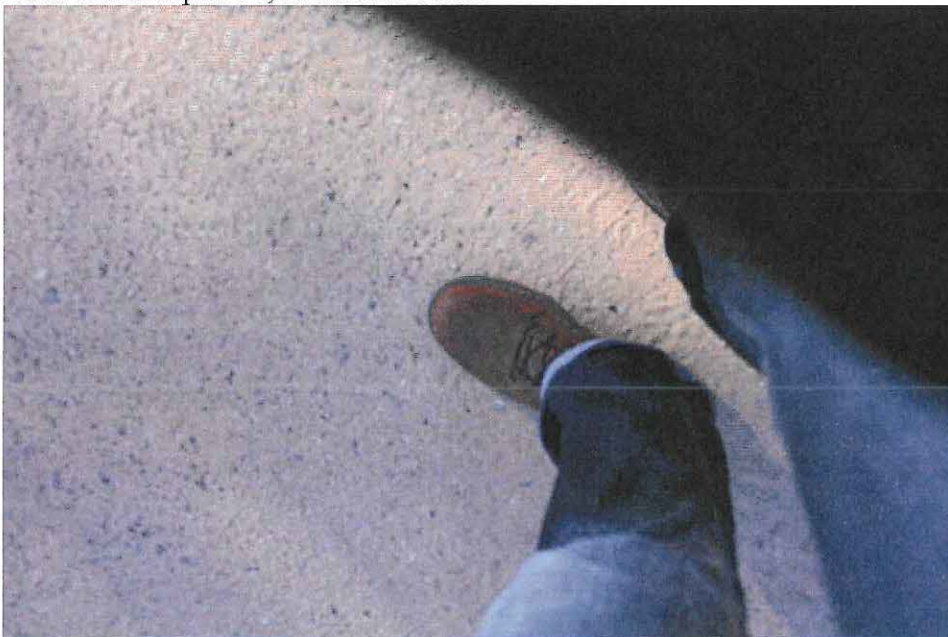


3: P4300007

Description: A1 borehole filled with bentonite

Location: A1, Latitude: 44.249 N, Longitude: 89.967 W

Date/Time: April 30, 2018/12:38 PM



2: DSC\_4868

Description: Accidental photo

Location: A2, Latitude: 44.248 N, Longitude: 89.976 W

Date/Time: April 30, 2018/7:37 AM (photo time is estimated)





5: DSC\_4869

Description: Using Geoprobe to create boreholes to collect groundwater samples at A2

Location: A2, Latitude: 44.248, Longitude: 89.976 W

Date/Time: April 30, 2018/7:41 AM (photo time is estimated)



63: DSC\_4870

Description: Groundwater samples collected at depths a and b of A2

Location: A2, Latitude: 44.248 N, Longitude: 89.976 W

Date/Time: April 30, 2018/8:24 AM





7: P4300006

Description: A2 borehole filled with bentonite

Location: A2, Latitude: 44.248 N, Longitude: 89.976 W

Date/Time: April 30, 2018/12:33 PM



8: DSC\_4871

Description: Using Geoprobe to create boreholes to collect groundwater samples at A3

Location: A3, Latitude: 44.241, Longitude: 89.983 W

Date/Time: April 30, 2018/8:32 AM (photo time is estimated)





9: DSC\_4872

Description: Using Geoprobe to create boreholes to collect groundwater samples at A3

Location: A3, Latitude: 44.241 N, Longitude: 89.983 W

Date/Time: April 30, 2018/8:32 AM (photo time is estimated)



104: DSC\_4873

Description: Groundwater samples collected at depths a and b of A3

Location: A3, Latitude: 44.241 N, Longitude: 89.983 W

Date/Time: April 30, 2018/9:14 AM





11: DSC\_4874

Description: Groundwater samples collected at depths a and b of A3

Location: A3, Latitude: 44.241 N, Longitude: 89.983 W

Date/Time: April 30, 2018/9:14 AM



12: P4300004

Description: A3 borehole filled with bentonite

Location: A3, Latitude: 44.241 N, Longitude: 89.983 W

Date/Time: April 30, 2018/12:28 PM





13: P4300005

Description: A3 borehole filled with bentonite

Location: A3, Latitude: 44.241, Longitude: 89.983 W

Date/Time: April 30, 2018/12:29 PM



145: DSC\_4875

Description: Using Geoprobe to create boreholes to collect groundwater samples at A4

Location: A4, Latitude: 44.238 N, Longitude: 89.991 W

Date/Time: April 30, 2018/9:21 AM (photo time is estimated)





15: DSC\_4876

Description: Taking an equipment blank sample

Location: A4, Latitude: 44.238 N, Longitude: 89.991 W

Date/Time: April 30, 2018/9:21 AM (photo time is estimated)



16: DSC\_4877

Description: Taking an equipment blank sample

Location: A4, Latitude: 44.238 N, Longitude: 89.991 W

Date/Time: April 30, 2018/9:21 AM (photo time is estimated)





17: DSC\_4878

Description: Equipment and field blank samples being preserved

Location: A4, Latitude: 44.238 W, Longitude: 89.991 W

Date/Time: April 30, 2018/9:49 AM



18: DSC\_4879

Description: Groundwater samples collected at depths a and b of A4

Location: A4, Latitude: 44.238 N, Longitude: 89.991 W

Date/Time: April 30, 2018/10:09 AM





196: DSC\_4880

Description: Groundwater samples collected at depths a and b of A4

Location: A4, Latitude: 44.238 N, Longitude: 89.991 W

Date/Time: April 30, 2018/10:09 AM



20: P4300003

Description: A4 borehole filled with bentonite

Location: A4, Latitude: 44.238 N, Longitude: 89.991 W

Date/Time: April 30, 2018/12:24 PM





71: DSC\_4881

Description: Using Geoprobe to create boreholes to collect groundwater samples at B1

Location: B1, Latitude: 44.227 N, Longitude: 89.996 W

Date/Time: April 30, 2018/10:20 AM (photo time is estimated)



82: DSC\_4882

Description: Groundwater samples collected at depths a and b of B1

Location: B1, Latitude: 44.227 N, Longitude: 89.996 W

Date/Time: April 30, 2018/10:58 AM





93: DSC\_4883

Description: Groundwater samples collected at depths a and b of B1

Location: B1, Latitude: 44.227 N, Longitude: 89.996 W

Date/Time: April 30, 2018/10:58 AM



24: P4300002

Description: B1 borehole filled with bentonite

Location: B1, Latitude: 44.227 N, Longitude: 89.996 W

Date/Time: April 30, 2018/12:06 PM





25: DSC\_4884

Description: Pre-sampling of B2

Location: B2, Latitude: 44.227 N, Longitude: 89.985 W

Date/Time: April 30, 2018/11:10 AM (photo time is estimated)



26: DSC\_4885

Description: Groundwater samples collected at depths a and b of B2

Location: B2, Latitude: 44.227 N, Lon: 89.985 W

Date/Time: April 30, 2018/11:48 AM





27: DSC\_4886

Description: Groundwater samples collected at depths a and b of B2

Location: B2, Latitude: 44.227 N, Longitude: 89.985 W

Date/Time: April 30, 2018/11:48 AM



28: P4300008

Description: B2 borehole filled with bentonite

Location: B2, Latitude: 44.227 N, Longitude: 89.985 W

Date/Time: April 30, 2018/11:57 PM





29: DSC\_4887

Description: Pre-sampling of B3

Location: B3, Latitude: 44.227 N, Longitude: 89.976 W

Date/Time: April 30, 2018/12:00 PM (photo time is estimated)



30: DSC\_4888

Description: Using Geoprobe to create boreholes to collect groundwater samples at B3

Location: B3, Latitude: 44.227 N, Longitude: 89.976 W

Date/Time: April 30, 2018/12:01 PM (photo time is estimated)





31: DSC\_4889

Description: Groundwater samples collected at depths a and b of B3

Location: B3, Latitude: 44.227 N, Longitude: 89.976 W

Date/Time: April 30, 2018/12:36 PM



32: DSC\_4890

Description: Groundwater samples collected at depths a and b of B3

Location: B3, Latitude: 44.227 N, Longitude: 89.976 W

Date/Time: April 30, 2018/12:36 PM





33: P4300009

Description: B3 borehole filled with bentonite

Location: B3, Latitude: 44.227 N, Longitude: 89.976 W

Date/Time: April 30, 2018/12:44 PM



34: DSC\_4891

Description: Taking samples from B4

Location: B4, Latitude: 44.227, Longitude: 89.966 W

Date/Time: April 30, 2018/1:02 PM (photo time is estimated)





3510: DSC\_4892

Description: Groundwater samples collected at depths a and b of B4

Location: B4, Lat: 44.227 N, Longitude: 89.966 W

Date/Time: April 30, 2018/1:41 PM



36: DSC\_4893

Description: Groundwater samples collected at depths a and b of B4

Location: B4, Latitude: 44.227 N, Longitude: 89.966 W

Date/Time: April 30, 2018/1:41 PM





37: P4300010

Description: B4 borehole filled with bentonite

Location: B4, Latitude: 44.227 N, Longitude: 89.966 W

Date/Time: April 30, 2018/1:48 PM



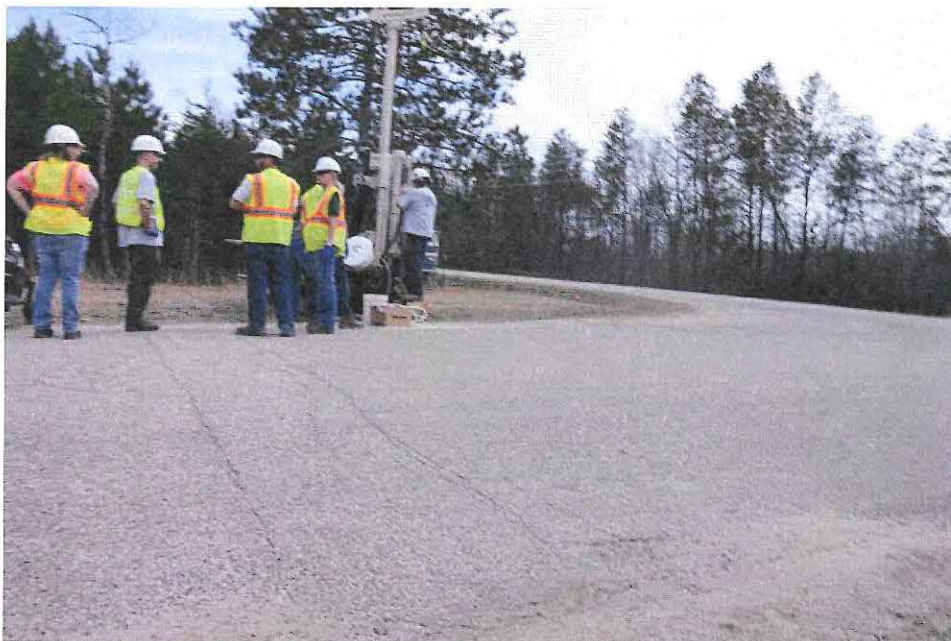
38: DSC\_4899

Description: Using Geoprobe to create boreholes to collect groundwater samples at C1

Location: C1, Latitude: 44.242 N, Longitude: 89.955 W

Date/Time: April 30, 2018/2:32 PM (photo time is estimated)





39: DSC\_4900

Description: Using Geoprobe to create boreholes to collect groundwater samples at C1

Location: C1, Latitude: 44.242 N, Longitude: 89.955 W

Date/Time: April 30, 2018/3:06 PM (photo time is estimated)



40: DSC\_4901

Description: Pre-sampling

Location: C1, Lat: 44.242 N, Longitude: 89.955 W

Date/Time: April 30, 2018/3:08 PM (photo time is estimated)





41: DSC\_4902

Description: Groundwater samples collected at depths a and b at C1

Location: C1, Latitude: 44.242 N, Longitude: 89.955 W

Date/Time: April 30, 2018/3:27 PM



42: P4300012

Description: C1 borehole filled with bentonite

Location: C1, Latitude: 44.242 N, Longitude: 89.955 W

Date/Time: April 30, 2018/3:40 PM



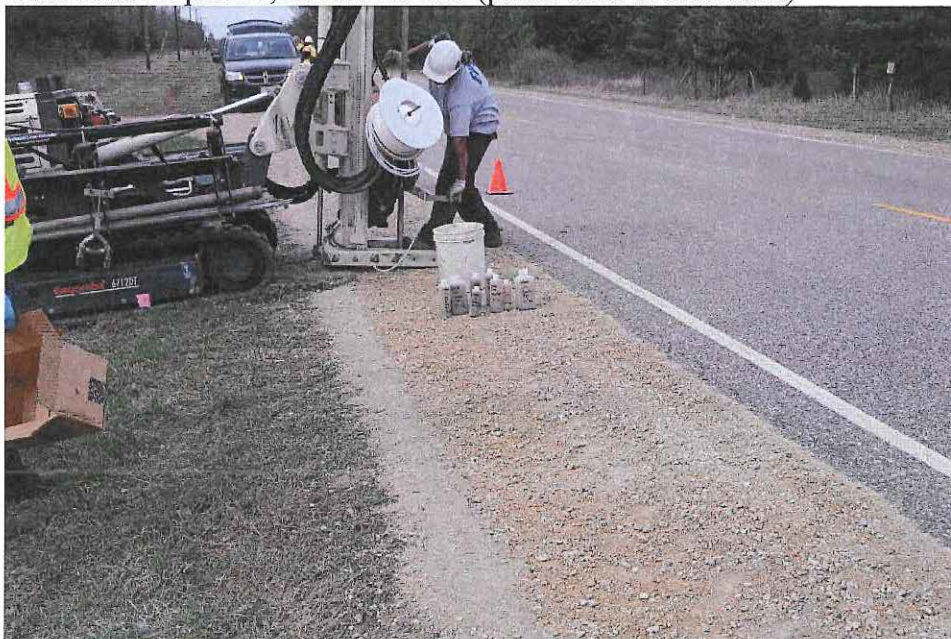


4311: DSC\_4903

Description: Using Geoprobe to create boreholes to collect groundwater samples at C2

Location: C2, Latitude: 44.234 N, Longitude: 89.955 W

Date/Time: April 30, 2018/3:41 PM (photo time is estimated)



44: DSC\_4904

Description: Groundwater samples collected at depths a and b at C2

Location: C2, Latitude: 44.234, Longitude: 89.955 W

Date/Time: April 30, 2018/4:14 PM





4512: DSC\_4905

Description: Groundwater samples collected at depths a and b at C2

Location: C2, Latitude: 44.23465, Longitude: 89.955 W

Date/Time: April 30, 2018/4:14 PM



46: P4300013

Description: C2 borehole filled with bentonite

Location: C2, Latitude: 44.234, Longitude: 89.955 W

Date/Time: April 30, 2018/4:18 PM





4713: DSC\_4894

Description: Using Geoprobe to create boreholes to collect groundwater samples at C3

Location: C3, Lat: 44.227, Longitude: 89.957

Date/Time: April 30, 2018/1:50 PM (photo time is estimated)



48: DSC\_4895

Description: Groundwater samples collected at depths a and b of C3

Location: C3, Latitude: 44.227, Longitude: 89.957 W

Date/Time: April 30, 2018/2:26 PM





49: DSC\_4896

Description: Groundwater samples collected at depths a and b of C3

Location: C3, Lat: 44.227 N, Longitude: 89.957 W

Date/Time: April 30, 2018/2:26 PM



50: DSC\_4897

Description: Accidental photo

Location: C3, Latitude: 44.227, Longitude: 89.957 W

Date/Time: April 30, 2018/2:28 PM (photo time is estimated)





51: DSC\_4898

Description: Accidental photo

Location: C3, Latitude: 44.227, Longitude: 89.957 W

Date/Time: April 30, 2018/2:28 PM (photo time is estimated)



52: P4300011

Description: C3 borehole filled with bentonite

Location: C3, Latitude: 44.227 N, Longitude: 89.957 W

Date/Time: April 30, 2018/2:34 PM



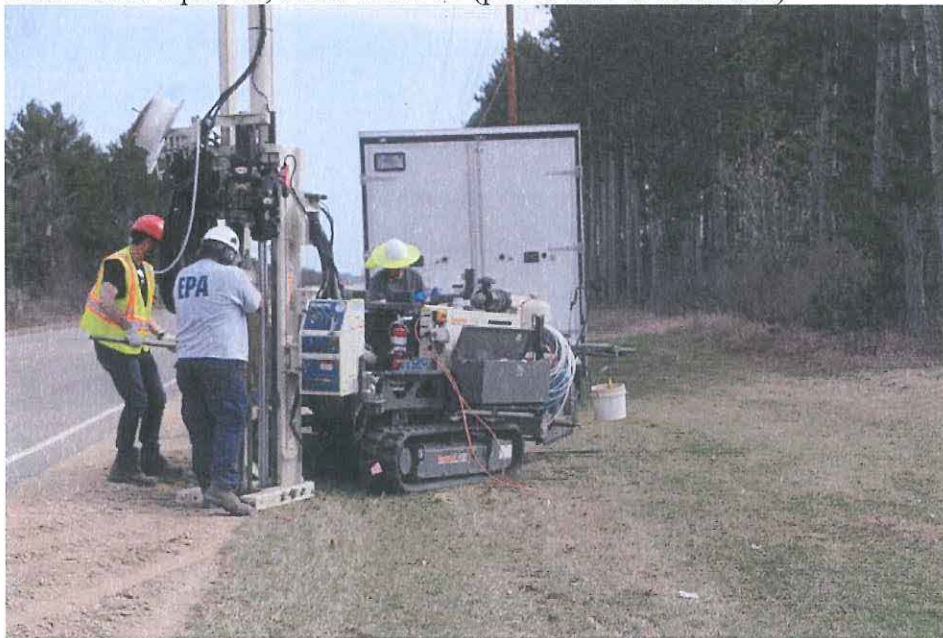


53: DSC\_4906

Description: Using Geoprobe to create boreholes to collect groundwater samples at C5A

Location: C5A, Latitude: 44.222 N, Longitude: 89.955 W

Date/Time: April 30, 2018/4:23 PM (photo time is estimated)



54: DSC\_4907

Description: Using Geoprobe to create boreholes to collect groundwater samples at C5A

Location: C5A, Latitude: 44.222 N, Longitude: 89.955 W

Date/Time: April 30, 2018/4:23 PM (photo time is estimated)





55: P5010014

Description: Taking samples at C5A

Location: C5A, Latitude: 44.222 N, Longitude: 89.955 W

Date/Time: May 1, 2018/6:26 AM



56: P5010015

Description: Groundwater samples collected at depths a and b at C5A

Location: C5A, Latitude: 44.222 N, Longitude: 89.955 W

Date/Time: May 1, 2018/6:46 AM





147: P5010016

Description: Groundwater samples collected at depths a and b at C5A

Location: C5A, Latitude: 44.222 N, Longitude: 89.955 W

Date/Time: May 1, 2018/6:46 AM



58: P5010017

Description: C5A borehole filled with bentonite

Location: C5A, Latitude: 44.222 N, Longitude: 89.955 W

Date/Time: May 1, 2018/6:54 AM



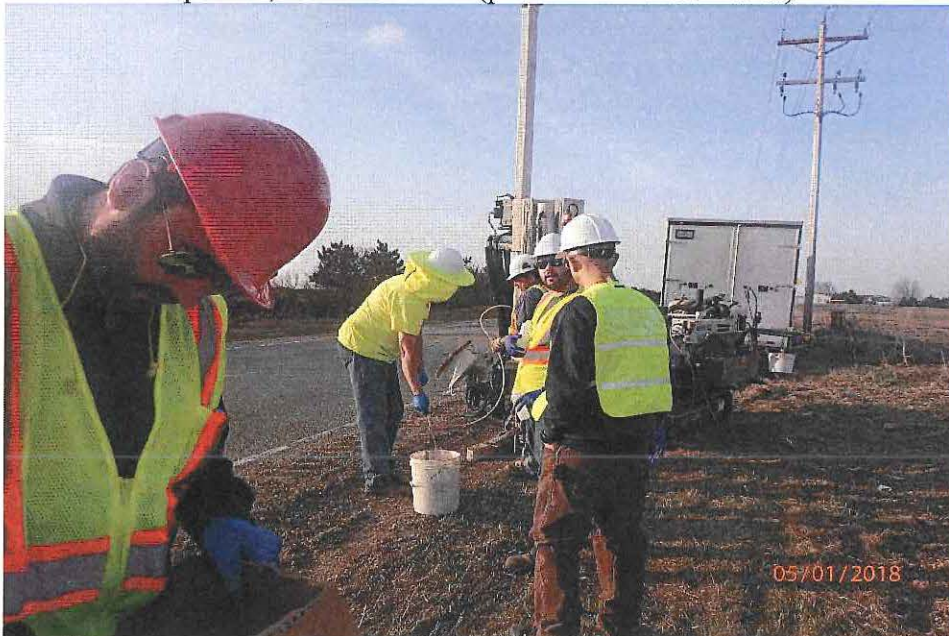


59: DSC\_4908

Description: Using Geoprobe to create boreholes to collect groundwater samples at C6

Location: C6, Latitude: 44.216 N, Longitude: 89.955 W

Date/Time: April 30, 2018/4:41 PM (photo time is estimated)



6015: P5010018

Description: Taking samples at C6

Location: C6, Latitude: 44.216 N, Longitude: 89.955 W

Date/Time: May 1, 2018/7:04 AM





6116: P5010019

Description: Groundwater samples collected at depths a and b at C6

Location: C6, Latitude: 44.216 N, Longitude: 89.955 W

Date/Time: May 1, 2018/7:16 AM



62: P5010020

Description: C6 borehole filled with bentonite

Location: C6, Latitude: 44.216 N, Longitude: 89.955 W

Date/Time: May 1, 2018/7:22 AM



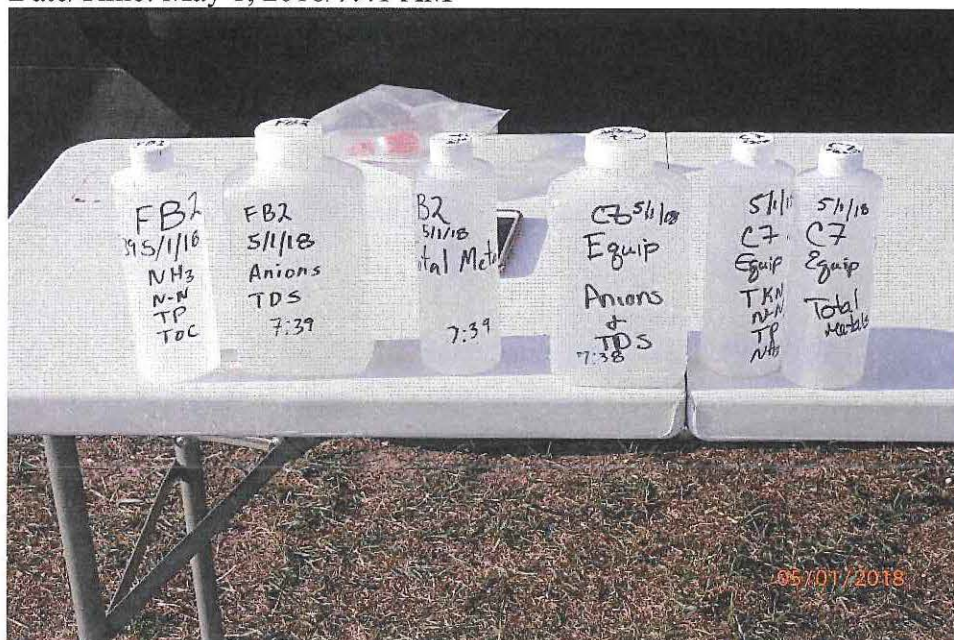


63: P5010021

Description: Using Geoprobe to create boreholes to collect groundwater samples at C7

Location: C7, Latitude: 44.213 N, Longitude: 89.958 W

Date/Time: May 1, 2018/7:41 AM



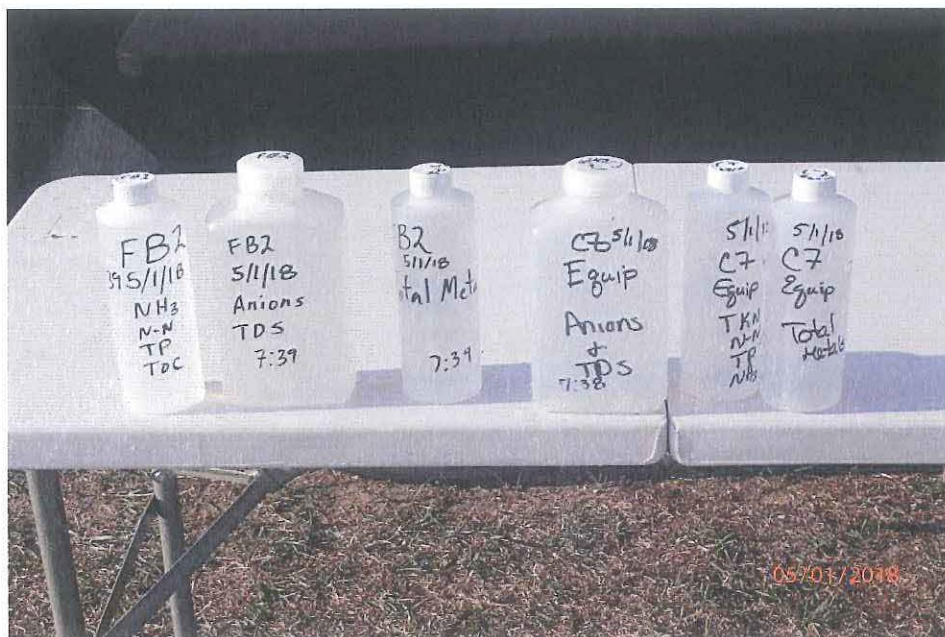
64: P5010022

Description: Equipment and field blank samples

Location: C7, Latitude: 44.213 N, Longitude: 89.958 W

Date/Time: May 1, 2018/7:47 AM



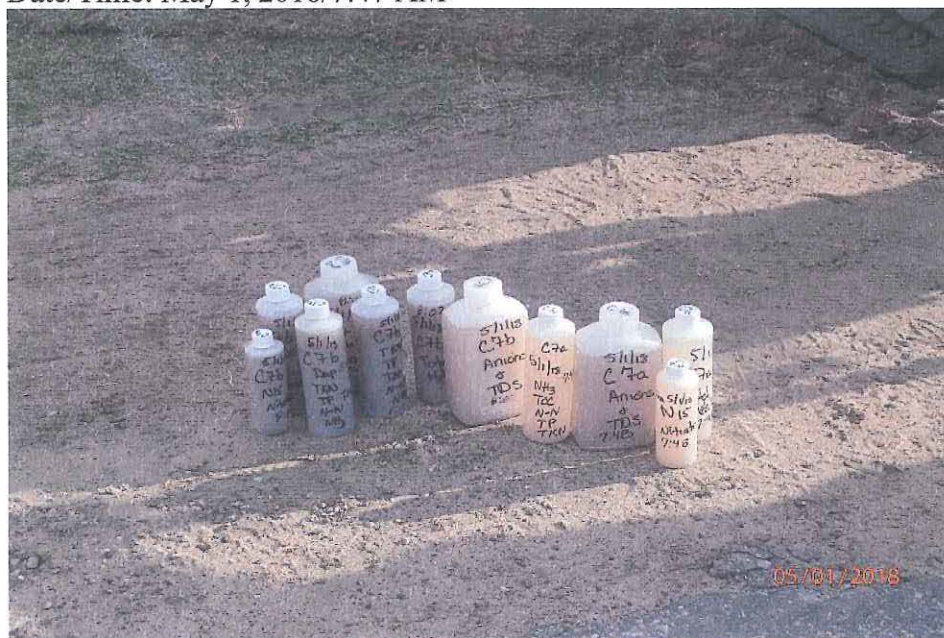


65: P5010023

Description: Equipment and field blank samples

Location: C7, Latitude: 44.213 N, Longitude: 89.958 W

Date/Time: May 1, 2018/7:47 AM



66: P5010024

Description: Groundwater samples collected at depths a and b at C7

Location: C7, Latitude: 44.213 N, Longitude: 89.958 W

Date/Time: May 1, 2018/8:05 AM





67: P5010025

Description: C7 borehole filled with bentonite

Location: C7, Latitude: 44.213 N, Longitude: 89.958 W

Date/Time: May 1, 2018/8:09 AM



68: P5010026

Description: Using Geoprobe to create boreholes to collect groundwater samples at C8

Location: C8, Latitude: 44.213 N, Longitude: 89.964 W

Date/Time: May 1, 2018/8:27 AM





179: P5010027

Description: Groundwater samples collected at depths a and b at C8

Location: C8, Latitude: 44.213 N, Longitude: 89.964 W

Date/Time: May 1, 2018/8:44 AM



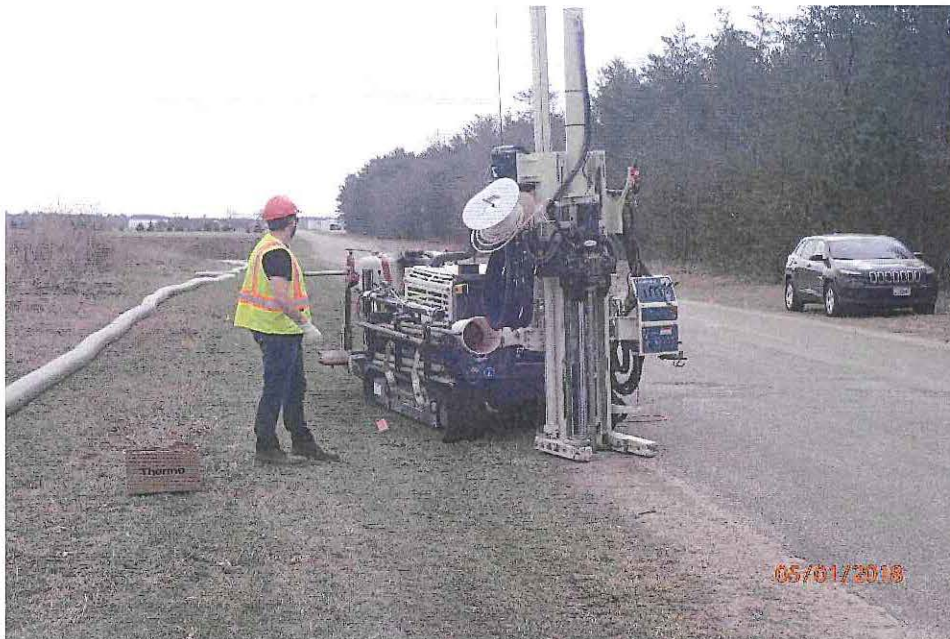
70: P5010028

Description: C8 borehole filled with bentonite

Location: C8, Latitude: 44.213 N, Longitude: 89.964 W

Date/Time: May 1, 2018/8:49 AM





71: P5010029

Description: Using Geoprobe to create boreholes to collect groundwater samples at C9

Location: C9, Latitude: 44.213 N, Longitude: 89.972 W

Date/Time: May 1, 2018/9:01 AM



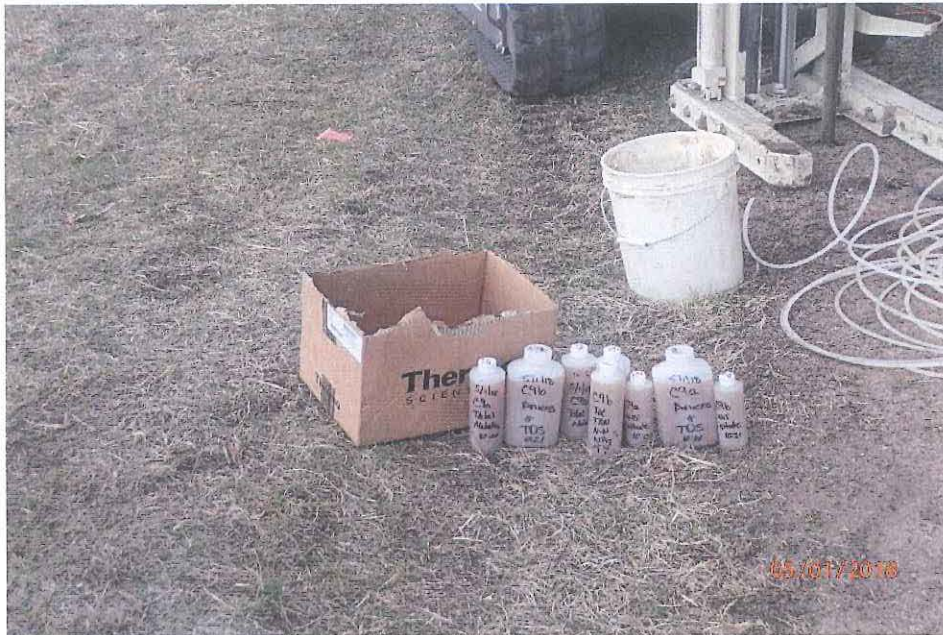
72: P5010030

Description: Using Geoprobe to create boreholes to collect groundwater samples at C9

Location: C9, Latitude: 44.213 N, Longitude: 89.972 W

Date/Time: May 1, 2018/9:22 AM





73: P5010031

Description: Groundwater samples collected at depths a and b at C9

Location: C9, Latitude: 44.213 N, Longitude: 89.972 W

Date/Time: May 1, 2018/10:23 AM



74: P5010032

Description: C9 borehole filled with bentonite

Location: C9, Latitude: 44.213 N, Lon: 89.972 W

Date/Time: May 1, 2018/10:32 AM





75: P5010033

Description: Accidental photo

Location: C9, Latitude: 44.213 N, Longitude: 89.972 W

Date/Time: May 1, 2018/10:52 AM



76: P5010034

Description: Using Geoprobe to create boreholes to collect groundwater samples at C10

Location: C10, Latitude: 44.213 N, Longitude: 89.983 W

Date/Time: May 1, 2018/10:53 AM





77: P5010035

Description: Groundwater samples collected at depths a and b at C10

Location: C10, Latitude: 44.213 N, Longitude: 89.983 W

Date/Time: May 1, 2018/11:13 AM



78: P5010036

Description: C10 borehole filled with bentonite

Location: C10, Latitude: 44.213 N, Longitude: 89.983 W

Date/Time: May 1, 2018/11:19 AM





79: P5010037

Description: Using Geoprobe to create boreholes to collect groundwater samples at C11

Location: C11, Latitude: 44.213 N, Longitude: 89.996 W

Date/Time: May 1, 2018/11:30 AM



80: P5010038

Description: Groundwater samples collected at depths a and b at C11

Location: C11, Lat: 44.213 N, Longitude: 89.996 W

Date/Time: May 1, 2018/11:57 AM





81: P5010039

Description: C11 borehole filled with bentonite

Location: C11, Latitude: 44.213 N, Longitude: 89.996 W

Date/Time: May 1, 2018/12:01 PM



82: P5010040

Description: Using Geoprobe to create boreholes to collect groundwater samples at C12

Location: C12, Lat: 44.213 N, Longitude: 90.016 W

Date/Time: May 1, 2018/12:11 PM





8318: P5010041

Description: Accidental photo

Location: C12, Latitude: 44.213 N, Longitude: 90.016 W

Date/Time: May 1, 2018/12:19 PM



84: P5010042

Description: Groundwater samples collected at depths a and b at C12

Location: C12, Lat: 44.213 N, Lon: 90.016 W

Date/Time: May 1, 2018/12:49 PM





85: P5010043

Description: C12 borehole filled with bentonite

Location: C12, Latitude: 44.213 N, Longitude: 90.016 W

Date/Time: May 1, 2018/12:56 PM



86: P5010044

Description: Using Geoprobe to create boreholes to collect groundwater samples at C13

Location: C13, Latitude: 44.213 N, Longitude: 90.033 W

Date/Time: May 1, 2018/1:23 PM





87: P5010045

Description: Groundwater samples collected at depths a and b at C13

Location: C13, Lat: 44.213 N, Longitude: 90.033 W

Date/Time: May 1, 2018/1:41 PM



88: P5010046

Description: Accidental photo

Location: C13, Latitude: 44.213 N, Longitude: 90.033 W

Date/Time: May 1, 2018/1:46 PM





89: P5010047

Description: C13 borehole filled with bentonite

Location: C13, Latitude: 44.213 N, Longitude: 90.033 W

Date/Time: May 1, 2018/1:48 PM



90: P5010048

Description: C13 borehole filled with bentonite

Location: C13, Latitude: 44.213 N, Longitude: 90.033 W

Date/Time: May 1, 2018/1:48 PM





9119: P5010049

Description: Using Geoprobe to create boreholes to collect groundwater samples at D1

Location: D1, Latitude: 44.198 N, Longitude: 90.038 W

Date/Time: May 1, 2018/2:04 PM



92: P5010050

Description: Groundwater samples collected at depths a and b at D1

Location: D1, Latitude: 44.198 N, Longitude: 90.038 W

Date/Time: May 1, 2018/2:27 PM





93: P5010051

Description: D1 borehole filled with bentonite

Location: D1, Lat: 44.198 N, Longitude: 90.038 W

Date/Time: May 1, 2018/2:32 PM



94: P5010052

Description: Accidental photo

Location: D1, Lat: 44.198 N, Longitude: 90.038 W

Date/Time: May 1, 2018/2:49 PM





95: P5010053

Description: Using Geoprobe to create boreholes to collect groundwater samples at D2

Location: D2, Latitude: 44.198 N, Longitude: 90.010 W

Date/Time: May 1, 2018/2:49 PM



96: P5010054

Description: Using Geoprobe to create boreholes to collect groundwater samples at D2

Location: D2, Latitude: 44.198 N, Longitude: 90.010 W

Date/Time: May 1, 2018/2:49 PM





97: P5010055

Description: Using Geoprobe to create boreholes to collect groundwater samples at D2

Location: D2, Latitude: 44.198 N, Longitude: 90.010 W

Date/Time: May 1, 2018/2:49 PM



98: DSC\_4909

Description: Taking samples at D2

Location: D2, Latitude: 44.198 N, Longitude: 90.010 W

Date/Time: May 1, 2018/2:49 PM (photo time is estimated)





99: DSC\_4910

Description: Groundwater samples collected at depths a and b at D2

Location: D2, Latitude: 44.198 N, Longitude: 90.010 W

Date/Time: May 1, 2018/3:06 PM



100: DSC\_4911

Description: D2 borehole filled with bentonite

Location: D2, Latitude: 44.198 N, Longitude: 90.010 W

Date/Time: May 1, 2018/3:15 PM (photo time is estimated)





101: DSC\_4912

Description: Using Geoprobe to create boreholes to collect groundwater samples at D3

Location: D3, Latitude: 44.198 N, Longitude: 89.997 W

Date/Time: May 1, 2018/3:21 PM (photo time is estimated)



102: DSC\_4913

Description: Using Geoprobe to create boreholes to collect groundwater samples at D3

Location: D3, Latitude: 44.198 N, Longitude: 89.997 W

Date/Time: May 1, 2018/3:36 PM





103: DSC\_4914

Description: Groundwater samples collected at depths a and b at D3

Location: D3, Latitude: 44.198 N, Longitude: 89.997 W

Date/Time: May 1, 2018/3:50 PM



104: DSC\_4915

Description: D3 borehole filled with bentonite.

Location: D3, Latitude: 44.198 N, Longitude: 89.997 W

Date/Time: May 1, 2018/3:54 PM





105: DSC\_4916

Description: Using Geoprobe to create boreholes to collect groundwater samples at D4

Location: D4, Latitude: 44.198 N, Longitude: 89.981 W

Date/Time: May 1, 2018/4:14 PM



106: DSC\_4917

Description: Using Geoprobe to create boreholes to collect groundwater samples at D4

Location: D4, Latitude: 44.198 N, Longitude: 89.981 W

Date/Time: May 1, 2018/ 4:14 PM





107: DSC\_4918

Description: Groundwater samples collected at depths a and b at D4

Location: D4, Latitude: 44.198 N, Longitude: 89.981 W

Date/Time: May 1, 2018/4:27 PM



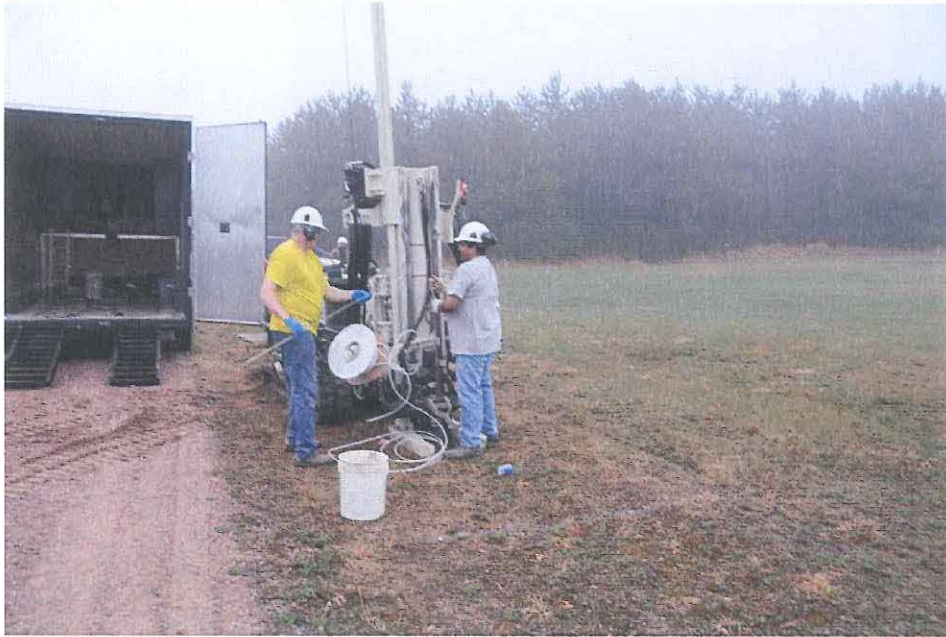
108: DSC\_4919

Description: D4 borehole filled with bentonite.

Location: D4, Latitude: 44.198 N, Longitude: 89.981 W

Date/Time: May 1, 2018/4:30 PM





109: DSC\_4920

Description: Using Geoprobe to create boreholes to collect groundwater samples at D5

Location: D5, Latitude: 44.198 N, Longitude: 89.966 W

Date/Time: May 2, 2018/6:30 AM



110: DSC\_4921

Description: Groundwater samples collected at depths a and b at D5

Location: D5, Latitude: 44.198 N, Longitude: 89.966 W

Date/Time: May 2, 2018/6:47 AM





111: DSC\_4922

Description: Groundwater samples collected at depths a and b at D5

Location: D5, Latitude: 44.198 N, Longitude: 89.966 W

Date/Time: May 2, 2018/6:47 AM



112: DSC\_4923

Description: D5 borehole filled with bentonite

Location: D5, Latitude: 44.198 N, Longitude: 89.966 W

Date/Time: May 2, 2018/6:59 AM





113: DSC\_4924

Description: Using Geoprobe to create boreholes to collect groundwater samples at D6

Location: D6, Latitude: 44.198 N, Longitude: 89.955 W

Date/Time: May 2, 2018/7:08 AM



114: DSC\_4925

Description: Using Geoprobe to create boreholes to collect groundwater samples at D6

Location: D6, Latitude: 44.198 N, Longitude: 89.955 W

Date/Time: May 2, 2018/7:08 AM





115: DSC\_4926

Description: Groundwater samples collected at depths a and b at D6

Location: D6, Latitude: 44.198 N, Longitude: 89.955 W

Date/Time: May 2, 2018/7:33 AM



116: DSC\_4927

Description: D6 borehole filled with bentonite

Location: D6, Latitude: 44.198 N, Longitude: 89.955 W

Date/Time: May 2, 2018/7:35 AM (photo time is estimated)





117: DSC\_4928

Description: Orange line shows where the underlying utility lines are at D7

Location: D7, Latitude: 44.197 N, Lon: 89.938 W

Date/Time: May 2, 2018/7:45 AM (photo time is estimated)



118: DSC\_4929

Description: Orange line shows where the underlying utility lines are at D7

Location: D7, Latitude: 44.197 N, Longitude: 89.938 W

Date/Time: May 2, 2018/7:45 AM (photo time is estimated)





119: DSC\_4930

Description: Groundwater samples collected at depths a and b at D7

Location: D7, Latitude: 44.197 N, Longitude: 89.938 W

Date/Time: May 2, 2018/8:20 AM



120: DSC\_4931

Description: Groundwater samples collected at depths a and b at D7

Location: D7, Latitude: 44.197 N, Longitude: 89.938 W

Date/Time: May 2, 2018/8:30AM (photo time is estimated)





121: DSC\_4938

Description: D7 borehole filled with bentonite

Location: D7, Latitude: 44.197 N, Longitude: 89.938 W

Date/Time: May 2, 2018/9:39 AM (photo time is estimated)



122: DSC\_4932

Description: Orange flags indicate where utility lines could be at D8

Location: D8, Latitude: 44.204 N, Longitude: 89.938 W

Date/Time: May 2, 2018/8:45 AM (photo time is estimated)





123: DSC\_4933

Description: Orange flags indicate where utility lines could be at D8

Location: D8, Lat: 44.204 N, Longitude: 89.938 W

Date/Time: May 2, 2018/8:45 AM (photo time is estimated)



124: DSC\_4934

Description: Using Geoprobe to create boreholes to collect groundwater samples at D8

Location: D8, Latitude: 44.204 N, Longitude: 89.938 W

Date/Time: May 2, 2018/8:50 AM (photo time is estimated)





125: DSC\_4935

Description: Groundwater samples collected at depths a and b at D8

Location: D8, Latitude: 44.204 N, Longitude: 89.938 W

Date/Time: May 2, 2018/9:15 AM



126: DSC\_4936

Description: D8 borehole filled with bentonite

Location: D8, Latitude: 44.204 N, Longitude: 89.938 W

Date/Time: May 2, 2018/9:20 AM





127: DSC\_4937

Description: Orange flags indicate where utility lines could be at D9

Location: D9, Latitude: 44.214 N, Longitude: 89.938 W

Date/Time: May 2, 2018/9:30 AM (photo time is estimated)



128: DSC\_4939

Description: Using Geoprobe to create boreholes to collect groundwater samples at D9

Location: D9, Latitude: 44.214 N, Longitude: 89.938 W

Date/Time: May 2, 2018/9:39 AM (photo time is estimated)





12920: DSC\_4940

Description: Groundwater samples collected at depths a and b at D9

Location: D9, Latitude: 44.214 N, Longitude: 89.938 W

Date/Time: May 2, 2018/9:54 AM



130: DSC\_4941

Description: D9 borehole filled with bentonite

Location: D9, Latitude: 44.214 N, Longitude: 89.938 W

Date/Time: May 2, 2018/10:03 AM (photo time is estimated)





131: DSC\_4942

Description: Using Geoprobe to create boreholes to collect groundwater samples at D10

Location: D10, Latitude: 44.226 N, Longitude: 89.938 W

Date/Time: May 2, 2018/10:10 AM (photo time is estimated)



132: DSC\_4943

Description: Groundwater samples collected at depths a and b at D10

Location: D10, Latitude: 44.226 N, Longitude: 89.938 W

Date/Time: May 2, 2018/10:41 AM





133: DSC\_4944

Description: D10 borehole filled with bentonite

Location: D10, Latitude: 44.226 N, Longitude: 89.938 W

Date/Time: May 2, 2018/10:52 AM (photo time is estimated)



134: DSC\_4945

Description: Taking samples at D11

Location: D11, Latitude: 44.239 N, Longitude: -89.938 W

Date/Time: May 2, 2018/11:18 AM (photo time is estimated)





135: DSC\_4946

Description: Groundwater samples collected at depths a and b at D11

Location: D11, Latitude: 44.239 N, Longitude: 89.938 W

Date/Time: May 2, 2018/11:42 AM



136: DSC\_4949

Description: D11 borehole filled with bentonite

Location: D11, Latitude: 44.239 N, Longitude: 89.938 W

Date/Time: May 2, 2018/1:09 PM (photo time is estimated)





137: DSC\_4947

Description: Taking samples at E1

Location: E1, Latitude: 44.188 N, Longitude: 89.938 W

Date/Time: May 2, 2018/12:40 PM (photo time is estimated)



138: DSC\_4948

Description: Groundwater samples collected at depths a and b at E1

Location: E1, Latitude: 44.188 N, Longitude: 89.938 W

Date/Time: May 2, 2018/12:58 PM





139: DSC\_4950

Description: E1 borehole filled with bentonite

Location: E1, Latitude: 44.188 N, Longitude: 89.938 W

Date/Time: May 2, 2018/1:12 PM (photo time is estimated)





140: DSC\_4951

Description: Accidental photo

Location: E1, Latitude: 44.188 N, Longitude: 89.938 W

Date/Time: May 2, 2018/1:14 PM (photo time is estimated)



141: DSC\_4952

Description: Accidental photo

Location: E1, Latitude: 44.188 N, Longitude: 89.938 W

Date/Time: May 2, 2018/1:14 PM (photo time is estimated)



142: DSC\_4953

Description: Accidental photo

Location: E1, Latitude: 44.188 N, Longitude: 89.938 W

Date/Time: May 2, 2018/1:14 PM (photo time is estimated)





143: DSC\_4954

Description: Using Geoprobe to create boreholes to collect groundwater samples at E2

Location: E2, Latitude: 44.185 N, Longitude: 89.948 W

Date/Time: May 2, 2018/1:20 PM (photo time is estimated)



144: DSC\_4955

Description: Using Geoprobe to create boreholes to collect groundwater samples at E2

Location: E2, Latitude: 44.185 N, Longitude: 89.948 W

Date/Time: May 2, 2018/1:20 PM (photo time is estimated)



145: DSC\_4956

Description: Groundwater samples collected at depths a and b at E2

Location: E2, Latitude: 44.185 N, Longitude: 89.948 W

Date/Time: May 2, 2018/1:37 PM





146: DSC\_4957

Description: E2 borehole filled with bentonite

Location: E2, Latitude: 44.185 N, Longitude: 89.948 W

Date/Time: May 2, 2018/1:41 PM (photo time is estimated)



147: DSC\_4958

Description: Using Geoprobe to create boreholes to collect groundwater samples at E3

Location: E3, Latitude: 44.172 N, Longitude: 89.948 W

Date/Time: May 2, 2018/1:55 PM (photo time is estimated)





148: P5020056

Description: Groundwater samples collected at depths a and b at E3 and borehole filled with bentonite

Location: E3, Lat: 44.172 N, Longitude: 89.948 W

Date/Time: May 2, 2018/2:17 PM



149: P5020057

Description: Using Geoprobe to create boreholes to collect groundwater samples at E4

Location: E4, Latitude: 44.173 N, Longitude: 89.963 W

Date/Time: May 2, 2018/2:30 PM





150: P5020058

Description: Using Geoprobe to create boreholes to collect groundwater samples at E4

Location: E4, Latitude: 44.173 N, Longitude: 89.963 W

Date/Time: May 2, 2018/2:30 PM



151: P5020059

Description: Groundwater samples collected at depths a and b at E4

Location: E4, Latitude: 44.173 N, Longitude: 89.963 W

Date/Time: May 2, 2018/2:44 PM





152: P5020060

Description: E4 borehole filled with bentonite

Location: E4, Latitude: 44.173 N, Longitude: 89.963 W

Date/Time: May 2, 2018/2:48 PM



153: P5020061

Description: Accidental photo

Location: E4, Latitude: 44.173 N, Longitude: 89.963 W

Date/Time: May 2, 2018/3:01 PM





154: P5020062

Description: Using Geoprobe to create boreholes to collect groundwater samples at E5

Location: E5, Latitude: 44.173 N, Longitude: 89.978 W

Date/Time: May 2, 2018/3:02 PM



155: P5020063

Description: Groundwater samples collected at depths a and b at E5

Location: E5, Latitude: 44.173 N, Longitude: 89.978 W

Date/Time: May 2, 2018/3:15 PM





156: P5020064

Description: E5 borehole filled with bentonite

Location: E5, Latitude: 44.173 N, Longitude: 89.978 W

Date/Time: May 2, 2018/3:19 PM



157: P5020065

Description: Using Geoprobe to create boreholes to collect groundwater samples at E6

Location: E6, Latitude: 44.173 N, Longitude: 89.995 W

Date/Time: May 2, 2018/3:29 PM





158: P5020066

Description: Groundwater samples collected at depths a and b at E6

Location: E6, Latitude: 44.173 N, Longitude: 89.995 W

Date/Time: May 2, 2018/3:46 PM



159: P5020067

Description: E6 borehole filled with bentonite

Location: E6, Latitude: 44.173 N, Longitude: 89.995 W

Date/Time: May 2, 2018/3:50 PM





160: P5020068

Description: Using Geoprobe to create boreholes to collect groundwater samples at E7

Location: E7, Latitude: 44.169 N, Longitude: 90.011 W

Date/Time: May 2, 2018/3:58 PM



161: P5020069

Description: It appeared that this field had just been applied to.

Location: E7, Latitude: 44.169, Longitude: 90.011 W

Date/Time: May 2, 2018/4:34 PM





162: P5020070

Description: Taking samples at E7

Location: E7, Latitude: 44.169 N, Longitude: 90.011 W

Date/Time: May 2, 2018/4:35 PM



163: P5020071

Description: Taking samples at E7

Location: E7, Latitude: 44.169 N, Longitude: 90.011 W

Date/Time: May 2, 2018/4:35 PM





164: P5020072

Description: Groundwater samples collected at depths a and b at E7

Location: E7, Latitude: 44.169 N, Longitude: 90.011 W

Date/Time: May 2, 2018/4:36 PM



165: P5020073

Description: Groundwater samples collected at depths a and b at E7

Location: E7, Latitude: 44.169 N, Longitude: 90.011 W

Date/Time: May 2, 2018/4:37 PM





166: P5020074

Description: E7 borehole filled with bentonite

Location: E7, Latitude: 44.169 N, Longitude: 90.011 W

Date/Time: May 2, 2018/4:42 PM



167: P5020075

Description: Probe broke when using the Geoprobe to create the borehole

Location: E8, Latitude: 44.169 N, Longitude: 90.027 W

Date/Time: May 2, 2018/4:52 PM





168: P5020076

Description: Location of E8 after Geoprobe was removed for repair

Location: E8, Latitude: 44.169 N, Longitude: 90.027 W

Date/Time: May 2, 2018/5:32 PM



169: P5020077

Description: Location of E8 after Geoprobe was removed for repair

Location: E8, Latitude: 44.169 N, Longitude: 90.027 W

Date/Time: May 2, 2018/5:32 PM





170: P5030083

Description: Using Geoprobe to create boreholes to collect groundwater samples at E8

Location: E8, Latitude: 44.169 N, Longitude: 90.027 W

Date/Time: May 3, 2018/8:16 AM



171: P5030084

Description: Groundwater samples collected at depths a and b at E8

Location: E8, Latitude: 44.169 N, Longitude: 90.027 W

Date/Time: May 3, 2018/8:49 AM





172: P5030085

Description: E8 borehole filled with bentonite

Location: E8, Latitude: 44.169 N, Longitude: 90.027 W

Date/Time: May 3, 2018/9:00AM



173: P5030086

Description: E8 borehole filled with bentonite

Location: E8, Latitude: 44.169 N, Longitude: 90.027 W

Date/Time: May 3, 2018/9:00 AM





174: P5030087

Description: Using Geoprobe to create boreholes to collect groundwater samples at E9  
Location: E9, Latitude: 44.169 N, Longitude: 90.044 W  
Date/Time: May 3, 2018/9:22 AM



175: P5030088

Description: Using Geoprobe to create boreholes to collect groundwater samples at E9  
Location: E9, Latitude: 44.169 N, Longitude: 90.044 W  
Date/Time: May 3, 2018/9:22 AM





176: P5030089

Description: Groundwater samples collected at depths a and b at E9

Location: E9, Latitude: 44.169 N, Longitude: 90.044 W

Date/Time: May 3, 2018/10:03 AM



177: P5030090

Description: E8 borehole filled with bentonite

Location: E9, Latitude: 44.169 N, Longitude: 90.044 W

Date/Time: May 3, 2018/10:12 AM





178: P5030078

Description: Using Geoprobe to create boreholes to collect groundwater samples at E10

Location: E10, Latitude: 44.155 N, Longitude: 90.063 W

Date/Time: May 3, 2018/6:38 AM



179: P5030079

Description: Equipment blank samples taken at location E10

Location: E10, Latitude: 44.155 N, Longitude: 90.063 W

Date/Time: May 3, 2018/7:19 AM





180: P5030080

Description: Groundwater samples collected at depths a and b at E10

Location: E10, Latitude: 44.155 N, Longitude: 90.063 W

Date/Time: May 3, 2018/7:29 AM



181: P5030081

Description: Field blank samples taken at location E10

Location: E10, Latitude: 44.155 N, Longitude: 90.063 W

Date/Time: May 3, 2018/7:38 AM



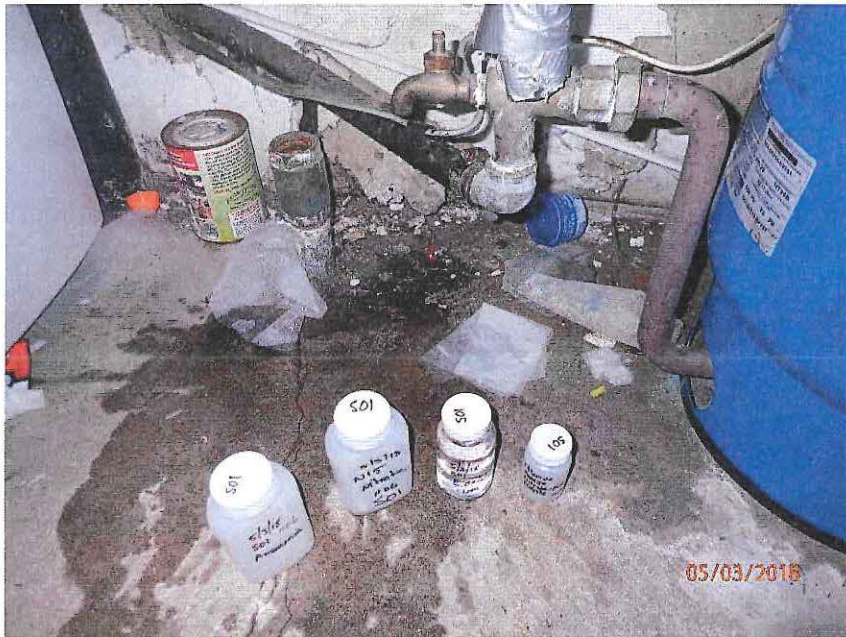


182: P5030082

Description: E10 borehole filled with bentonite

Location: E10, Latitude: 44.155 N, Longitude: 90.063 W

Date/Time: May 3, 2018/7:53 AM



183: P5030091

Description: Water samples taken from S01's basement bypass

Location: S01

Date/Time: May 3, 2018/11:13 AM





184: P5030092

Description: Septic collection field arrows depicts direction of flow of collection field

Location: SO1

Date/Time: May 3, 2018/11:15 AM



185: P5030093

Description: Private Well

Location: SO1

Date/Time: May 3, 2018/11:16 AM





186: P5030094

Description: Private Well

Location: SO1

Date/Time: May 3, 2018/11:16 AM



187: P5030095

Description: Septic Tank

Location: SO1

Date/Time: May 3, 2018/11:16 AM



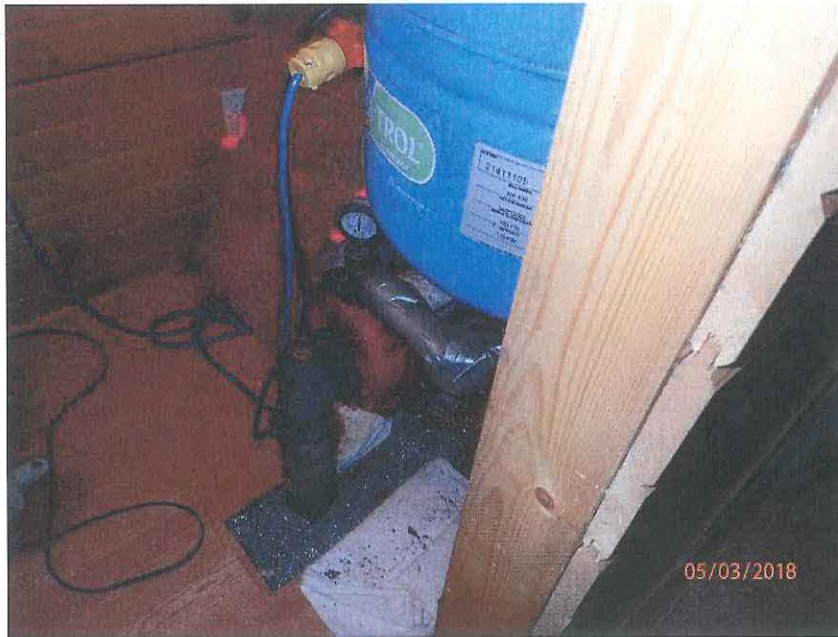


188: P5030096

Description: Water samples taken from S02's kitchen sink

Location: SO2

Date/Time: May 3, 2018/11:38 AM



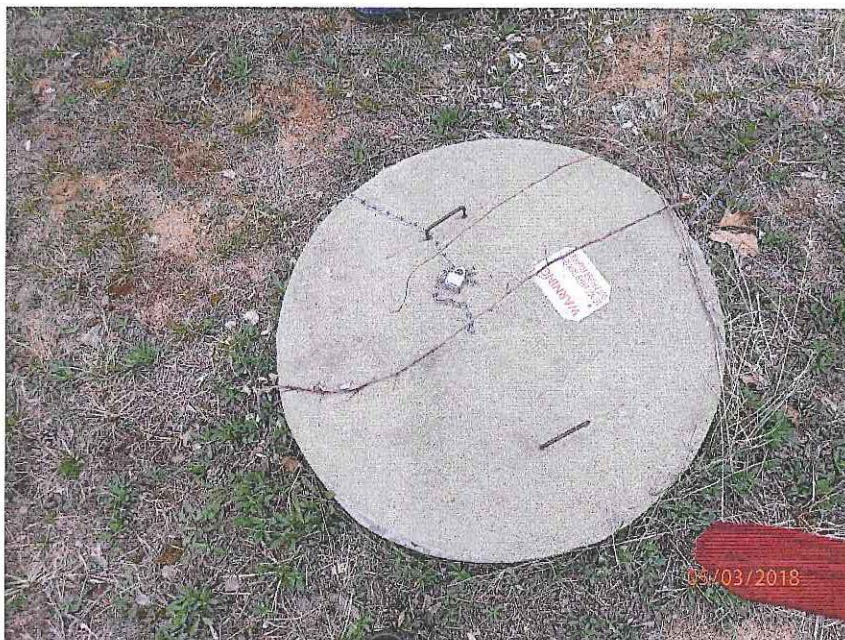
189: P5030097

Description: Accidental Photo

Location: SO2

Date/Time: May 3, 2018/11:47 AM





190: P5030098  
Description: Septic Tank  
Location: SO2  
Date/Time: May 3, 2018/11:48 AM



191: P5030099  
Description: Septic Collection Field  
Location: SO2  
Date/Time: May 3, 2018/11:48 AM





212: P5030100

Description: Water samples taken at SO4's bypass in the basement

Location: SO4

Date/Time: May 3, 2018/12:14 PM



193: P5030101

Description: Private Well

Location: SO4

Date/Time: May 3, 2018/12:16 PM





194: P5030102  
Description: Septic Tank  
Location: SO4  
Date/Time: May 3, 2018/12:17 PM



195: P5030103  
Description: Septic Collection Field  
Location: SO4  
Date/Time: May 3, 2018/12:29 PM





196: P5030104

Description: Water samples taken at SO5's outside spigot

Location: SO5

Date/Time: May 3, 2018/12:47 PM



197: P5030105

Description: Septic Collection Field

Location: SO5

Date/Time: May 3, 2018/12:49 PM





19822: P5030106

Description: Private Well

Location: SO5

Date/Time: May 3, 2018/12:50 PM



199: P5030107

Description: Private Well

Location: SO3

Date/Time: May 3, 2018/1:09 PM





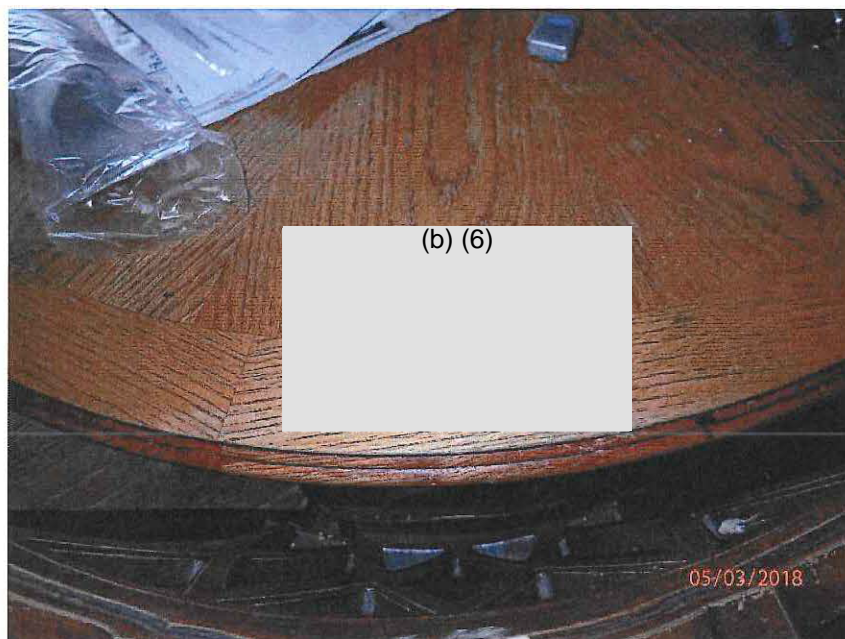
200: P5030108  
Description: Accidental photo  
Location: SO3  
Date/Time: May 3, 2018/1:09 PM



201: P5030109  
Description: Septic collection field  
Location: SO3  
Date/Time: May 3, 2018/1:09 PM



202: P5030110  
Description: Water samples taken from S03's kitchen sink  
Location: S03  
Date/Time: May 3, 2018/1:15 PM



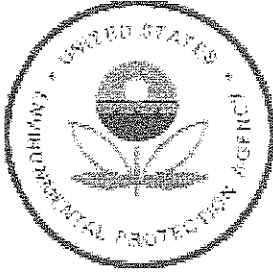
203: P5030111  
Description: Bussines card for (b) (6)  
Location: S03  
Date/Time: May 3, 2018/1:16 PM



**APPENDIX 2:  
LABORATORY ANALYSES  
FROM  
CHICAGO REGIONAL  
LABORATORY,  
UNIVERSITY OF NEBRASKA  
LABORATORY,  
AND  
WISCONSIN STATE LABORATORY  
OF HYGIENE**







UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5 CHICAGO REGIONAL LABORATORY  
536 SOUTH CLARK STREET  
CHICAGO, ILLINOIS 60605

Date: 5/29/2018  
Subject: Review of Region 5 Data for Central Sands  
To: Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604  
From: Amanda Wroble, Chemist  
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with the EPA QA/G-8 *Guidance on Environmental Data Verification and Data Validation* and the U.S. EPA Region 5 RMD QMP, CRL performs data verification on all the data generated internally. CRL does not perform data validation or quality assessment procedures.

This report was reviewed and the information provided herein accurately represents the analysis performed.

*Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.*

Attached are Results for: Central Sands

Analyses included in this report:

---

Metals ICP-AES (w)

Report Name: 1805005 Metals ICP-AES (w) FINAL May 29 18 1055



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
 Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
 77 West Jackson Boulevard  
 Chicago IL, 60604

Project: Central Sands  
 Project Number: CB022018  
 Project Manager: Cheryl Burdett

Reported:  
 May-29-18 10:55

Accredited Analyses included in this Report



Method: EPA 200.7 in Water  
 Analysis: Metals ICP-AES (w)  
 Analyte

Certifications

Aluminum	ISO/IEC 17025:2005
Aluminum hi	ISO/IEC 17025:2005
Antimony	ISO/IEC 17025:2005
Arsenic	ISO/IEC 17025:2005
Barium	ISO/IEC 17025:2005
Beryllium	ISO/IEC 17025:2005
Boron	ISO/IEC 17025:2005
Cadmium	ISO/IEC 17025:2005
Calcium	ISO/IEC 17025:2005
Chromium	ISO/IEC 17025:2005
Cobalt	ISO/IEC 17025:2005
Copper	ISO/IEC 17025:2005
Iron	ISO/IEC 17025:2005
Iron hi	ISO/IEC 17025:2005
Lead	ISO/IEC 17025:2005
Lithium	ISO/IEC 17025:2005
Magnesium	ISO/IEC 17025:2005
Magnesium hi	ISO/IEC 17025:2005
Manganese	ISO/IEC 17025:2005
Molybdenum	ISO/IEC 17025:2005
Nickel	ISO/IEC 17025:2005
Potassium	ISO/IEC 17025:2005
Selenium	ISO/IEC 17025:2005
Silver	ISO/IEC 17025:2005
Sodium	ISO/IEC 17025:2005
Strontium	ISO/IEC 17025:2005





Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
 Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
---	---	------------------------------

Accredited Analyses included in this Report



Method: EPA 200.7 in Water  
 Analysis: Metals ICP-AES (w)  
 Analyte

Certifications

Thallium	ISO/IEC 17025:2005
Tin	ISO/IEC 17025:2005
Titanium	ISO/IEC 17025:2005
Vanadium	ISO/IEC 17025:2005
Zinc	ISO/IEC 17025:2005

Analytes not listed above are not accredited by ANAB.



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WBCA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-29-18 10:55

## ANALYSIS CASE NARRATIVE

### GENERAL INFORMATION

CRL received water samples for trace metals analysis by inductively coupled plasma-atomic emission spectroscopy (ICP-AES). The assigned work order(s) and sample numbers to which this narrative applies are listed below:

Work Order (number of samples)	Batch Number
1805005 (54)	B18E013, B18E014, B18E015

The designated analyst for these samples, Amanda Wroble, can be reached at 312.353.0375. All holding times were met.

Many of samples arrived at CRL underpreserved. Therefore, 1:1 nitric acid was added to each affected sample to pH < 2. At least 24 hours elapsed before subsampling began. Per pen & ink - 14097, the samples were not homogenized before subsampling. The samples were digested using CRL SOP METALS025, Rev. 3 (EPA Method 200.2) and analyzed using CRL SOP METALS003A, Rev. 4 (EPA Method 200.7/SW-846 Method 6010D).

### SAMPLE ANALYSIS AND RESULTS

The data reported herein meet the requirements referenced in the SOP used for analysis and any laboratory specifications stated in the *Quality Assurance Project Plan/Sampling Plan for Environmental Compliance Assessment for Central Sands*, dated April 2018.

Calcium and nickel results were reported over two analytical runs due to quality control audit failures within each run.

### QUALITY CONTROL

All quality control audits that bracketed samples to which this narrative applies and the run in which a specific sample/analyte was reported were within CRL limits for the requested analytes or did not result in qualification of the data.





Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-29-18 10:55

Laboratory Control Solution Measured (HiLCM): Recovery Limit =  $100 \pm 10\%$ . Run 1 calcium HiLCM #6 was outside the audit limit with a recovery of 89.4%. Bracketing calcium results that were reported from Run 1 (1805005-34 thru -36) were flagged "L" for potential low bias.

Laboratory Duplicate (DUP): Relative Percent Difference (RPD) Limit  $\leq 20\%$ . Titanium RPDs for B18E013-DUP1 (26.2%) and B18E013-DUP2 (24.8%) were outside the duplicate RPD limit. The titanium results for their source samples 1805005-05 and 1805005-11 were flagged "J" for imprecision.

Matrix Spike (MS): Recovery Limit =  $100 \pm 25\%$ . Titanium recovery for B18E014-MS1 (128%) and copper recovery for B18E015-MS1 (129%) were outside the matrix spike audit limit. The copper result for source sample 1805005-41 was flagged "K" for potential high bias.

The titanium result for source sample 1805005-21 was flagged "J" for imprecision based on an elevated but acceptable RPD for B18E014-DUP1 (20.0%) in addition to the high matrix spike recovery. A similar trend (RPD failure and elevated but acceptable matrix spike recovery) is noted for the titanium duplicate excursions mentioned above.



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

**WORK ORDER**

Printed: 5/3/2018 3:33:25PM

**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

<b>Report To:</b> Cheryl Burdett Water Division, WECA Region 5	77 West Jackson Boulevard Chicago, IL 60604	Phone: (312) 886-1463 Fax: (312) 886-2001
--	--	--

<b>Date Due:</b> Jun-04-18 15:00 (32 day TAT)	<b>Date Received:</b> May-02-18 09:55
<b>Received By:</b> Colin Breslin	<b>Date Logged In:</b> May-03-18 09:30
<b>Logged In By:</b> Robert Snyder	

<b>Samples Received at:</b>	<b>Work Order Comments:</b>
Sample tags/labels Yes	Anions: Chloride and nitrate as NO3
Seals intact Yes	Full List metals
Received on ice Yes	
Paperwork included Yes	

**Sample ID:** 1805005-01      **Sampled:** Apr-30-18 07:19      **Matrix:** Water  
**Sample Name:** A1a      **Sample Location/Comments:** 1st Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 07:19	pH = 2
Anions by IC	28	May-28-18 07:19	pH = 7
Metals ICP-AES (w)	180	Oct-27-18 07:19	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 07:19	pH = 2
Solids, TDS	7	May-07-18 07:19	pH = 7
TKN DA	28	May-28-18 07:19	pH = 2
TOC	28	May-28-18 07:19	pH = 2
Total Phosphorus DA	28	May-28-18 07:19	pH = 2

**Sample ID:** 1805005-02      **Sampled:** Apr-30-18 07:32      **Matrix:** Water  
**Sample Name:** A1b      **Sample Location/Comments:** 1st Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 07:32	pH = 2
Anions by IC	28	May-28-18 07:32	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 07:32	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 07:32	pH = 2



WORK ORDER

Printed: 5/3/2018 3:33:25PM

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
 Project: Central Sands

Project Manager: Angela Ockrassa Davis  
 Project Number: [none]

Sample ID: 1805005-02      Sampled: Apr-30-18 07:32      Matrix: Water

Sample Name: A1b      Sample Location/Comments: 1st Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-07-18 07:32	pH = 5
TKN DA	28	May-28-18 07:32	pH = 2
TOC	28	May-28-18 07:32	pH = 2
Total Phosphorus DA	28	May-28-18 07:32	pH = 2

Sample ID: 1805005-03      Sampled: Apr-30-18 08:15      Matrix: Water

Sample Name: A2a      Sample Location/Comments: 22nd Avenue North

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 08:15	pH = 2
Anions by IC	28	May-28-18 08:15	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 08:15	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 08:15	pH = 2
Solids, TDS	7	May-07-18 08:15	pH = 6
TKN DA	28	May-28-18 08:15	pH = 2
TOC	28	May-28-18 08:15	pH = 2
Total Phosphorus DA	28	May-28-18 08:15	pH = 2

Sample ID: 1805005-04      Sampled: Apr-30-18 08:24      Matrix: Water

Sample Name: A2b      Sample Location/Comments: 22nd Avenue North

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 08:24	pH = 2
Anions by IC	28	May-28-18 08:24	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 08:24	pH = 5
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 08:24	pH = 2
Solids, TDS	7	May-07-18 08:24	pH = 6
TKN DA	28	May-28-18 08:24	pH = 2
TOC	28	May-28-18 08:24	pH = 2
Total Phosphorus DA	28	May-28-18 08:24	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-05      Sampled: Apr-30-18 09:06      Matrix: Water      OC Source Sample MS/MSD

Sample Name: A3a      Sample Location/Comments: 2nd Street

Sample Comments: MS/MSD

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:06	pH = 2
Anions by IC	28	May-28-18 09:06	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:06	pH = 2
Solids, TDS	7	May-07-18 09:06	pH = 6
TKN DA	28	May-28-18 09:06	pH = 2
TOC	28	May-28-18 09:06	pH = 2
Total Phosphorus DA	28	May-28-18 09:06	pH = 2

Sample ID: 1805005-06      Sampled: Apr-30-18 09:14      Matrix: Water

Sample Name: A3b      Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:14	pH = 2
Anions by IC	28	May-28-18 09:14	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:14	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:14	pH = 2
Solids, TDS	7	May-07-18 09:14	pH = 6
TKN DA	28	May-28-18 09:14	pH = 2
TOC	28	May-28-18 09:14	pH = 2
Total Phosphorus DA	28	May-28-18 09:14	pH = 2

Sample ID: 1805005-07      Sampled: Apr-30-18 09:38      Matrix: Water

Sample Name: A4 Equip      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:38	pH = 2
Anions by IC	28	May-28-18 09:38	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 09:38	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:38	pH = 2
Solids, TDS	7	May-07-18 09:38	pH = 5
TKN DA	28	May-28-18 09:38	pH = 2
TOC	28	May-28-18 09:38	pH = 2



1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-07      Sampled: Apr-30-18 09:38      Matrix: Water

Sample Name: A4 Equip      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 09:38	pH = 2

Sample ID: 1805005-08      Sampled: Apr-30-18 09:06      Matrix: Water

Sample Name: A3a (Dup)      Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:06	pH = 2
Anions by IC	28	May-28-18 09:06	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:06	pH = 2
Solids, TDS	7	May-07-18 09:06	pH = 6
TKN DA	28	May-28-18 09:06	pH = 2
TOC	28	May-28-18 09:06	pH = 2
Total Phosphorus DA	28	May-28-18 09:06	pH = 2

Sample ID: 1805005-09      Sampled: Apr-30-18 09:49      Matrix: Water

Sample Name: FB1      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:49	pH = 2
Anions by IC	28	May-28-18 09:49	pH = 4
Metals ICP-AES (w)	180	Oct-27-18 09:49	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:49	pH = 2
Solids, TDS	7	May-07-18 09:49	pH = 4
TKN DA	28	May-28-18 09:49	pH = 2
TOC	28	May-28-18 09:49	pH = 2
Total Phosphorus DA	28	May-28-18 09:49	pH = 2

Sample ID: 1805005-10      Sampled: Apr-30-18 09:58      Matrix: Water

Sample Name: A4a      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:58	pH = 2
Anions by IC	28	May-28-18 09:58	pH = 6

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-10      Sampled: Apr-30-18 09:58      Matrix: Water

Sample Name: A4a

Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-27-18 09:58	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:58	pH = 2
Solids, TDS	7	May-07-18 09:58	pH = 6
TKN DA	28	May-28-18 09:58	pH = 2
TOC	28	May-28-18 09:58	pH = 2
Total Phosphorus DA	28	May-28-18 09:58	pH = 2

Sample ID: 1805005-11      Sampled: Apr-30-18 10:09      Matrix: Water

Sample Name: A4b

Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:09	pH = 2
Anions by IC	28	May-28-18 10:09	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:09	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:09	pH = 2
Solids, TDS	7	May-07-18 10:09	pH = 5
TKN DA	28	May-28-18 10:09	pH = 2
TOC	28	May-28-18 10:09	pH = 2
Total Phosphorus DA	28	May-28-18 10:09	pH = 2

Sample ID: 1805005-12      Sampled: Apr-30-18 10:51      Matrix: Water

Sample Name: B1a

Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:51	pH = 3
Anions by IC	28	May-28-18 10:51	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:51	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:51	pH = 3
Solids, TDS	7	May-07-18 10:51	pH = 5
TKN DA	28	May-28-18 10:51	pH = 3
TOC	28	May-28-18 10:51	pH = 3
Total Phosphorus DA	28	May-28-18 10:51	pH = 3



1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-13      Sampled: Apr-30-18 10:58      Matrix: Water

Sample Name: B1b

Sample Location/Comments: 20th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:58	pH = 2
Anions by IC	28	May-28-18 10:58	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:58	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:58	pH = 2
Solids, TDS	7	May-07-18 10:58	pH = 5
TKN DA	28	May-28-18 10:58	pH = 2
TOC	28	May-28-18 10:58	pH = 2
Total Phosphorus DA	28	May-28-18 10:58	pH = 2

Sample ID: 1805005-14      Sampled: Apr-30-18 11:40      Matrix: Water

Sample Name: B2a

Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 11:40	pH = 2
Anions by IC	28	May-28-18 11:40	pH = 7
Metals ICP-AES (w)	180	Oct-27-18 11:40	pH = 4
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 11:40	pH = 2
Solids, TDS	7	May-07-18 11:40	pH = 7
TKN DA	28	May-28-18 11:40	pH = 2
TOC	28	May-28-18 11:40	pH = 2
Total Phosphorus DA	28	May-28-18 11:40	pH = 2

Sample ID: 1805005-15      Sampled: Apr-30-18 11:48      Matrix: Water

Sample Name: B2b

Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 11:48	pH = 2
Anions by IC	28	May-28-18 11:48	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 11:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 11:48	pH = 2
Solids, TDS	7	May-07-18 11:48	pH = 5
TKN DA	28	May-28-18 11:48	pH = 2
TOC	28	May-28-18 11:48	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
 Project: Central Sands

Project Manager: Angela Ockrassa Davis  
 Project Number: [none]

Sample ID: 1805005-15      Sampled: Apr-30-18 11:48      Matrix: Water

Sample Name: B2b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 11:48	pH = 2

Sample ID: 1805005-16      Sampled: Apr-30-18 12:29      Matrix: Water

Sample Name: B3a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 12:29	pH = 2
Anions by IC	28	May-28-18 12:29	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 12:29	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 12:29	pH = 2
Solids, TDS	7	May-07-18 12:29	pH = 6
TKN DA	28	May-28-18 12:29	pH = 2
TOC	28	May-28-18 12:29	pH = 2
Total Phosphorus DA	28	May-28-18 12:29	pH = 2

Sample ID: 1805005-17      Sampled: Apr-30-18 12:36      Matrix: Water

Sample Name: B3b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 12:36	pH = 2
Anions by IC	28	May-28-18 12:36	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 12:36	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 12:36	pH = 2
Solids, TDS	7	May-07-18 12:36	pH = 5
TKN DA	28	May-28-18 12:36	pH = 2
TOC	28	May-28-18 12:36	pH = 2
Total Phosphorus DA	28	May-28-18 12:36	pH = 2

Sample ID: 1805005-18      Sampled: Apr-30-18 13:10      Matrix: Water

Sample Name: B4a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 13:10	pH = 2
Anions by IC	28	May-28-18 13:10	pH = 5



1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-18      Sampled: Apr-30-18 13:10      Matrix: Water

Sample Name: B4a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-27-18 13:10	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 13:10	pH = 2
Solids, TDS	7	May-07-18 13:10	pH = 5
TKN DA	28	May-28-18 13:10	pH = 2
TOC	28	May-28-18 13:10	pH = 2
Total Phosphorus DA	28	May-28-18 13:10	pH = 2

Sample ID: 1805005-19      Sampled: Apr-30-18 13:41      Matrix: Water

Sample Name: B4b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 13:41	pH = 2
Anions by IC	28	May-28-18 13:41	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 13:41	pH = 4
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 13:41	pH = 2
Solids, TDS	7	May-07-18 13:41	pH = 5
TKN DA	28	May-28-18 13:41	pH = 2
TOC	28	May-28-18 13:41	pH = 2
Total Phosphorus DA	28	May-28-18 13:41	pH = 2

Sample ID: 1805005-20      Sampled: Apr-30-18 15:02      Matrix: Water

Sample Name: C1a      Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 15:02	pH = 2
Anions by IC	28	May-28-18 15:02	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 15:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 15:02	pH = 2
Solids, TDS	7	May-07-18 15:02	pH = 5
TKN DA	28	May-28-18 15:02	pH = 2
TOC	28	May-28-18 15:02	pH = 2
Total Phosphorus DA	28	May-28-18 15:02	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
 Project: Central Sands

Project Manager: Angela Ockrassa Davis  
 Project Number: [none]

Sample ID: 1805005-21      Sampled: Apr-30-18 15:27      Matrix: Water

Sample Name: C1b

Sample Location/Comments: 2nd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 15:27	pH = 2
Anions by IC	28	May-28-18 15:27	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 15:27	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 15:27	pH = 2
Solids, TDS	7	May-07-18 15:27	pH = 5
TKN DA	28	May-28-18 15:27	pH = 2
TOC	28	May-28-18 15:27	pH = 2
Total Phosphorus DA	28	May-28-18 15:27	pH = 2

Sample ID: 1805005-22      Sampled: Apr-30-18 16:06      Matrix: Water

Sample Name: C2a

Sample Location/Comments: Nelson Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 16:06	pH = 2
Anions by IC	28	May-28-18 16:06	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 16:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 16:06	pH = 2
Solids, TDS	7	May-07-18 16:06	pH = 5
TKN DA	28	May-28-18 16:06	pH = 2
TOC	28	May-28-18 16:06	pH = 2
Total Phosphorus DA	28	May-28-18 16:06	pH = 2

Sample ID: 1805005-23      Sampled: Apr-30-18 16:14      Matrix: Water

Sample Name: C2b

Sample Location/Comments: Nelson Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 16:14	pH = 2
Anions by IC	28	May-28-18 16:14	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 16:14	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 16:14	pH = 2
Solids, TDS	7	May-07-18 16:14	pH = 5
TKN DA	28	May-28-18 16:14	pH = 2
TOC	28	May-28-18 16:14	pH = 2



WORK ORDER

Printed: 5/3/2018 3:33:25PM

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-23      Sampled: Apr-30-18 16:14      Matrix: Water

Sample Name: C2b      Sample Location/Comments: Nelson Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 16:14	pH = 2

Sample ID: 1805005-24      Sampled: Apr-30-18 14:16      Matrix: Water

Sample Name: C3a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 14:16	pH = 2
Anions by IC	28	May-28-18 14:16	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 14:16	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 14:16	pH = 2
Solids, TDS	7	May-07-18 14:16	pH = 5
TKN DA	28	May-28-18 14:16	pH = 2
TOC	28	May-28-18 14:16	pH = 2
Total Phosphorus DA	28	May-28-18 14:16	pH = 2

Sample ID: 1805005-25      Sampled: Apr-30-18 14:26      Matrix: Water

Sample Name: C3b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 14:26	pH = 2
Anions by IC	28	May-28-18 14:26	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 14:26	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 14:26	pH = 2
Solids, TDS	7	May-07-18 14:26	pH = 5
TKN DA	28	May-28-18 14:26	pH = 2
TOC	28	May-28-18 14:26	pH = 2
Total Phosphorus DA	28	May-28-18 14:26	pH = 2

Sample ID: 1805005-26      Sampled: May-01-18 06:29      Matrix: Water

Sample Name: C5Aa      Sample Location/Comments: CR G (Nelson Road)

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 06:29	pH = 2
Anions by IC	28	May-29-18 06:29	pH = 5

**WORK ORDER**

Printed: 5/3/2018 3:33:25PM

**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-26      **Sampled:** May-01-18 06:29      **Matrix:** Water

**Sample Name:** C5Aa      **Sample Location/Comments:** CR G (Nelson Road)

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 06:29	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 06:29	pH = 2
Solids, TDS	7	May-08-18 06:29	pH = 5
TKN DA	28	May-29-18 06:29	pH = 2
TOC	28	May-29-18 06:29	pH = 2
Total Phosphorus DA	28	May-29-18 06:29	pH = 2

**Sample ID:** 1805005-27      **Sampled:** May-01-18 06:43      **Matrix:** Water

**Sample Name:** C5Ab      **Sample Location/Comments:** CR G (Nelson Road)

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 06:43	pH = 2
Anions by IC	28	May-29-18 06:43	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 06:43	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 06:43	pH = 2
Solids, TDS	7	May-08-18 06:43	pH = 5
TKN DA	28	May-29-18 06:43	pH = 2
TOC	28	May-29-18 06:43	pH = 2
Total Phosphorus DA	28	May-29-18 06:43	pH = 2

**Sample ID:** 1805005-28      **Sampled:** May-01-18 07:06      **Matrix:** Water

**Sample Name:** C6a      **Sample Location/Comments:** CR G (Nelson Road)

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:06	pH = 2
Anions by IC	28	May-29-18 07:06	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 07:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:06	pH = 2
Solids, TDS	7	May-08-18 07:06	pH = 6
TKN DA	28	May-29-18 07:06	pH = 2
TOC	28	May-29-18 07:06	pH = 2
Total Phosphorus DA	28	May-29-18 07:06	pH = 2



1805005

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b> Project: <b>Central Sands</b>	Project Manager: <b>Angela Ockrassa Davis</b> Project Number: <b>[none]</b>
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Sample ID: 1805005-29      Sampled: May-01-18 07:15      Matrix: Water

Sample Name: C6b      Sample Location/Comments: CR G (Nelson Road)

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:15	pH = 3
Anions by IC	28	May-29-18 07:15	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 07:15	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:15	pH = 3
Solids, TDS	7	May-08-18 07:15	pH = 5
TKN DA	28	May-29-18 07:15	pH = 3
TOC	28	May-29-18 07:15	pH = 3
Total Phosphorus DA	28	May-29-18 07:15	pH = 3

Sample ID: 1805005-30      Sampled: May-01-18 07:48      Matrix: Water

Sample Name: C7a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:48	pH = 2
Anions by IC	28	May-29-18 07:48	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 07:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:48	pH = 2
Solids, TDS	7	May-08-18 07:48	pH = 6
TKN DA	28	May-29-18 07:48	pH = 2
TOC	28	May-29-18 07:48	pH = 2
Total Phosphorus DA	28	May-29-18 07:48	pH = 2

Sample ID: 1805005-31      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:02	pH = 2
Anions by IC	28	May-29-18 08:02	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:02	pH = 2
Solids, TDS	7	May-08-18 08:02	pH = 5
TKN DA	28	May-29-18 08:02	pH = 2
TOC	28	May-29-18 08:02	pH = 2

1805005

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-31      **Sampled:** May-01-18 08:02      **Matrix:** Water

**Sample Name:** C7b      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 08:02	pH = 2

**Sample ID:** 1805005-32      **Sampled:** May-01-18 07:39      **Matrix:** Water

**Sample Name:** FB2      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:39	pH = 2
Anions by IC	28	May-29-18 07:39	pH = 4
Metals ICP-AES (w)	180	Oct-28-18 07:39	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:39	pH = 2
Solids, TDS	7	May-08-18 07:39	pH = 4
TKN DA	28	May-29-18 07:39	pH = 2
TOC	28	May-29-18 07:39	pH = 2
Total Phosphorus DA	28	May-29-18 07:39	pH = 2

**Sample ID:** 1805005-33      **Sampled:** May-01-18 07:38      **Matrix:** Water

**Sample Name:** C7 equip      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:38	pH = 2
Anions by IC	28	May-29-18 07:38	pH = 4
Metals ICP-AES (w)	180	Oct-28-18 07:38	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:38	pH = 2
Solids, TDS	7	May-08-18 07:38	pH = 4
TKN DA	28	May-29-18 07:38	pH = 2
TOC	28	May-29-18 07:38	pH = 2
Total Phosphorus DA	28	May-29-18 07:38	pH = 2

**Sample ID:** 1805005-34      **Sampled:** May-01-18 08:02      **Matrix:** Water

**Sample Name:** C7 Dup      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:02	pH = 2
Anions by IC	28	May-29-18 08:02	pH = 5



1805005

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b> Project: <b>Central Sands</b>	Project Manager: <b>Angela Ockrassa Davis</b> Project Number: <b>[none]</b>
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Sample ID: 1805005-34      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7 Dup      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 08:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:02	pH = 2
Solids, TDS	7	May-08-18 08:02	pH = 5
TKN DA	28	May-29-18 08:02	pH = 2
TOC	28	May-29-18 08:02	pH = 2
Total Phosphorus DA	28	May-29-18 08:02	pH = 2

Sample ID: 1805005-35      Sampled: May-01-18 08:35      Matrix: Water

Sample Name: C8a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:35	pH = 2
Anions by IC	28	May-29-18 08:35	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:35	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:35	pH = 2
Solids, TDS	7	May-08-18 08:35	pH = 5
TKN DA	28	May-29-18 08:35	pH = 2
TOC	28	May-29-18 08:35	pH = 2
Total Phosphorus DA	28	May-29-18 08:35	pH = 2

Sample ID: 1805005-36      Sampled: May-01-18 08:42      Matrix: Water

Sample Name: C8b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:42	pH = 2
Anions by IC	28	May-29-18 08:42	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:42	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:42	pH = 2
Solids, TDS	7	May-08-18 08:42	pH = 5
TKN DA	28	May-29-18 08:42	pH = 2
TOC	28	May-29-18 08:42	pH = 2
Total Phosphorus DA	28	May-29-18 08:42	pH = 2

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US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> [none]
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**Sample ID:** 1805005-37      **Sampled:** May-01-18 10:00      **Matrix:** Water

**Sample Name:** C9a      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 10:00	pH = 2
Anions by IC	28	May-29-18 10:00	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 10:00	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 10:00	pH = 2
Solids, TDS	7	May-08-18 10:00	pH = 5
TKN DA	28	May-29-18 10:00	pH = 2
TOC	28	May-29-18 10:00	pH = 2
Total Phosphorus DA	28	May-29-18 10:00	pH = 2

**Sample ID:** 1805005-38      **Sampled:** May-01-18 10:21      **Matrix:** Water

**Sample Name:** C9b      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 10:21	pH = 2
Anions by IC	28	May-29-18 10:21	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 10:21	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 10:21	pH = 2
Solids, TDS	7	May-08-18 10:21	pH = 5
TKN DA	28	May-29-18 10:21	pH = 2
TOC	28	May-29-18 10:21	pH = 2
Total Phosphorus DA	28	May-29-18 10:21	pH = 2

**Sample ID:** 1805005-39      **Sampled:** May-01-18 11:05      **Matrix:** Water

**Sample Name:** C10a      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:05	pH = 2
Anions by IC	28	May-29-18 11:05	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 11:05	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:05	pH = 2
Solids, TDS	7	May-08-18 11:05	pH = 6
TKN DA	28	May-29-18 11:05	pH = 2
TOC	28	May-29-18 11:05	pH = 2



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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-39      Sampled: May-01-18 11:05      Matrix: Water

Sample Name: C10a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 11:05	pH = 2

Sample ID: 1805005-40      Sampled: May-01-18 11:12      Matrix: Water

Sample Name: C10b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:12	pH = 2
Anions by IC	28	May-29-18 11:12	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 11:12	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:12	pH = 2
Solids, TDS	7	May-08-18 11:12	pH = 5
TKN DA	28	May-29-18 11:12	pH = 2
TOC	28	May-29-18 11:12	pH = 2
Total Phosphorus DA	28	May-29-18 11:12	pH = 2

Sample ID: 1805005-41      Sampled: May-01-18 11:46      Matrix: Water

Sample Name: C11a      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:46	pH = 3
Anions by IC	28	May-29-18 11:46	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 11:46	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:46	pH = 3
Solids, TDS	7	May-08-18 11:46	pH = 6
TKN DA	28	May-29-18 11:46	pH = 3
TOC	28	May-29-18 11:46	pH = 3
Total Phosphorus DA	28	May-29-18 11:46	pH = 3

Sample ID: 1805005-42      Sampled: May-01-18 11:52      Matrix: Water

Sample Name: C11b      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:52	pH = 2
Anions by IC	28	May-29-18 11:52	pH = 5

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## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-42      Sampled: May-01-18 11:52      Matrix: Water

Sample Name: C11b      Sample Location/Comments: 20th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 11:52	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:52	pH = 2
Solids, TDS	7	May-08-18 11:52	pH = 5
TKN DA	28	May-29-18 11:52	pH = 2
TOC	28	May-29-18 11:52	pH = 2
Total Phosphorus DA	28	May-29-18 11:52	pH = 2

Sample ID: 1805005-43      Sampled: May-01-18 12:41      Matrix: Water

Sample Name: C12a      Sample Location/Comments: 19th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 12:41	pH = 2
Anions by IC	28	May-29-18 12:41	pH = 7
Metals ICP-AES (w)	180	Oct-28-18 12:41	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 12:41	pH = 2
Solids, TDS	7	May-08-18 12:41	pH = 7
TKN DA	28	May-29-18 12:41	pH = 2
TOC	28	May-29-18 12:41	pH = 2
Total Phosphorus DA	28	May-29-18 12:41	pH = 2

Sample ID: 1805005-44      Sampled: May-01-18 12:47      Matrix: Water

Sample Name: C12b      Sample Location/Comments: 19th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 12:47	pH = 2
Anions by IC	28	May-29-18 12:47	pH = 7
Metals ICP-AES (w)	180	Oct-28-18 12:47	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 12:47	pH = 2
Solids, TDS	7	May-08-18 12:47	pH = 7
TKN DA	28	May-29-18 12:47	pH = 2
TOC	28	May-29-18 12:47	pH = 2
Total Phosphorus DA	28	May-29-18 12:47	pH = 2



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US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b> Project: <b>Central Sands</b>	Project Manager: <b>Angela Ockrassa Davis</b> Project Number: <b>[none]</b>
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Sample ID: 1805005-45      Sampled: May-01-18 13:30      Matrix: Water

Sample Name: C13a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 13:30	pH = 3
Anions by IC	28	May-29-18 13:30	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 13:30	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 13:30	pH = 3
Solids, TDS	7	May-08-18 13:30	pH = 6
TKN DA	28	May-29-18 13:30	pH = 3
TOC	28	May-29-18 13:30	pH = 3
Total Phosphorus DA	28	May-29-18 13:30	pH = 3

Sample ID: 1805005-46      Sampled: May-01-18 13:39      Matrix: Water

Sample Name: C13b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 13:39	pH = 2
Anions by IC	28	May-29-18 13:39	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 13:39	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 13:39	pH = 2
Solids, TDS	7	May-08-18 13:39	pH = 5
TKN DA	28	May-29-18 13:39	pH = 2
TOC	28	May-29-18 13:39	pH = 2
Total Phosphorus DA	28	May-29-18 13:39	pH = 2

Sample ID: 1805005-47      Sampled: May-01-18 14:19      Matrix: Water

Sample Name: D1a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 14:19	pH = 2
Anions by IC	28	May-29-18 14:19	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 14:19	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 14:19	pH = 2
Solids, TDS	7	May-08-18 14:19	pH = 6
TKN DA	28	May-29-18 14:19	pH = 2
TOC	28	May-29-18 14:19	pH = 2

1805005

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-47      **Sampled:** May-01-18 14:19      **Matrix:** Water

**Sample Name:** D1a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 14:19	pH = 2

**Sample ID:** 1805005-48      **Sampled:** May-01-18 14:26      **Matrix:** Water

**Sample Name:** D1b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 14:26	pH = 3
Anions by IC	28	May-29-18 14:26	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 14:26	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 14:26	pH = 3
Solids, TDS	7	May-08-18 14:26	pH = 5
TKN DA	28	May-29-18 14:26	pH = 3
TOC	28	May-29-18 14:26	pH = 3
Total Phosphorus DA	28	May-29-18 14:26	pH = 3

**Sample ID:** 1805005-49      **Sampled:** May-01-18 15:00      **Matrix:** Water

**Sample Name:** D2a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:00	pH = 3
Anions by IC	28	May-29-18 15:00	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:00	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:00	pH = 3
Solids, TDS	7	May-08-18 15:00	pH = 6
TKN DA	28	May-29-18 15:00	pH = 3
TOC	28	May-29-18 15:00	pH = 3
Total Phosphorus DA	28	May-29-18 15:00	pH = 3

**Sample ID:** 1805005-50      **Sampled:** May-01-18 15:06      **Matrix:** Water

**Sample Name:** D2b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:06	pH = 2
Anions by IC	28	May-29-18 15:06	pH = 6



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## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-50      Sampled: May-01-18 15:06      Matrix: Water

Sample Name: D2b      Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 15:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:06	pH = 2
Solids, TDS	7	May-08-18 15:06	pH = 6
TKN DA	28	May-29-18 15:06	pH = 2
TOC	28	May-29-18 15:06	pH = 2
Total Phosphorus DA	28	May-29-18 15:06	pH = 2

Sample ID: 1805005-51      Sampled: May-01-18 15:41      Matrix: Water

Sample Name: D3a      Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:41	pH = 2
Anions by IC	28	May-29-18 15:41	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:41	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:41	pH = 2
Solids, TDS	7	May-08-18 15:41	pH = 6
TKN DA	28	May-29-18 15:41	pH = 2
TOC	28	May-29-18 15:41	pH = 2
Total Phosphorus DA	28	May-29-18 15:41	pH = 2

Sample ID: 1805005-52      Sampled: May-01-18 15:48      Matrix: Water

Sample Name: D3b      Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:48	pH = 2
Anions by IC	28	May-29-18 15:48	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 15:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:48	pH = 2
Solids, TDS	7	May-08-18 15:48	pH = 5
TKN DA	28	May-29-18 15:48	pH = 2
TOC	28	May-29-18 15:48	pH = 2
Total Phosphorus DA	28	May-29-18 15:48	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b> Project: <b>Central Sands</b>	Project Manager: <b>Angela Ockrassa Davis</b> Project Number: <b>[none]</b>
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Sample ID: 1805005-53      Sampled: May-01-18 16:19      Matrix: Water

Sample Name: D4a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 16:19	pH = 2
Anions by IC	28	May-29-18 16:19	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 16:19	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 16:19	pH = 2
Solids, TDS	7	May-08-18 16:19	pH = 6
TKN DA	28	May-29-18 16:19	pH = 2
TOC	28	May-29-18 16:19	pH = 2
Total Phosphorus DA	28	May-29-18 16:19	pH = 2

Sample ID: 1805005-54      Sampled: May-01-18 16:26      Matrix: Water

Sample Name: D4b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 16:26	pH = 2
Anions by IC	28	May-29-18 16:26	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 16:26	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 16:26	pH = 2
Solids, TDS	7	May-08-18 16:26	pH = 5
TKN DA	28	May-29-18 16:26	pH = 2
TOC	28	May-29-18 16:26	pH = 2
Total Phosphorus DA	28	May-29-18 16:26	pH = 2

WORK ORDER MEMO: NCR 14118

PROJECT COMMENTS: Anions: Chloride, fluoride, bromide, sulfate.  
Full List metals

REVIEWED

By Amanda Wroble at 3:35 pm, May 03, 2018

Reviewed By \_\_\_\_\_ Date \_\_\_\_\_





# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312)353-8370 Fax: (312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

A1a (1805005-01)      Matrix: Water      Sampled: Apr-30-18 07:19      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	11.9			0.200	mg/L	1	B18E013	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.462			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	51.4			0.200	"	"	"	"	"
Chromium	0.472			0.005	"	"	"	"	"
Cobalt	0.0270			0.006	"	"	"	"	"
Copper	0.316			0.0200	"	"	"	"	"
Iron	115			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	22.1			0.200	"	"	"	"	"
Manganese	2.11			0.008	"	"	"	"	"
Molybdenum	0.0219			0.0120	"	"	"	"	"
Nickel	0.120			0.0120	"	"	"	"	"
Potassium	5.99			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	4.81			0.400	"	"	"	"	"
Strontium	0.0951			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0529			0.006	"	"	"	"	"
Vanadium	0.0551			0.005	"	"	"	"	"
Zinc	0.436			0.0300	"	"	"	"	"



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**A1b (1805005-02) Matrix: Water Sampled: Apr-30-18 07:32 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	8.63			0.200	mg/L	1	B18E013	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.363			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	16.5			0.200	"	"	"	"	"
Chromium	0.403			0.005	"	"	"	"	"
Cobalt	0.0225			0.006	"	"	"	"	"
Copper	0.254			0.0200	"	"	"	"	"
Iron	43.1			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	5.13			0.200	"	"	"	"	"
Manganese	1.03			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0694			0.0120	"	"	"	"	"
Potassium	3.11			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	3.14			0.400	"	"	"	"	"
Strontium	0.0829			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0316			0.006	"	"	"	"	"
Vanadium	0.0204			0.005	"	"	"	"	"
Zinc	0.291			0.0300	"	"	"	"	"





**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

A2a (1805005-03)      Matrix: Water      Sampled: Apr-30-18 08:15      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	12.1			0.200	mg/L	1	B18E013	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.352			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	51.9			0.200	"	"	"	"	"
Chromium	0.453			0.005	"	"	"	"	"
Cobalt	0.0206			0.006	"	"	"	"	"
Copper	0.304			0.0200	"	"	"	"	"
Iron	98.4			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	24.6			0.200	"	"	"	"	"
Manganese	2.27			0.008	"	"	"	"	"
Molybdenum	0.0251			0.0120	"	"	"	"	"
Nickel	0.114			0.0120	"	"	"	"	"
Potassium	5.54			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	4.39			0.400	"	"	"	"	"
Strontium	0.0861			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0334			0.006	"	"	"	"	"
Vanadium	0.0490			0.005	"	"	"	"	"
Zinc	0.157			0.0300	"	"	"	"	"



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

A2b (1805005-04)      Matrix: Water      Sampled: Apr-30-18 08:24      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	3.05			0.200	mg/L	1	B18E013	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.394			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	174			0.200	"	"	"	"	"
Chromium	0.0351			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	0.0295			0.0200	"	"	"	"	"
Iron	30.7			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	72.2			0.200	"	"	"	"	"
Manganese	3.00			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0271			0.0120	"	"	"	"	"
Potassium	2.04			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	3.23			0.400	"	"	"	"	"
Strontium	0.139			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0375			0.006	"	"	"	"	"
Vanadium	0.0151			0.005	"	"	"	"	"
Zinc	0.0724			0.0300	"	"	"	"	"





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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### Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

A3a (1805005-05)      Matrix: Water      Sampled: Apr-30-18 09:06      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	3.89			0.200	mg/L	1	B18E013	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.203			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	78.8			0.200	"	"	"	"	"
Chromium	0.124			0.005	"	"	"	"	"
Cobalt	0.0107			0.006	"	"	"	"	"
Copper	0.123			0.0200	"	"	"	"	"
Iron	51.6			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	43.1			0.200	"	"	"	"	"
Manganesc	2.26			0.008	"	"	"	"	"
Molybdenum	0.0154			0.0120	"	"	"	"	"
Nickel	0.0447			0.0120	"	"	"	"	"
Potassium	2.83			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	2.56			0.400	"	"	"	"	"
Strontium	0.0760			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0271	J		0.006	"	"	"	"	"
Vanadium	0.0258			0.005	"	"	"	"	"
Zinc	0.0846			0.0300	"	"	"	"	"



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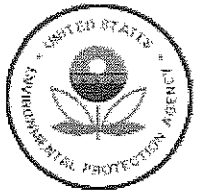
Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

A3b (1805005-06)      Matrix: Water      Sampled: Apr-30-18 09:14      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	14.3			0.200	mg/L	1	B18E013	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.559			0.003	"	"	"	"	"
Beryllium	0.0022			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	27.5			0.200	"	"	"	"	"
Chromium	0.572			0.005	"	"	"	"	"
Cobalt	0.0410			0.006	"	"	"	"	"
Copper	0.336			0.0200	"	"	"	"	"
Iron	81.4			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	9.70			0.200	"	"	"	"	"
Manganese	2.45			0.008	"	"	"	"	"
Molybdenum	0.0138			0.0120	"	"	"	"	"
Nickel	0.117			0.0120	"	"	"	"	"
Potassium	5.23			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	3.20			0.400	"	"	"	"	"
Strontium	0.0934			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0367			0.006	"	"	"	"	"
Vanadium	0.0241			0.005	"	"	"	"	"
Zinc	0.299			0.0300	"	"	"	"	"





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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

A4 Equip (1805005-07)      Matrix: Water      Sampled: Apr-30-18 09:38      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminium	U			0.200	mg/L	1	B18E013	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	U			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	0.240			0.200	"	"	"	"	"
Chromium	U			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	U			0.0200	"	"	"	"	"
Iron	0.0981			0.0800	"	"	"	"	"
Lead	U			0.0500	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	U			0.200	"	"	"	"	"
Manganese	U			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	U			0.0120	"	"	"	"	"
Potassium	U			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	U			0.400	"	"	"	"	"
Strontium	U			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	U			0.006	"	"	"	"	"
Vanadium	U			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

A3a (Dup) (1805005-08)

Matrix: Water

Sampled: Apr-30-18 09:06

Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	3.62			0.200	mg/L	1	B18E013	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.264			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	84.6			0.200	"	"	"	"	"
Chromium	0.114			0.005	"	"	"	"	"
Cobalt	0.0113			0.006	"	"	"	"	"
Copper	0.0952			0.0200	"	"	"	"	"
Iron	57.3			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	45.7			0.200	"	"	"	"	"
Manganese	2.22			0.008	"	"	"	"	"
Molybdenum	0.0192			0.0120	"	"	"	"	"
Nickel	0.0554			0.0120	"	"	"	"	"
Potassium	3.51			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	2.79			0.400	"	"	"	"	"
Strontium	0.0874			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0314			0.006	"	"	"	"	"
Vanadium	0.0251			0.005	"	"	"	"	"
Zinc	0.0866			0.0300	"	"	"	"	"





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Chicago Regional Laboratory**

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

FBI (1805005-09) Matrix: Water Sampled: Apr-30-18 09:49 Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	U			0.200	mg/L	1	B18E013	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	U			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	U			0.200	"	"	"	"	"
Chromium	U			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	U			0.0200	"	"	"	"	"
Iron	U			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	U			0.200	"	"	"	"	"
Manganese	U			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	U			0.0120	"	"	"	"	"
Potassium	U			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	U			0.400	"	"	"	"	"
Strontium	U			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	U			0.006	"	"	"	"	"
Vanadium	U			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

A4a (1805005-10) Matrix: Water Sampled: Apr-30-18 09:58 Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	7.10			0.200	mg/L	1	B18E013	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.309			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	22.1			0.200	"	"	"	"	"
Chromium	0.160			0.005	"	"	"	"	"
Cobalt	0.0186			0.006	"	"	"	"	"
Copper	0.225			0.0200	"	"	"	"	"
Iron	38.3			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	6.73			0.200	"	"	"	"	"
Manganese	0.757			0.008	"	"	"	"	"
Molybdenum	0.0127			0.0120	"	"	"	"	"
Nickel	0.0673			0.0120	"	"	"	"	"
Potassium	3.69			0.800	"	"	"	"	"
Scelenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	3.25			0.400	"	"	"	"	"
Strontium	0.0756			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0134			0.006	"	"	"	"	"
Vanadium	0.0557			0.005	"	"	"	"	"
Zinc	0.0438			0.0300	"	"	"	"	"





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### Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

A4b (1805005-11)      Matrix: Water      Sampled: Apr-30-18 10:09      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	8.64			0.200	mg/L	1	B18E013	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.342			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	17.0			0.200	"	"	"	"	"
Chromium	0.208			0.005	"	"	"	"	"
Cobalt	0.0135			0.006	"	"	"	"	"
Copper	0.132			0.0200	"	"	"	"	"
Iron	30.7			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	7.30			0.200	"	"	"	"	"
Manganese	1.45			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0506			0.0120	"	"	"	"	"
Potassium	3.74			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	2.56			0.400	"	"	"	"	"
Strontium	0.138			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0298	J		0.006	"	"	"	"	"
Vanadium	0.0399			0.005	"	"	"	"	"
Zinc	0.0830			0.0300	"	"	"	"	"



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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

B1a (1805005-12)      Matrix: Water      Sampled: Apr-30-18 10:51      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	3.23			0.200	mg/L	1	B18E013	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.213			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	50.1			0.200	"	"	"	"	"
Chromium	0.0737			0.005	"	"	"	"	"
Cobalt	0.0076			0.006	"	"	"	"	"
Copper	0.116			0.0200	"	"	"	"	"
Iron	31.2			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	27.2			0.200	"	"	"	"	"
Manganese	0.963			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0299			0.0120	"	"	"	"	"
Potassium	2.14			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	2.75			0.400	"	"	"	"	"
Strontium	0.0573			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0144			0.006	"	"	"	"	"
Vanadium	0.0200			0.005	"	"	"	"	"
Zinc	0.0663			0.0300	"	"	"	"	"





**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-29-18 10:55

**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

B1b (1805005-13)      Matrix: Water      Sampled: Apr-30-18 10:58      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	8.26			0.200	mg/L	1	B18E013	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.605			0.003	"	"	"	"	"
Beryllium	0.0023			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	28.6			0.200	"	"	"	"	"
Chromium	0.358			0.005	"	"	"	"	"
Cobalt	0.0312			0.006	"	"	"	"	"
Copper	0.498			0.0200	"	"	"	"	"
Iron	88.9			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	9.79			0.200	"	"	"	"	"
Manganese	0.913			0.008	"	"	"	"	"
Molybdenum	0.0260			0.0120	"	"	"	"	"
Nickel	0.109			0.0120	"	"	"	"	"
Potassium	5.17			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	3.50			0.400	"	"	"	"	"
Strontium	0.103			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0217			0.006	"	"	"	"	"
Vanadium	0.0966			0.005	"	"	"	"	"
Zinc	0.226			0.0300	"	"	"	"	"



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

B2a (1805005-14)      Matrix: Water      Sampled: Apr-30-18 11:40      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	4.87			0.200	mg/L	1	B18E013	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.318			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	52.0			0.200	"	"	"	"	"
Chromium	0.250			0.005	"	"	"	"	"
Cobalt	0.0149			0.006	"	"	"	"	"
Copper	0.0849			0.0200	"	"	"	"	"
Iron	82.4			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	25.8			0.200	"	"	"	"	"
Manganese	1.59			0.008	"	"	"	"	"
Molybdenum	0.0215			0.0120	"	"	"	"	"
Nickel	0.0957			0.0120	"	"	"	"	"
Potassium	5.76			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	5.05			0.400	"	"	"	"	"
Strontium	0.0848			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0399			0.006	"	"	"	"	"
Vanadium	0.0179			0.005	"	"	"	"	"
Zinc	0.0792			0.0300	"	"	"	"	"





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

B2b (1805005-15) Matrix: Water Sampled: Apr-30-18 11:48 Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	14.6			0.200	mg/L	1	B18E013	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.394			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	11.1			0.200	"	"	"	"	"
Chromium	0.289			0.005	"	"	"	"	"
Cobalt	0.0161			0.006	"	"	"	"	"
Copper	0.124			0.0200	"	"	"	"	"
Iron	39.1			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	4.22			0.200	"	"	"	"	"
Manganese	0.553			0.008	"	"	"	"	"
Molybdenum	0.0165			0.0120	"	"	"	"	"
Nickel	0.0536			0.0120	"	"	"	"	"
Potassium	3.05			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	2.17			0.400	"	"	"	"	"
Strontium	0.0454			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0642			0.006	"	"	"	"	"
Vanadium	0.0309			0.005	"	"	"	"	"
Zinc	0.0893			0.0300	"	"	"	"	"



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

B3a (1805005-16)                      Matrix: Water      Sampled: Apr-30-18 12:29      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	9.09			0.200	mg/L	1	B18E013	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.350			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	36.3			0.200	"	"	"	"	"
Chromium	0.220			0.005	"	"	"	"	"
Cobalt	0.0440			0.006	"	"	"	"	"
Copper	0.129			0.0200	"	"	"	"	"
Iron	35.0			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	8.67			0.200	"	"	"	"	"
Manganese	3.56			0.008	"	"	"	"	"
Molybdenum	0.0146			0.0120	"	"	"	"	"
Nickel	0.0658			0.0120	"	"	"	"	"
Potassium	3.76			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	4.13			0.400	"	"	"	"	"
Strontium	0.237			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0181			0.006	"	"	"	"	"
Vanadium	0.0276			0.005	"	"	"	"	"
Zinc	0.106			0.0300	"	"	"	"	"





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

B3b (1805005-17)      Matrix: Water      Sampled: Apr-30-18 12:36      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	15.3			0.200	mg/L	1	B18E013	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.637			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	12.1			0.200	"	"	"	"	"
Chromium	0.543			0.005	"	"	"	"	"
Cobalt	0.0362			0.006	"	"	"	"	"
Copper	0.258			0.0200	"	"	"	"	"
Iron	87.1			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	2.91			0.200	"	"	"	"	"
Manganese	2.23			0.008	"	"	"	"	"
Molybdenum	0.0207			0.0120	"	"	"	"	"
Nickel	0.114			0.0120	"	"	"	"	"
Potassium	5.97			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	3.14			0.400	"	"	"	"	"
Strontium	0.103			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0437			0.006	"	"	"	"	"
Vanadium	0.0176			0.005	"	"	"	"	"
Zinc	0.201			0.0300	"	"	"	"	"



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

B4a (1805005-18)      Matrix: Water      Sampled: Apr-30-18 13:10      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	1.44			0.200	mg/L	1	B18E013	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.289			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0596			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	95.7			0.200	"	"	"	"	"
Chromium	0.0720			0.005	"	"	"	"	"
Cobalt	0.0241			0.006	"	"	"	"	"
Copper	0.0549			0.0200	"	"	"	"	"
Iron	19.0			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	34.5			0.200	"	"	"	"	"
Manganese	4.04			0.008	"	"	"	"	"
Molybdenum	0.0128			0.0120	"	"	"	"	"
Nickel	0.0526			0.0120	"	"	"	"	"
Potassium	3.85			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	11.7			0.400	"	"	"	"	"
Strontium	0.478			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0173			0.006	"	"	"	"	"
Vanadium	U			0.005	"	"	"	"	"
Zinc	0.0418			0.0300	"	"	"	"	"





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

B4b (1805005-19)      Matrix: Water      Sampled: Apr-30-18 13:41      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	7.92			0.200	mg/L	1	B18E013	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.268			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0626			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	73.3			0.200	"	"	"	"	"
Chromium	0.682			0.005	"	"	"	"	"
Cobalt	0.0178			0.006	"	"	"	"	"
Copper	0.216			0.0200	"	"	"	"	"
Iron	93.4			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	23.4			0.200	"	"	"	"	"
Manganese	1.80			0.008	"	"	"	"	"
Molybdenum	0.0388			0.0120	"	"	"	"	"
Nickel	0.140			0.0120	"	"	"	"	"
Potassium	16.0			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	10.8			0.400	"	"	"	"	"
Strontium	0.214			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0363			0.006	"	"	"	"	"
Vanadium	0.0149			0.005	"	"	"	"	"
Zinc	0.247			0.0300	"	"	"	"	"



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Water Division, WBCA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

C1a (1805005-20)      Matrix: Water      Sampled: Apr-30-18 15:02      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	9.08			0.200	mg/L	I	B18E013	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.329			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	13.3			0.200	"	"	"	"	"
Chromium	0.0804			0.005	"	"	"	"	"
Cobalt	0.0406			0.006	"	"	"	"	"
Copper	0.0528			0.0200	"	"	"	"	"
Iron	14.0			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	2.74			0.200	"	"	"	"	"
Manganese	1.15			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0266			0.0120	"	"	"	"	"
Potassium	2.18			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	1.90			0.400	"	"	"	"	"
Strontium	0.0967			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0401			0.006	"	"	"	"	"
Vanadium	0.0226			0.005	"	"	"	"	"
Zinc	0.0307			0.0300	"	"	"	"	"





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

C1b (1805005-21) Matrix: Water Sampled: Apr-30-18 15:27 Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	15.8			0.200	mg/L	1	B18E014	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	1.22			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	21.2			0.200	"	"	"	"	May-14-18
Chromium	0.0667			0.005	"	"	"	"	May-09-18
Cobalt	0.0603			0.006	"	"	"	"	"
Copper	0.0505			0.0200	"	"	"	"	"
Iron	13.4			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	5.35			0.200	"	"	"	"	"
Manganese	1.87			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0231			0.0120	"	"	"	"	May-14-18
Potassium	2.79			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	2.57			0.400	"	"	"	"	"
Strontium	0.116			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0810	J		0.006	"	"	"	"	"
Vanadium	0.0482			0.005	"	"	"	"	"
Zinc	0.0583			0.0300	"	"	"	"	"



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

C2a (1805005-22)      Matrix: Water      Sampled: Apr-30-18 16:06      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	4.65			0.200	mg/L	1	B18E014	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.348			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0770			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	49.4			0.200	"	"	"	"	May-14-18
Chromium	0.0718			0.005	"	"	"	"	May-09-18
Cobalt	0.0217			0.006	"	"	"	"	"
Copper	0.0462			0.0200	"	"	"	"	"
Iron	12.9			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	18.1			0.200	"	"	"	"	"
Manganese	4.01			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0283			0.0120	"	"	"	"	May-14-18
Potassium	17.6			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	7.26			0.400	"	"	"	"	"
Strontium	0.617			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0249			0.006	"	"	"	"	"
Vanadium	0.0063			0.005	"	"	"	"	"
Zinc	0.0301			0.0300	"	"	"	"	"





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Chicago Regional Laboratory**

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

C2b (1805005-23) Matrix: Water Sampled: Apr-30-18 16:14 Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	16.6			0.200	mg/L		B18E014	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.882			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	14.7			0.200	"	"	"	"	May-14-18
Chromium	0.395			0.005	"	"	"	"	May-09-18
Cobalt	0.0611			0.006	"	"	"	"	"
Copper	0.187			0.0200	"	"	"	"	"
Iron	53.9			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	5.02			0.200	"	"	"	"	"
Manganese	9.53			0.008	"	"	"	"	"
Molybdenum	0.0234			0.0120	"	"	"	"	"
Nickel	0.107			0.0120	"	"	"	"	May-14-18
Potassium	8.67			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	4.07			0.400	"	"	"	"	"
Strontium	0.133			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0374			0.006	"	"	"	"	"
Vanadium	0.0083			0.005	"	"	"	"	"
Zinc	0.0886			0.0300	"	"	"	"	"



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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

C3a (1805005-24) Matrix: Water Sampled: Apr-30-18 14:16 Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	5.94			0.200	mg/L	1	B18E014	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.670			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	57.9			0.200	"	"	"	"	May-14-18
Chromium	0.260			0.005	"	"	"	"	May-09-18
Cobalt	0.0452			0.006	"	"	"	"	"
Copper	0.157			0.0200	"	"	"	"	"
Iron	31.9			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	10.1			0.200	"	"	"	"	"
Manganese	14.3			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0849			0.0120	"	"	"	"	May-14-18
Potassium	4.24			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	4.60			0.400	"	"	"	"	"
Strontium	0.506			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0449			0.006	"	"	"	"	"
Vanadium	0.0089			0.005	"	"	"	"	"
Zinc	0.120			0.0300	"	"	"	"	"





## Environmental Protection Agency Region 5 Chicago Regional Laboratory

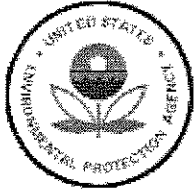
536 South Clark Street, Chicago, IL 60605  
Phone: (312) 353-8370 Fax: (312) 886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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### Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

C3b (1805005-25)      Matrix: Water      Sampled: Apr-30-18 14:26      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	3.21			0.200	mg/L	1	B18E014	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.119			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	6.12			0.200	"	"	"	"	May-14-18
Chromium	0.0557			0.005	"	"	"	"	May-09-18
Cobalt	U			0.006	"	"	"	"	"
Copper	0.0277			0.0200	"	"	"	"	"
Iron	6.76			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	1.39			0.200	"	"	"	"	"
Manganese	0.786			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0137			0.0120	"	"	"	"	May-14-18
Potassium	1.78			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	3.84			0.400	"	"	"	"	"
Strontium	0.0451			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0131			0.006	"	"	"	"	"
Vanadium	U			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-29-18 10:55

## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

C5Aa (1805005-26)

Matrix: Water

Sampled: May-01-18 06:29

Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	5.94			0.200	mg/L	1	B18E014	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.179			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0797			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	67.2			0.200	"	"	"	"	May-14-18
Chromium	0.104			0.005	"	"	"	"	May-09-18
Cobalt	0.0241			0.006	"	"	"	"	"
Copper	0.0573			0.0200	"	"	"	"	"
Iron	15.9			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	20.6			0.200	"	"	"	"	"
Manganese	3.86			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0330			0.0120	"	"	"	"	May-14-18
Potassium	15.5			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	12.2			0.400	"	"	"	"	"
Strontium	0.138			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0417			0.006	"	"	"	"	"
Vanadium	0.0182			0.005	"	"	"	"	"
Zinc	0.151			0.0300	"	"	"	"	"





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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

C5Ab (1805005-27)      Matrix: Water      Sampled: May-01-18 06:43      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	26.7			0.200	mg/L	1	B18E014	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.399			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0660			0.0500	"	"	"	"	"
Cadmium	0.0022			0.002	"	"	"	"	"
Calcium	78.4			0.200	"	"	"	"	May-14-18
Chromium	1.05			0.005	"	"	"	"	May-09-18
Cobalt	0.0612			0.006	"	"	"	"	"
Copper	0.430			0.0200	"	"	"	"	"
Iron	126			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	31.2			0.200	"	"	"	"	"
Manganese	8.11			0.008	"	"	"	"	"
Molybdenum	0.0313			0.0120	"	"	"	"	"
Nickel	0.229			0.0120	"	"	"	"	May-14-18
Potassium	30.0			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	21.5			0.400	"	"	"	"	"
Strontium	0.250			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0598			0.006	"	"	"	"	"
Vanadium	0.0219			0.005	"	"	"	"	"
Zinc	1.54			0.0300	"	"	"	"	"



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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

C6a (1805005-28)      Matrix: Water      Sampled: May-01-18 07:06      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	2.78			0.200	mg/L	1	B18E014	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.503			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0590			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	105			0.200	"	"	"	"	May-14-18
Chromium	0.144			0.005	"	"	"	"	May-09-18
Cobalt	0.0248			0.006	"	"	"	"	"
Copper	0.106			0.0200	"	"	"	"	"
Iron	21.1			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	47.3			0.200	"	"	"	"	"
Manganese	9.64			0.008	"	"	"	"	"
Molybdenum	0.0137			0.0120	"	"	"	"	"
Nickel	0.0572			0.0120	"	"	"	"	May-14-18
Potassium	14.5			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	10.8			0.400	"	"	"	"	"
Strontium	0.601			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0292			0.006	"	"	"	"	"
Vanadium	U			0.005	"	"	"	"	"
Zinc	0.0682			0.0300	"	"	"	"	"





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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

C6b (1805005-29) Matrix: Water Sampled: May-01-18 07:15 Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	13.0			0.200	mg/L	1	B18E014	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.284			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0864			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	56.4			0.200	"	"	"	"	May-14-18
Chromium	0.463			0.005	"	"	"	"	May-09-18
Cobalt	0.0523			0.006	"	"	"	"	"
Copper	0.186			0.0200	"	"	"	"	"
Iron	54.8			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	25.9			0.200	"	"	"	"	"
Manganese	10.7			0.008	"	"	"	"	"
Molybdenum	0.0247			0.0120	"	"	"	"	"
Nickel	0.0904			0.0120	"	"	"	"	May-14-18
Potassium	21.2			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	10.3			0.400	"	"	"	"	"
Strontium	0.167			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0771			0.006	"	"	"	"	"
Vanadium	0.0144			0.005	"	"	"	"	"
Zinc	0.164			0.0300	"	"	"	"	"



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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

C7a (1805005-30)      Matrix: Water      Sampled: May-01-18 07:48      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	2.72			0.200	mg/L	1	B18E014	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.782			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	138			0.200	"	"	"	"	May-14-18
Chromium	0.0871			0.005	"	"	"	"	May-09-18
Cobalt	0.0296			0.006	"	"	"	"	"
Copper	0.0937			0.0200	"	"	"	"	"
Iron	19.6			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	59.1			0.200	"	"	"	"	"
Manganese	9.90			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0756			0.0120	"	"	"	"	May-14-18
Potassium	24.1			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	4.93			0.400	"	"	"	"	"
Strontium	0.526			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0539			0.006	"	"	"	"	"
Vanadium	0.0067			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"





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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

C7b (1805005-31)      Matrix: Water      Sampled: May-01-18 08:02      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	9.14			0.200	mg/L	1	B18E014	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.363			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0811			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	81.6			0.200	"	"	"	"	May-14-18
Chromium	0.744			0.005	"	"	"	"	May-09-18
Cobalt	0.0397			0.006	"	"	"	"	"
Copper	0.267			0.0200	"	"	"	"	"
Iron	91.4			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	36.6			0.200	"	"	"	"	"
Manganese	11.6			0.008	"	"	"	"	"
Molybdenum	0.0413			0.0120	"	"	"	"	"
Nickel	0.169			0.0120	"	"	"	"	May-14-18
Potassium	24.1			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	13.0			0.400	"	"	"	"	"
Strontium	0.208			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0516			0.006	"	"	"	"	"
Vanadium	0.0118			0.005	"	"	"	"	"
Zinc	0.314			0.0300	"	"	"	"	"



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

FB2 (1805005-32)      Matrix: Water      Sampled: May-01-18 07:39      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	U			0.200	mg/L	1	B18E014	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	U			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	U			0.200	"	"	"	"	"
Chromium	U			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	U			0.0200	"	"	"	"	"
Iron	U			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	U			0.200	"	"	"	"	"
Manganese	U			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	U			0.0120	"	"	"	"	May-14-18
Potassium	U			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	U			0.400	"	"	"	"	"
Strontium	U			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	U			0.006	"	"	"	"	"
Vanadium	U			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

C7 equip (1805005-33)      Matrix: Water      Sampled: May-01-18 07:38      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	U			0.200	mg/L	1	B18E014	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	U			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	U			0.200	"	"	"	"	"
Chromium	U			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	U			0.0200	"	"	"	"	"
Iron	U			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	U			0.200	"	"	"	"	"
Manganese	U			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	U			0.0120	"	"	"	"	May-14-18
Potassium	U			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	U			0.400	"	"	"	"	"
Strontium	U			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	U			0.006	"	"	"	"	"
Vanadium	U			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

C7b Dup (1805005-34)

Matrix: Water

Sampled: May-01-18 08:02

Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	5.41			0.200	mg/L	1	B18E014	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.210			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0946			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	58.3	L		0.200	"	"	"	"	"
Chromium	0.200			0.005	"	"	"	"	"
Cobalt	0.0201			0.006	"	"	"	"	"
Copper	0.0859			0.0200	"	"	"	"	"
Iron	24.0			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	26.4			0.200	"	"	"	"	"
Manganese	7.64			0.008	"	"	"	"	"
Molybdenum	0.0126			0.0120	"	"	"	"	"
Nickel	0.0506			0.0120	"	"	"	"	May-14-18
Potassium	19.5			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	11.9			0.400	"	"	"	"	"
Strontium	0.148			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0357			0.006	"	"	"	"	"
Vanadium	0.0073			0.005	"	"	"	"	"
Zinc	0.0555			0.0300	"	"	"	"	"





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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

C8a (1805005-35)      Matrix: Water      Sampled: May-01-18 08:35      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	10.3			0.200	mg/L	1	B18E014	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.599			0.003	"	"	"	"	"
Beryllium	0.0027			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	36.5	L		0.200	"	"	"	"	"
Chromium	0.110			0.005	"	"	"	"	"
Cobalt	0.0240			0.006	"	"	"	"	"
Copper	0.139			0.0200	"	"	"	"	"
Iron	18.9			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	12.6			0.200	"	"	"	"	"
Manganese	12.2			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0538			0.0120	"	"	"	"	May-14-18
Potassium	5.35			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	6.22			0.400	"	"	"	"	"
Strontium	0.177			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0436			0.006	"	"	"	"	"
Vanadium	0.0162			0.005	"	"	"	"	"
Zinc	0.0555			0.0300	"	"	"	"	"



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

C8b (1805005-36)      Matrix: Water      Sampled: May-01-18 08:42      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	13.7			0.200	mg/L	1	B18E014	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.395			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	11.5	L		0.200	"	"	"	"	"
Chromium	0.208			0.005	"	"	"	"	"
Cobalt	0.0218			0.006	"	"	"	"	"
Copper	0.0715			0.0200	"	"	"	"	"
Iron	24.4			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	4.02			0.200	"	"	"	"	"
Manganese	3.74			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0340			0.0120	"	"	"	"	May-14-18
Potassium	5.28			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	2.24			0.400	"	"	"	"	"
Strontium	0.0638			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0446			0.006	"	"	"	"	"
Vanadium	0.0125			0.005	"	"	"	"	"
Zinc	0.0880			0.0300	"	"	"	"	"





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

C9a (1805005-37) Matrix: Water Sampled: May-01-18 10:00 Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	10.9			0.200	mg/L	1	B18E014	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.481			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	16.1			0.200	"	"	"	"	"
Chromium	0.696			0.005	"	"	"	"	"
Cobalt	0.0400			0.006	"	"	"	"	"
Copper	0.479			0.0200	"	"	"	"	"
Iron	73.1			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	4.78			0.200	"	"	"	"	"
Manganese	3.45			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.181			0.0120	"	"	"	"	May-14-18
Potassium	10.9			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	3.34			0.400	"	"	"	"	"
Strontium	0.234			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0370			0.006	"	"	"	"	"
Vanadium	0.0073			0.005	"	"	"	"	"
Zinc	1.29			0.0300	"	"	"	"	"



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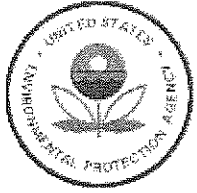
Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

C9b (1805005-38)      Matrix: Water      Sampled: May-01-18 10:21      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	13.3			0.200	mg/L	1	B18E014	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.337			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	3.82			0.200	"	"	"	"	"
Chromium	0.0354			0.005	"	"	"	"	"
Cobalt	0.0223			0.006	"	"	"	"	"
Copper	0.0464			0.0200	"	"	"	"	"
Iron	10.6			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	1.19			0.200	"	"	"	"	"
Manganese	2.11			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0262			0.0120	"	"	"	"	May-14-18
Potassium	4.43			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	1.23			0.400	"	"	"	"	"
Strontium	0.0294			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.112			0.006	"	"	"	"	"
Vanadium	0.0341			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

C10a (1805005-39)      Matrix: Water      Sampled: May-01-18 11:05      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	2.47			0.200	mg/L	1	B18E014	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.302			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	100			0.200	"	"	"	"	"
Chromium	0.0219			0.005	"	"	"	"	"
Cobalt	0.0201			0.006	"	"	"	"	"
Copper	0.0692			0.0200	"	"	"	"	"
Iron	9.52			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	54.3			0.200	"	"	"	"	"
Manganese	3.18			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0332			0.0120	"	"	"	"	May-14-18
Potassium	1.98			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	2.57			0.400	"	"	"	"	"
Strontium	0.123			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0246			0.006	"	"	"	"	"
Vanadium	0.0100			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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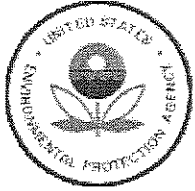
Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

C10b (1805005-40)      Matrix: Water      Sampled: May-01-18 11:12      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	14.1			0.200	mg/L	1	B18E014	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.599			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	60.0			0.200	"	"	"	"	"
Chromium	0.464			0.005	"	"	"	"	"
Cobalt	0.0364			0.006	"	"	"	"	"
Copper	0.294			0.0200	"	"	"	"	"
Iron	83.8			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	22.1			0.200	"	"	"	"	"
Manganese	3.84			0.008	"	"	"	"	"
Molybdenum	0.0234			0.0120	"	"	"	"	"
Nickel	0.141			0.0120	"	"	"	"	May-14-18
Potassium	7.81			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	5.22			0.400	"	"	"	"	"
Strontium	0.387			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0550			0.006	"	"	"	"	"
Vanadium	0.0275			0.005	"	"	"	"	"
Zinc	0.144			0.0300	"	"	"	"	"





**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-29-18 10:55

**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

C11a (1805005-41)

Matrix: Water

Sampled: May-01-18 11:46

Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	3.67			0.200	mg/L	1	B18E015	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.171			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	65.4			0.200	"	"	"	"	"
Chromium	0.0675			0.005	"	"	"	"	"
Cobalt	0.0081			0.006	"	"	"	"	"
Copper	0.113	K		0.0200	"	"	"	"	"
Iron	40.2			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	33.7			0.200	"	"	"	"	"
Manganese	1.58			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0308			0.0120	"	"	"	"	May-14-18
Potassium	2.07			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	2.65			0.400	"	"	"	"	"
Strontium	0.0575			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0293			0.006	"	"	"	"	"
Vanadium	0.0284			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

C11b (1805005-42)      Matrix: Water      Sampled: May-01-18 11:52      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	10.7			0.200	mg/L	1	B18E015	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.416			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	35.1			0.200	"	"	"	"	"
Chromium	0.288			0.005	"	"	"	"	"
Cobalt	0.0290			0.006	"	"	"	"	"
Copper	0.222			0.0200	"	"	"	"	"
Iron	61.7			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	13.8			0.200	"	"	"	"	"
Manganese	2.35			0.008	"	"	"	"	"
Molybdenum	0.0206			0.0120	"	"	"	"	"
Nickel	0.0876			0.0120	"	"	"	"	May-14-18
Potassium	5.58			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	3.48			0.400	"	"	"	"	"
Strontium	0.124			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0300			0.006	"	"	"	"	"
Vanadium	0.0355			0.005	"	"	"	"	"
Zinc	0.0730			0.0300	"	"	"	"	"





# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
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Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-29-18 10:55

## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

C12a (1805005-43)

Matrix: Water

Sampled: May-01-18 12:41

Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	5.50			0.200	mg/L	I	B18E015	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	1.34			0.003	"	"	"	"	"
Beryllium	0.0041			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	0.0025			0.002	"	"	"	"	"
Calcium	34.7			0.200	"	"	"	"	"
Chromium	0.167			0.005	"	"	"	"	"
Cobalt	0.0221			0.006	"	"	"	"	"
Copper	0.0775			0.0200	"	"	"	"	"
Iron	130			0.0800	"	"	"	"	"
Lead	0.0534			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	12.5			0.200	"	"	"	"	"
Manganese	1.83			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0958			0.0120	"	"	"	"	May-14-18
Potassium	3.08			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	3.05			0.400	"	"	"	"	"
Strontium	0.190			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0180			0.006	"	"	"	"	"
Vanadium	0.155			0.005	"	"	"	"	"
Zinc	0.0566			0.0300	"	"	"	"	"



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
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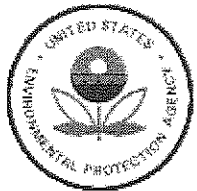
Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

C12b (1805005-44)      Matrix: Water      Sampled: May-01-18 12:47      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	5.05			0.200	mg/L	1	B18E015	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.776			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	0.0045			0.002	"	"	"	"	"
Calcium	69.1			0.200	"	"	"	"	"
Chromium	0.325			0.005	"	"	"	"	"
Cobalt	0.0146			0.006	"	"	"	"	"
Copper	0.148			0.0200	"	"	"	"	"
Iron	154			0.0800	"	"	"	"	"
Lead	0.0304			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	32.0			0.200	"	"	"	"	"
Manganese	12.8			0.008	"	"	"	"	"
Molybdenum	0.0479			0.0120	"	"	"	"	"
Nickel	0.118			0.0120	"	"	"	"	May-14-18
Potassium	3.42			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	3.27			0.400	"	"	"	"	"
Strontium	0.110			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0504			0.006	"	"	"	"	"
Vanadium	0.0726			0.005	"	"	"	"	"
Zinc	0.0396			0.0300	"	"	"	"	"





# Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

C13a (1805005-45)      Matrix: Water      Sampled: May-01-18 13:30      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	3.02			0.200	mg/L	1	B18E015	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.148			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	42.2			0.200	"	"	"	"	"
Chromium	0.0622			0.005	"	"	"	"	"
Cobalt	0.008			0.006	"	"	"	"	"
Copper	0.0784			0.0200	"	"	"	"	"
Iron	43.4			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	21.4			0.200	"	"	"	"	"
Manganese	0.887			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0290			0.0120	"	"	"	"	May-14-18
Potassium	0.873			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	1.88			0.400	"	"	"	"	"
Strontium	0.0637			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0136			0.006	"	"	"	"	"
Vanadium	0.0882			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

C13b (1805005-46)      Matrix: Water      Sampled: May-01-18 13:39      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	11.4			0.200	mg/L	1	B18E015	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.742			0.003	"	"	"	"	"
Beryllium	0.0029			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	0.0033			0.002	"	"	"	"	"
Calcium	23.0			0.200	"	"	"	"	"
Chromium	0.474			0.005	"	"	"	"	"
Cobalt	0.0186			0.006	"	"	"	"	"
Copper	0.146			0.0200	"	"	"	"	"
Iron	130			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	7.07			0.200	"	"	"	"	"
Manganese	1.08			0.008	"	"	"	"	"
Molybdenum	0.0389			0.0120	"	"	"	"	"
Nickel	0.149			0.0120	"	"	"	"	May-14-18
Potassium	6.50			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	3.91			0.400	"	"	"	"	"
Strontium	0.101			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0307			0.006	"	"	"	"	"
Vanadium	0.173			0.005	"	"	"	"	"
Zinc	0.136			0.0300	"	"	"	"	"





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Chicago Regional Laboratory**

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

D1a (1805005-47)      Matrix: Water      Sampled: May-01-18 14:19      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	4.14			0.200	mg/L	1	B18E015	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.191			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	46.4			0.200	"	"	"	"	"
Chromium	0.106			0.005	"	"	"	"	"
Cobalt	0.0093			0.006	"	"	"	"	"
Copper	0.153			0.0200	"	"	"	"	"
Iron	39.2			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	24.8			0.200	"	"	"	"	"
Manganese	1.98			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0373			0.0120	"	"	"	"	May-14-18
Potassium	1.66			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	2.04			0.400	"	"	"	"	"
Strontium	0.0423			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0084			0.006	"	"	"	"	"
Vanadium	0.0909			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

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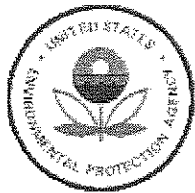
Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

D1b (1805005-48)      Matrix: Water      Sampled: May-01-18 14:26      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	7.09			0.200	mg/L	1	B18E015	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.397			0.003	"	"	"	"	"
Beryllium	0.0023			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	0.0027			0.002	"	"	"	"	"
Calcium	19.8			0.200	"	"	"	"	"
Chromium	0.194			0.005	"	"	"	"	"
Cobalt	0.0120			0.006	"	"	"	"	"
Copper	0.110			0.0200	"	"	"	"	"
Iron	70.5			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	5.71			0.200	"	"	"	"	"
Manganese	0.646			0.008	"	"	"	"	"
Molybdenum	0.0185			0.0120	"	"	"	"	"
Nickel	0.0763			0.0120	"	"	"	"	May-14-18
Potassium	4.45			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	2.60			0.400	"	"	"	"	"
Strontium	0.0908			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0219			0.006	"	"	"	"	"
Vanadium	0.164			0.005	"	"	"	"	"
Zinc	0.0761			0.0300	"	"	"	"	"





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Chicago Regional Laboratory**

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Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-29-18 10:55

**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

D2a (1805005-49)      Matrix: Water      Sampled: May-01-18 15:00      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	3.32			0.200	mg/L	1	B18E015	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.234			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	86.7			0.200	"	"	"	"	"
Chromium	0.134			0.005	"	"	"	"	"
Cobalt	0.0075			0.006	"	"	"	"	"
Copper	0.101			0.0200	"	"	"	"	"
Iron	26.6			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	42.5			0.200	"	"	"	"	"
Manganese	1.15			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0341			0.0120	"	"	"	"	May-14-18
Potassium	9.87			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	5.14			0.400	"	"	"	"	"
Strontium	0.157			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0341			0.006	"	"	"	"	"
Vanadium	0.0300			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

D2b (1805005-50)      Matrix: Water      Sampled: May-01-18 15:06      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	8.45			0.200	mg/L	1	B18E015	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.154			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0669			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	62.6			0.200	"	"	"	"	"
Chromium	0.233			0.005	"	"	"	"	"
Cobalt	0.0178			0.006	"	"	"	"	"
Copper	0.119			0.0200	"	"	"	"	"
Iron	31.2			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	28.4			0.200	"	"	"	"	"
Manganese	0.697			0.008	"	"	"	"	"
Molybdenum	0.0209			0.0120	"	"	"	"	"
Nickel	0.0469			0.0120	"	"	"	"	May-14-18
Potassium	19.6			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	11.2			0.400	"	"	"	"	"
Strontium	0.138			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0272			0.006	"	"	"	"	"
Vanadium	0.0249			0.005	"	"	"	"	"
Zinc	0.0482			0.0300	"	"	"	"	"



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

D3a (1805005-51) Matrix: Water Sampled: May-01-18 15:41 Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	8.42			0.200	mg/L	1	B18E015	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.314			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	56.3			0.200	"	"	"	"	"
Chromium	0.175			0.005	"	"	"	"	"
Cobalt	0.0358			0.006	"	"	"	"	"
Copper	0.133			0.0200	"	"	"	"	"
Iron	28.4			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	8.38			0.200	"	"	"	"	"
Manganese	4.28			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0703			0.0120	"	"	"	"	May-14-18
Potassium	3.44			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	5.72			0.400	"	"	"	"	"
Strontium	0.365			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0161			0.006	"	"	"	"	"
Vanadium	0.0198			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"





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Chicago Regional Laboratory**

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

D3b (1805005-52)      Matrix: Water      Sampled: May-01-18 15:48      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	11.3			0.200	mg/L	1	B18E015	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.410			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	40.1			0.200	"	"	"	"	"
Chromium	0.232			0.005	"	"	"	"	"
Cobalt	0.0332			0.006	"	"	"	"	"
Copper	0.115			0.0200	"	"	"	"	"
Iron	32.4			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	9.29			0.200	"	"	"	"	"
Manganese	1.06			0.008	"	"	"	"	"
Molybdenum	0.0148			0.0120	"	"	"	"	"
Nickel	0.0474			0.0120	"	"	"	"	May-14-18
Potassium	3.60			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	4.14			0.400	"	"	"	"	"
Strontium	0.354			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0410			0.006	"	"	"	"	"
Vanadium	0.0352			0.005	"	"	"	"	"
Zinc	0.0335			0.0300	"	"	"	"	"



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
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Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-29-18 10:55

## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

D4a (1805005-53) Matrix: Water Sampled: May-01-18 16:19 Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	3.45			0.200	mg/L	1	B18E015	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.161			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	80.3			0.200	"	"	"	"	"
Chromium	0.131			0.005	"	"	"	"	"
Cobalt	0.0074			0.005	"	"	"	"	"
Copper	0.0762			0.0200	"	"	"	"	"
Iron	21.6			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	34.7			0.200	"	"	"	"	"
Manganese	0.546			0.008	"	"	"	"	"
Molybdenum	0.0150			0.0120	"	"	"	"	"
Nickel	0.0387			0.0120	"	"	"	"	May-14-18
Potassium	4.27			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	4.35			0.400	"	"	"	"	"
Strontium	0.419			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0140			0.006	"	"	"	"	"
Vanadium	U			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> May-29-18 10:55
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

D4b (1805005-54)      Matrix: Water      Sampled: May-01-18 16:26      Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	15.3			0.200	mg/L	1	B18E015	May-08-18	May-09-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.266			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0722			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	80.6			0.200	"	"	"	"	"
Chromium	0.564			0.005	"	"	"	"	"
Cobalt	0.0372			0.006	"	"	"	"	"
Copper	0.216			0.0200	"	"	"	"	"
Iron	75.8			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	32.7			0.200	"	"	"	"	"
Manganese	3.49			0.008	"	"	"	"	"
Molybdenum	0.0308			0.0120	"	"	"	"	"
Nickel	0.102			0.0120	"	"	"	"	May-14-18
Potassium	30.5			0.800	"	"	"	"	May-09-18
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	16.6			0.400	"	"	"	"	"
Strontium	0.229			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0638			0.006	"	"	"	"	"
Vanadium	0.0329			0.005	"	"	"	"	"
Zinc	0.0484			0.0300	"	"	"	"	"





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5 CHICAGO REGIONAL LABORATORY  
536 SOUTH CLARK STREET  
CHICAGO, ILLINOIS 60605

**Date:** 5/31/2018  
**Subject:** Review of Region 5 Data for Central Sands  
**To:** Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604  
**From:** Amanda Wroble, Chemist  
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with the EPA QA/G-8 *Guidance on Environmental Data Verification and Data Validation* and the U.S. EPA Region 5 RMD QMP, CRL performs data verification on all the data generated internally. CRL does not perform data validation or quality assessment procedures.

This report was reviewed and the information provided herein accurately represents the analysis performed.

*Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.*

**Attached are Results for: Central Sands**

**Analyses included in this report:**

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Metals ICP-AES (w)

Report Name: 1805007 Metals ICP-AES (w) FINAL May 31 18 1359



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

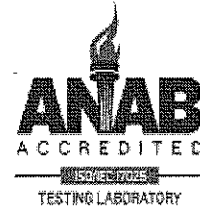
536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Accredited Analyses included in this Report**



**Method:** EPA 200.7 in Water  
**Analysis:** Metals ICP-AES (w)

Analyte	Certifications
Aluminum	ISO/IEC 17025:2005
Aluminum hi	ISO/IEC 17025:2005
Antimony	ISO/IEC 17025:2005
Arsenic	ISO/IEC 17025:2005
Barium	ISO/IEC 17025:2005
Beryllium	ISO/IEC 17025:2005
Boron	ISO/IEC 17025:2005
Cadmium	ISO/IEC 17025:2005
Calcium	ISO/IEC 17025:2005
Chromium	ISO/IEC 17025:2005
Cobalt	ISO/IEC 17025:2005
Copper	ISO/IEC 17025:2005
Iron	ISO/IEC 17025:2005
Iron hi	ISO/IEC 17025:2005
Lead	ISO/IEC 17025:2005
Lithium	ISO/IEC 17025:2005
Magnesium	ISO/IEC 17025:2005
Magnesium hi	ISO/IEC 17025:2005
Manganese	ISO/IEC 17025:2005
Molybdenum	ISO/IEC 17025:2005
Nickel	ISO/IEC 17025:2005
Potassium	ISO/IEC 17025:2005
Selenium	ISO/IEC 17025:2005
Silver	ISO/IEC 17025:2005
Sodium	ISO/IEC 17025:2005
Strontium	ISO/IEC 17025:2005



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Water Division, WECA Region 5  
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Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-31-18 13:59

## Accredited Analyses included in this Report



**Method:** EPA 200.7 in Water

**Analysis:** Metals ICP-AES (w)

Analyte	Certifications
Thallium	ISO/IEC 17025:2005
Tin	ISO/IEC 17025:2005
Titanium	ISO/IEC 17025:2005
Vanadium	ISO/IEC 17025:2005
Zinc	ISO/IEC 17025:2005

Analytes not listed above are not accredited by ANAB.





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Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-31-18 13:59

## ANALYSIS CASE NARRATIVE

### GENERAL INFORMATION

CRL received water samples for trace metals analysis by inductively coupled plasma-atomic emission spectroscopy (ICP-AES). The assigned work order(s) and sample numbers to which this narrative applies are listed below:

Work Order (number of samples)	Batch Number
1805007 (44)	B18E017, B18E018

The designated analyst for these samples, Amanda Wroble, can be reached at 312.353.0375. All holding times were met.

Per pen & ink – 14097, the samples were not homogenized before subsampling. The samples were digested using CRL SOP METALS025, Rev. 3 (EPA Method 200.2) and analyzed using CRL SOP METALS003A, Rev. 4 (EPA Method 200.7/SW-846 Method 6010D).

### SAMPLE ANALYSIS AND RESULTS

The data reported herein meet the requirements referenced in the SOP used for analysis and any laboratory specifications stated in the *Quality Assurance Project Plan/Sampling Plan for Environmental Compliance Assessment for Central Sands*, dated April 2018.

The results were reported over three analytical runs due to quality control audit failures within each run.

### QUALITY CONTROL

All quality control audits that bracketed samples to which this narrative applies and the run in which a specific sample/analyte was reported were within CRL limits for the requested analytes or did not result in qualification of the data.

Digestion Blank Spike and Matrix Spike (BS): Blank Spike Recovery Limit = 100 ± 15%; Matrix Spike Recovery Limit = 100 ± 25%. Titanium recoveries for B18E018-BS2 (118%) and B18E018-MS1 (137%) were outside their respective audit limits. Titanium results for B18E018 (1805007-21 thru -44) were flagged “K” for



Environmental Protection Agency Region 5  
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Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

potential high bias.



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

**WORK ORDER**

Printed: 5/7/2018 9:53:28AM

**1805007**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

<b>Report To:</b>	Cheryl Burdett	77 West Jackson Boulevard	Phone: (312) 886-1463
	Water Division, WECA Region 5	Chicago, IL 60604	Fax: (312) 886-2001

Date Due:	Jun-04-18 15:00 (30 day TAT)	Date Received:	May-04-18 10:00
Received By:	Robert Snyder	Date Logged In:	May-07-18 07:38
Logged In By:	Robert Snyder		

<b>Samples Received at:</b>	<b>Work Order Comments:</b>
Sample tags/labels <b>Yes</b>	Copy/Relog from 1805005. Anions: Chloride and nitrate as NO3
Seals Intact <b>Yes</b>	Full List metals
Received on ice <b>Yes</b>	pH paper used in SC 16H2601
Paperwork included <b>Yes</b>	

**Sample ID:** 1805007-01      **Sampled:** May-02-18 06:38      **Matrix:** Water  
**Sample Name:** D5a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 06:38	pH = 1
Anions by IC	28	May-30-18 06:38	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 06:38	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 06:38	pH = 1
Solids, TDS	7	May-09-18 06:38	pH = 6
TKN DA	28	May-30-18 06:38	pH = 1
TOC	28	May-30-18 06:38	pH = 1
Total Phosphorus DA	28	May-30-18 06:38	pH = 1

**Sample ID:** 1805007-02      **Sampled:** May-02-18 06:46      **Matrix:** Water  
**Sample Name:** D5b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 06:46	pH = 1
Anions by IC	28	May-30-18 06:46	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 06:46	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 06:46	pH = 1



1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
 Project: Central Sands

Project Manager: Angela Ockrassa Davis  
 Project Number: CB022018

Sample ID: 1805007-02      Sampled: May-02-18 06:46      Matrix: Water

Sample Name: D5b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-09-18 06:46	pH = 5
TKN DA	28	May-30-18 06:46	pH = 1
TOC	28	May-30-18 06:46	pH = 1
Total Phosphorus DA	28	May-30-18 06:46	pH = 1

Sample ID: 1805007-03      Sampled: May-02-18 07:17      Matrix: Water

Sample Name: D6a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 07:17	pH = 1
Anions by IC	28	May-30-18 07:17	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 07:17	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 07:17	pH = 1
Solids, TDS	7	May-09-18 07:17	pH = 6
TKN DA	28	May-30-18 07:17	pH = 1
TOC	28	May-30-18 07:17	pH = 1
Total Phosphorus DA	28	May-30-18 07:17	pH = 1

Sample ID: 1805007-04      Sampled: May-02-18 07:29      Matrix: Water

Sample Name: D6b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 07:29	pH = 1
Anions by IC	28	May-30-18 07:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 07:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 07:29	pH = 1
Solids, TDS	7	May-09-18 07:29	pH = 6
TKN DA	28	May-30-18 07:29	pH = 1
TOC	28	May-30-18 07:29	pH = 1
Total Phosphorus DA	28	May-30-18 07:29	pH = 1

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-05      Sampled: May-02-18 08:01      Matrix: Water

Sample Name: D7 equip      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:01	pH = 1
Anions by IC	28	May-30-18 08:01	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 08:01	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:01	pH = 1
Solids, TDS	7	May-09-18 08:01	pH = 5
TKN DA	28	May-30-18 08:01	pH = 1
TOC	28	May-30-18 08:01	pH = 1
Total Phosphorus DA	28	May-30-18 08:01	pH = 1

Sample ID: 1805007-06      Sampled: May-02-18 08:03      Matrix: Water

Sample Name: FB3      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:03	pH = 1
Anions by IC	28	May-30-18 08:03	pH = 4
Metals ICP-AES (w)	180	Oct-29-18 08:03	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:03	pH = 1
Solids, TDS	7	May-09-18 08:03	pH = 4
TKN DA	28	May-30-18 08:03	pH = 1
TOC	28	May-30-18 08:03	pH = 1
Total Phosphorus DA	28	May-30-18 08:03	pH = 1

Sample ID: 1805007-07      Sampled: May-02-18 08:12      Matrix: Water

Sample Name: D7a Dup      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:12	pH = 1
Anions by IC	28	May-30-18 08:12	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:12	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:12	pH = 1
Solids, TDS	7	May-09-18 08:12	pH = 6
TKN DA	28	May-30-18 08:12	pH = 1
TOC	28	May-30-18 08:12	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-07      Sampled: May-02-18 08:12      Matrix: Water  
Sample Name: D7a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 08:12	pH = 1

Sample ID: 1805007-08      Sampled: May-02-18 08:12      Matrix: Water      OC Source Sample MS/MSD  
Sample Name: D7a      Sample Location/Comments: 23rd Avenue

Sample Comments: MS/MSD

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:12	pH = 1
Anions by IC	28	May-30-18 08:12	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:12	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:12	pH = 1
Solids, TDS	7	May-09-18 08:12	pH = 6
TKN DA	28	May-30-18 08:12	pH = 1
TOC	28	May-30-18 08:12	pH = 1
Total Phosphorus DA	28	May-30-18 08:12	pH = 1

Sample ID: 1805007-09      Sampled: May-02-18 08:19      Matrix: Water  
Sample Name: D7b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:19	pH = 1
Anions by IC	28	May-30-18 08:19	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 08:19	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:19	pH = 1
Solids, TDS	7	May-09-18 08:19	pH = 5
TKN DA	28	May-30-18 08:19	pH = 1
TOC	28	May-30-18 08:19	pH = 1
Total Phosphorus DA	28	May-30-18 08:19	pH = 1

Sample ID: 1805007-10      Sampled: May-02-18 08:55      Matrix: Water  
Sample Name: D8a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:55	pH = 1
Anions by IC	28	May-30-18 08:55	pH = 6



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US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> CB022018
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**Sample ID:** 1805007-10      **Sampled:** May-02-18 08:55      **Matrix:** Water

**Sample Name:** D8a      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 08:55	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:55	pH = 1
Solids, TDS	7	May-09-18 08:55	pH = 6
TKN DA	28	May-30-18 08:55	pH = 1
TOC	28	May-30-18 08:55	pH = 1
Total Phosphorus DA	28	May-30-18 08:55	pH = 1

**Sample ID:** 1805007-11      **Sampled:** May-02-18 09:11      **Matrix:** Water

**Sample Name:** D8b      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:11	pH = 1
Anions by IC	28	May-30-18 09:11	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:11	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:11	pH = 1
Solids, TDS	7	May-09-18 09:11	pH = 6
TKN DA	28	May-30-18 09:11	pH = 1
TOC	28	May-30-18 09:11	pH = 1
Total Phosphorus DA	28	May-30-18 09:11	pH = 1

**Sample ID:** 1805007-12      **Sampled:** May-02-18 09:45      **Matrix:** Water

**Sample Name:** D9a      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:45	pH = 1
Anions by IC	28	May-30-18 09:45	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:45	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:45	pH = 1
Solids, TDS	7	May-09-18 09:45	pH = 6
TKN DA	28	May-30-18 09:45	pH = 1
TOC	28	May-30-18 09:45	pH = 1
Total Phosphorus DA	28	May-30-18 09:45	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
 Project: Central Sands

Project Manager: Angela Ockrassa Davis  
 Project Number: CB022018

Sample ID: 1805007-13      Sampled: May-02-18 09:54      Matrix: Water

Sample Name: D9b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:54	pH = 1
Anions by IC	28	May-30-18 09:54	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:54	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:54	pH = 1
Solids, TDS	7	May-09-18 09:54	pH = 6
TKN DA	28	May-30-18 09:54	pH = 1
TOC	28	May-30-18 09:54	pH = 1
Total Phosphorus DA	28	May-30-18 09:54	pH = 1

Sample ID: 1805007-14      Sampled: May-02-18 10:29      Matrix: Water

Sample Name: D10a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:29	pH = 1
Anions by IC	28	May-30-18 10:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 10:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:29	pH = 1
Solids, TDS	7	May-09-18 10:29	pH = 6
TKN DA	28	May-30-18 10:29	pH = 1
TOC	28	May-30-18 10:29	pH = 1
Total Phosphorus DA	28	May-30-18 10:29	pH = 1

Sample ID: 1805007-15      Sampled: May-02-18 10:29      Matrix: Water

Sample Name: D10a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:29	pH = 1
Anions by IC	28	May-30-18 10:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 10:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:29	pH = 1
Solids, TDS	7	May-09-18 10:29	pH = 6
TKN DA	28	May-30-18 10:29	pH = 1
TOC	28	May-30-18 10:29	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-15      Sampled: May-02-18 10:29      Matrix: Water

Sample Name: D10a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 10:29	pH = 1

Sample ID: 1805007-16      Sampled: May-02-18 10:41      Matrix: Water

Sample Name: D10b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:41	pH = 1
Anions by IC	28	May-30-18 10:41	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 10:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:41	pH = 1
Solids, TDS	7	May-09-18 10:41	pH = 5
TKN DA	28	May-30-18 10:41	pH = 1
TOC	28	May-30-18 10:41	pH = 1
Total Phosphorus DA	28	May-30-18 10:41	pH = 1

Sample ID: 1805007-17      Sampled: May-02-18 10:41      Matrix: Water

Sample Name: D10b Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:41	pH = 1
Anions by IC	28	May-30-18 10:41	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 10:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:41	pH = 1
Solids, TDS	7	May-09-18 10:41	pH = 5
TKN DA	28	May-30-18 10:41	pH = 1
TOC	28	May-30-18 10:41	pH = 1
Total Phosphorus DA	28	May-30-18 10:41	pH = 1

Sample ID: 1805007-18      Sampled: May-02-18 11:19      Matrix: Water

Sample Name: D11a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 11:19	pH = 1
Anions by IC	28	May-30-18 11:19	pH = 6



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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
 Project: Central Sands

Project Manager: Angela Ockrassa Davis  
 Project Number: CB022018

Sample ID: 1805007-18      Sampled: May-02-18 11:19      Matrix: Water

Sample Name: D11a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 11:19	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 11:19	pH = 1
Solids, TDS	7	May-09-18 11:19	pH = 6
TKN DA	28	May-30-18 11:19	pH = 1
TOC	28	May-30-18 11:19	pH = 1
Total Phosphorus DA	28	May-30-18 11:19	pH = 1

Sample ID: 1805007-19      Sampled: May-02-18 11:42      Matrix: Water

Sample Name: D11b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 11:42	pH = 1
Anions by IC	28	May-30-18 11:42	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 11:42	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 11:42	pH = 1
Solids, TDS	7	May-09-18 11:42	pH = 5
TKN DA	28	May-30-18 11:42	pH = 1
TOC	28	May-30-18 11:42	pH = 1
Total Phosphorus DA	28	May-30-18 11:42	pH = 1

Sample ID: 1805007-20      Sampled: May-02-18 12:41      Matrix: Water

Sample Name: E1a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 12:41	pH = 1
Anions by IC	28	May-30-18 12:41	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 12:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 12:41	pH = 1
Solids, TDS	7	May-09-18 12:41	pH = 6
TKN DA	28	May-30-18 12:41	pH = 1
TOC	28	May-30-18 12:41	pH = 1
Total Phosphorus DA	28	May-30-18 12:41	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-21      Sampled: May-02-18 12:58      Matrix: Water

Sample Name: E1b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 12:58	pH = 1
Anions by IC	28	May-30-18 12:58	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 12:58	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 12:58	pH = 1
Solids, TDS	7	May-09-18 12:58	pH = 6
TKN DA	28	May-30-18 12:58	pH = 1
TOC	28	May-30-18 12:58	pH = 1
Total Phosphorus DA	28	May-30-18 12:58	pH = 1

Sample ID: 1805007-22      Sampled: May-02-18 13:28      Matrix: Water

Sample Name: E2a      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:28	pH = 1
Anions by IC	28	May-30-18 13:28	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 13:28	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:28	pH = 1
Solids, TDS	7	May-09-18 13:28	pH = 6
TKN DA	28	May-30-18 13:28	pH = 1
TOC	28	May-30-18 13:28	pH = 1
Total Phosphorus DA	28	May-30-18 13:28	pH = 1

Sample ID: 1805007-23      Sampled: May-02-18 13:37      Matrix: Water

Sample Name: E2b      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:37	pH = 1
Anions by IC	28	May-30-18 13:37	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 13:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:37	pH = 1
Solids, TDS	7	May-09-18 13:37	pH = 5
TKN DA	28	May-30-18 13:37	pH = 1
TOC	28	May-30-18 13:37	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-23      Sampled: May-02-18 13:37      Matrix: Water  
 Sample Name: E2b      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 13:37	pH = 1

Sample ID: 1805007-24      Sampled: May-02-18 13:28      Matrix: Water  
 Sample Name: E2a Dup      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:28	pH = 1
Anions by IC	28	May-30-18 13:28	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 13:28	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:28	pH = 1
Solids, TDS	7	May-09-18 13:28	pH = 6
TKN DA	28	May-30-18 13:28	pH = 1
TOC	28	May-30-18 13:28	pH = 1
Total Phosphorus DA	28	May-30-18 13:28	pH = 1

Sample ID: 1805007-25      Sampled: May-02-18 13:37      Matrix: Water  
 Sample Name: E2b Dup      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:37	pH = 1
Anions by IC	28	May-30-18 13:37	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 13:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:37	pH = 1
Solids, TDS	7	May-09-18 13:37	pH = 5
TKN DA	28	May-30-18 13:37	pH = 1
TOC	28	May-30-18 13:37	pH = 1
Total Phosphorus DA	28	May-30-18 13:37	pH = 1

Sample ID: 1805007-26      Sampled: May-02-18 14:03      Matrix: Water  
 Sample Name: E3a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:03	pH = 1
Anions by IC	28	May-30-18 14:03	pH = 6



1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-26      Sampled: May-02-18 14:03      Matrix: Water

Sample Name: E3a      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 14:03	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:03	pH = 1
Solids, TDS	7	May-09-18 14:03	pH = 6
TKN DA	28	May-30-18 14:03	pH = 1
TOC	28	May-30-18 14:03	pH = 1
Total Phosphorus DA	28	May-30-18 14:03	pH = 1

Sample ID: 1805007-27      Sampled: May-02-18 14:09      Matrix: Water

Sample Name: E3b      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:09	pH = 1
Anions by IC	28	May-30-18 14:09	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:09	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:09	pH = 1
Solids, TDS	7	May-09-18 14:09	pH = 6
TKN DA	28	May-30-18 14:09	pH = 1
TOC	28	May-30-18 14:09	pH = 1
Total Phosphorus DA	28	May-30-18 14:09	pH = 1

Sample ID: 1805007-28      Sampled: May-02-18 14:37      Matrix: Water

Sample Name: E4a      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:37	pH = 1
Anions by IC	28	May-30-18 14:37	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:37	pH = 1
Solids, TDS	7	May-09-18 14:37	pH = 6
TKN DA	28	May-30-18 14:37	pH = 1
TOC	28	May-30-18 14:37	pH = 1
Total Phosphorus DA	28	May-30-18 14:37	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-29      Sampled: May-02-18 14:43      Matrix: Water

Sample Name: E4b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:43	pH = 1
Anions by IC	28	May-30-18 14:43	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:43	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:43	pH = 1
Solids, TDS	7	May-09-18 14:43	pH = 6
TKN DA	28	May-30-18 14:43	pH = 1
TOC	28	May-30-18 14:43	pH = 1
Total Phosphorus DA	28	May-30-18 14:43	pH = 1

Sample ID: 1805007-30      Sampled: May-02-18 15:08      Matrix: Water

Sample Name: E5a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:08	pH = 1
Anions by IC	28	May-30-18 15:08	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:08	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:08	pH = 1
Solids, TDS	7	May-09-18 15:08	pH = 6
TKN DA	28	May-30-18 15:08	pH = 1
TOC	28	May-30-18 15:08	pH = 1
Total Phosphorus DA	28	May-30-18 15:08	pH = 1

Sample ID: 1805007-31      Sampled: May-02-18 15:13      Matrix: Water

Sample Name: E5b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:13	pH = 1
Anions by IC	28	May-30-18 15:13	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:13	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:13	pH = 1
Solids, TDS	7	May-09-18 15:13	pH = 6
TKN DA	28	May-30-18 15:13	pH = 1
TOC	28	May-30-18 15:13	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-31      Sampled: May-02-18 15:13      Matrix: Water

Sample Name: E5b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 15:13	pH = 1

Sample ID: 1805007-32      Sampled: May-02-18 15:38      Matrix: Water

Sample Name: E6a      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:38	pH = 1
Anions by IC	28	May-30-18 15:38	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:38	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:38	pH = 1
Solids, TDS	7	May-09-18 15:38	pH = 6
TKN DA	28	May-30-18 15:38	pH = 1
TOC	28	May-30-18 15:38	pH = 1
Total Phosphorus DA	28	May-30-18 15:38	pH = 1

Sample ID: 1805007-33      Sampled: May-02-18 15:44      Matrix: Water

Sample Name: E6b      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:44	pH = 1
Anions by IC	28	May-30-18 15:44	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:44	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:44	pH = 1
Solids, TDS	7	May-09-18 15:44	pH = 6
TKN DA	28	May-30-18 15:44	pH = 1
TOC	28	May-30-18 15:44	pH = 1
Total Phosphorus DA	28	May-30-18 15:44	pH = 1

Sample ID: 1805007-34      Sampled: May-02-18 16:09      Matrix: Water

Sample Name: E7a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 16:09	pH = 1
Anions by IC	28	May-30-18 16:09	pH = 5



WORK ORDER

Printed: 5/7/2018 9:53:28AM

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-34      Sampled: May-02-18 16:09      Matrix: Water

Sample Name: E7a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 16:09	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 16:09	pH = 1
Solids, TDS	7	May-09-18 16:09	pH = 5
TKN DA	28	May-30-18 16:09	pH = 1
TOC	28	May-30-18 16:09	pH = 1
Total Phosphorus DA	28	May-30-18 16:09	pH = 1

Sample ID: 1805007-35      Sampled: May-02-18 16:35      Matrix: Water

Sample Name: E7b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 16:35	pH = 1
Anions by IC	28	May-30-18 16:35	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 16:35	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 16:35	pH = 1
Solids, TDS	7	May-09-18 16:35	pH = 5
TKN DA	28	May-30-18 16:35	pH = 1
TOC	28	May-30-18 16:35	pH = 1
Total Phosphorus DA	28	May-30-18 16:35	pH = 1

Sample ID: 1805007-36      Sampled: May-03-18 08:40      Matrix: Water

Sample Name: E8a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 08:40	pH = 1
Anions by IC	28	May-31-18 08:40	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 08:40	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 08:40	pH = 1
Solids, TDS	7	May-10-18 08:40	pH = 5
TKN DA	28	May-31-18 08:40	pH = 1
TOC	28	May-31-18 08:40	pH = 1
Total Phosphorus DA	28	May-31-18 08:40	pH = 1

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-37      Sampled: May-03-18 08:48      Matrix: Water

Sample Name: E8b      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 08:48	pH = 1
Anions by IC	28	May-31-18 08:48	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 08:48	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 08:48	pH = 1
Solids, TDS	7	May-10-18 08:48	pH = 6
TKN DA	28	May-31-18 08:48	pH = 1
TOC	28	May-31-18 08:48	pH = 1
Total Phosphorus DA	28	May-31-18 08:48	pH = 1

Sample ID: 1805007-38      Sampled: May-03-18 07:15      Matrix: Water

Sample Name: E10a      Sample Location/Comments: 8th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:15	pH = 1
Anions by IC	28	May-31-18 07:15	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:15	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:15	pH = 1
Solids, TDS	7	May-10-18 07:15	pH = 6
TKN DA	28	May-31-18 07:15	pH = 1
TOC	28	May-31-18 07:15	pH = 1
Total Phosphorus DA	28	May-31-18 07:15	pH = 1

Sample ID: 1805007-39      Sampled: May-03-18 07:15      Matrix: Water

Sample Name: E10a Dup      Sample Location/Comments: 8th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:15	pH = 1
Anions by IC	28	May-31-18 07:15	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:15	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:15	pH = 1
Solids, TDS	7	May-10-18 07:15	pH = 6
TKN DA	28	May-31-18 07:15	pH = 1
TOC	28	May-31-18 07:15	pH = 1

WORK ORDER

Printed: 5/7/2018 9:53:28AM

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-39      Sampled: May-03-18 07:15      Matrix: Water

Sample Name: E10a Dup      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-31-18 07:15	pH = 1

Sample ID: 1805007-40      Sampled: May-03-18 07:27      Matrix: Water

Sample Name: E10b      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:27	pH = 1
Anions by IC	28	May-31-18 07:27	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:27	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:27	pH = 1
Solids, TDS	7	May-10-18 07:27	pH = 6
TKN DA	28	May-31-18 07:27	pH = 1
TOC	28	May-31-18 07:27	pH = 1
Total Phosphorus DA	28	May-31-18 07:27	pH = 1

Sample ID: 1805007-41      Sampled: May-03-18 07:36      Matrix: Water

Sample Name: FB4      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:36	pH = 1
Anions by IC	28	May-31-18 07:36	pH = 4
Metals ICP-AES (w)	180	Oct-30-18 07:36	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:36	pH = 1
Solids, TDS	7	May-10-18 07:36	pH = 4
TKN DA	28	May-31-18 07:36	pH = 1
TOC	28	May-31-18 07:36	pH = 1
Total Phosphorus DA	28	May-31-18 07:36	pH = 1

Sample ID: 1805007-42      Sampled: May-03-18 07:13      Matrix: Water

Sample Name: E10 Equip      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:13	pH = 1
Anions by IC	28	May-31-18 07:13	pH = 4



1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-42      Sampled: May-03-18 07:13      Matrix: Water

Sample Name: E10 Equip      Sample Location/Comments: 8th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-30-18 07:13	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:13	pH = 1
Solids, TDS	7	May-10-18 07:13	pH = 4
TKN DA	28	May-31-18 07:13	pH = 1
TOC	28	May-31-18 07:13	pH = 1
Total Phosphorus DA	28	May-31-18 07:13	pH = 1

Sample ID: 1805007-43      Sampled: May-03-18 09:53      Matrix: Water

Sample Name: E9a      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 09:53	pH = 1
Anions by IC	28	May-31-18 09:53	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 09:53	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 09:53	pH = 1
Solids, TDS	7	May-10-18 09:53	pH = 5
TKN DA	28	May-31-18 09:53	pH = 1
TOC	28	May-31-18 09:53	pH = 1
Total Phosphorus DA	28	May-31-18 09:53	pH = 1

Sample ID: 1805007-44      Sampled: May-03-18 10:02      Matrix: Water

Sample Name: E9b      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 10:02	pH = 1
Anions by IC	28	May-31-18 10:02	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 10:02	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 10:02	pH = 1
Solids, TDS	7	May-10-18 10:02	pH = 5
TKN DA	28	May-31-18 10:02	pH = 1
TOC	28	May-31-18 10:02	pH = 1
Total Phosphorus DA	28	May-31-18 10:02	pH = 1

WORK ORDER

Printed: 5/7/2018 9:53:28AM

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

PROJECT COMMENTS: Anions: Chloride, fluoride, bromide, sulfate.  
Full List metals

**REVIEWED**  
*By Robert Thompson at 9:54 am, May 07, 2018*

Reviewed By

Date



## Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-31-18 13:59

### Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

DSa (1805007-01)      Matrix: Water      Sampled: May-02-18 06:38      Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	4.65			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.409			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	60.5			0.200	"	"	"	"	"
Chromium	0.406			0.005	"	"	"	"	"
Cobalt	0.0176			0.006	"	"	"	"	"
Copper	0.167			0.0200	"	"	"	"	"
Iron	58.9			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	28.8			0.200	"	"	"	"	"
Manganese	4.84			0.008	"	"	"	"	"
Molybdenum	0.0504			0.0120	"	"	"	"	"
Nickel	0.0835			0.0120	"	"	"	"	"
Potassium	3.43			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	2.58			0.400	"	"	"	"	"
Strontium	0.0808			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0473			0.006	"	"	"	"	"
Vanadium	0.0122			0.005	"	"	"	"	"
Zinc	0.0336			0.0300	"	"	"	"	"





# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-31-18 13:59
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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

D5b (1805007-02)      Matrix: Water      Sampled: May-02-18 06:46      Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	10.6			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.332			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	14.4			0.200	"	"	"	"	"
Chromium	0.182			0.005	"	"	"	"	"
Cobalt	0.0248			0.006	"	"	"	"	"
Copper	0.0750			0.0200	"	"	"	"	"
Iron	27.5			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	4.94			0.200	"	"	"	"	"
Manganese	2.88			0.008	"	"	"	"	"
Molybdenum	0.0179			0.0120	"	"	"	"	"
Nickel	0.0379			0.0120	"	"	"	"	"
Potassium	2.25			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	1.73			0.400	"	"	"	"	"
Strontium	0.0677			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0655			0.006	"	"	"	"	"
Vanadium	0.0488			0.005	"	"	"	"	"
Zinc	0.0560			0.0300	"	"	"	"	"



## Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-31-18 13:59

### Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

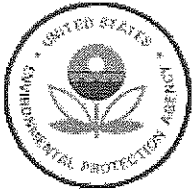
D6a (1805007-03)

Matrix: Water

Sampled: May-02-18 07:17

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	2.94			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.237			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0949			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	154			0.200	"	"	"	"	"
Chromium	0.217			0.005	"	"	"	"	"
Cobalt	0.0097			0.006	"	"	"	"	"
Copper	0.0730			0.0200	"	"	"	"	"
Iron	30.3			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	85.4			0.200	"	"	"	"	"
Manganese	0.658			0.008	"	"	"	"	"
Molybdenum	0.0350			0.0120	"	"	"	"	"
Nickel	0.0426			0.0120	"	"	"	"	"
Potassium	10.5			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	16.2			0.400	"	"	"	"	"
Strontium	0.517			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0383			0.006	"	"	"	"	"
Vanadium	0.0086			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

D6b (1805007-04)      Matrix: Water      Sampled: May-02-18 07:29      Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	4.08			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.165			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0982			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	138			0.200	"	"	"	"	"
Chromium	0.324			0.005	"	"	"	"	"
Cobalt	0.0132			0.006	"	"	"	"	"
Copper	0.117			0.0200	"	"	"	"	"
Iron	43.8			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	65.0			0.200	"	"	"	"	"
Manganese	1.26			0.008	"	"	"	"	"
Molybdenum	0.0405			0.0120	"	"	"	"	"
Nickel	0.0576			0.0120	"	"	"	"	"
Potassium	25.8			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	13.3			0.400	"	"	"	"	"
Strontium	0.197			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0334			0.006	"	"	"	"	"
Vanadium	0.0123			0.005	"	"	"	"	"
Zinc	0.0751			0.0300	"	"	"	"	"





**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

D7 equip (1805007-05)

Matrix: Water

Sampled: May-02-18 08:01

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	U			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	U			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	U			0.200	"	"	"	"	"
Chromium	U			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	U			0.0200	"	"	"	"	"
Iron	U			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	U			0.200	"	"	"	"	"
Manganese	U			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	U			0.0120	"	"	"	"	"
Potassium	U			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	U			0.400	"	"	"	"	"
Strontium	U			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	U			0.006	"	"	"	"	"
Vanadium	U			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-31-18 13:59
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

FB3 (1805007-06) Matrix: Water Sampled: May-02-18 08:03 Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	U			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	U			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	U			0.200	"	"	"	"	"
Chromium	U			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	U			0.0200	"	"	"	"	"
Iron	U			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	U			0.200	"	"	"	"	"
Manganese	U			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	U			0.0120	"	"	"	"	"
Potassium	U			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	U			0.400	"	"	"	"	"
Strontium	U			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	U			0.006	"	"	"	"	"
Vanadium	U			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

D7a Dup (1805007-07)

Matrix: Water

Sampled: May-02-18 08:12

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	1.07			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.136			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	118			0.200	"	"	"	"	"
Chromium	0.0286			0.005	"	"	"	"	"
Cobalt	0.0269			0.006	"	"	"	"	"
Copper	0.0432			0.0200	"	"	"	"	"
Iron	7.25			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	52.7			0.200	"	"	"	"	"
Manganese	2.13			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0333			0.0120	"	"	"	"	"
Potassium	2.24			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	5.20			0.400	"	"	"	"	"
Strontium	0.186			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0347			0.006	"	"	"	"	"
Vanadium	0.0086			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-31-18 13:59
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

D7a (1805007-08)      Matrix: Water      Sampled: May-02-18 08:12      Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	0.874			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.146			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	96.8			0.200	"	"	"	"	"
Chromium	0.0277			0.005	"	"	"	"	"
Cobalt	0.0305			0.006	"	"	"	"	"
Copper	0.0470			0.0200	"	"	"	"	"
Iron	6.14			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	40.7			0.200	"	"	"	"	May-10-18
Manganese	2.28			0.008	"	"	"	"	May-10-18
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0341			0.0120	"	"	"	"	"
Potassium	2.16			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	5.25			0.400	"	"	"	"	"
Strontium	0.175			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0339			0.006	"	"	"	"	"
Vanadium	0.0063			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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Water Division, WECA Region 5  
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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-31-18 13:59

### Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

D7b (1805007-09)

Matrix: Water

Sampled: May-02-18 08:19

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	7.51			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.420			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	106			0.200	"	"	"	"	"
Chromium	0.280			0.005	"	"	"	"	"
Cobalt	0.0398			0.006	"	"	"	"	"
Copper	0.150			0.0200	"	"	"	"	"
Iron	41.1			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	28.6			0.200	"	"	"	"	May-10-18
Manganese	6.69			0.008	"	"	"	"	May-10-18
Molybdenum	0.0247			0.0120	"	"	"	"	"
Nickel	0.0705			0.0120	"	"	"	"	"
Potassium	20.5			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	6.90			0.400	"	"	"	"	"
Strontium	0.612			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0554			0.006	"	"	"	"	"
Vanadium	0.0233			0.005	"	"	"	"	"
Zinc	0.107			0.0300	"	"	"	"	"



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-31-18 13:59
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

D8a (1805007-10)                      Matrix: Water                      Sampled: May-02-18 08:55                      Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	2.11			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.262			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0566			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	171			0.200	"	"	"	"	"
Chromium	0.131			0.005	"	"	"	"	"
Cobalt	0.0129			0.006	"	"	"	"	"
Copper	0.0874			0.0200	"	"	"	"	"
Iron	22.3			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	78.6			0.200	"	"	"	"	May-10-18
Manganese	3.24			0.008	"	"	"	"	May-10-18
Molybdenum	0.0153			0.0120	"	"	"	"	"
Nickel	0.0436			0.0120	"	"	"	"	"
Potassium	9.38			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	12.2			0.400	"	"	"	"	"
Strontium	0.617			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0275			0.006	"	"	"	"	"
Vanadium	0.0085			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-31-18 13:59
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**D8b (1805007-11) Matrix: Water Sampled: May-02-18 09:11 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	5.35			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.370			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0954			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	109			0.200	"	"	"	"	"
Chromium	0.342			0.005	"	"	"	"	"
Cobalt	0.0417			0.006	"	"	"	"	"
Copper	0.209			0.0200	"	"	"	"	"
Iron	44.1			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	53.7			0.200	"	"	"	"	May-10-18
Manganese	9.73			0.008	"	"	"	"	May-10-18
Molybdenum	0.0231			0.0120	"	"	"	"	"
Nickel	0.0950			0.0120	"	"	"	"	"
Potassium	20.6			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	17.0			0.400	"	"	"	"	"
Strontium	0.262			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0405			0.006	"	"	"	"	"
Vanadium	0.0231			0.005	"	"	"	"	"
Zinc	0.0760			0.0300	"	"	"	"	"



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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

D9a (1805007-12)      Matrix: Water      Sampled: May-02-18 09:45      Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	1.68			0.200	mg/L	J	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.180			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0521			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	133			0.200	"	"	"	"	"
Chromium	0.128			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	0.0569			0.0200	"	"	"	"	"
Iron	19.3			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	63.4			0.200	"	"	"	"	May-10-18
Manganese	1.03			0.008	"	"	"	"	May-10-18
Molybdenum	0.0138			0.0120	"	"	"	"	"
Nickel	0.0313			0.0120	"	"	"	"	"
Potassium	6.40			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	7.09			0.400	"	"	"	"	"
Strontium	0.743			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0202			0.006	"	"	"	"	"
Vanadium	0.006			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-31-18 13:59

### Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

D9b (1805007-13)

Matrix: Water

Sampled: May-02-18 09:54

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	5.58			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.398			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	36.8			0.200	"	"	"	"	"
Chromium	0.230			0.005	"	"	"	"	"
Cobalt	0.0233			0.006	"	"	"	"	"
Copper	0.124			0.0200	"	"	"	"	"
Iron	31.7			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	16.7			0.200	"	"	"	"	May-10-18
Manganese	2.13			0.008	"	"	"	"	May-10-18
Molybdenum	0.0188			0.0120	"	"	"	"	"
Nickel	0.0486			0.0120	"	"	"	"	"
Potassium	3.33			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	2.81			0.400	"	"	"	"	"
Strontium	0.139			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0341			0.006	"	"	"	"	"
Vanadium	0.0277			0.005	"	"	"	"	"
Zinc	0.0434			0.0300	"	"	"	"	"





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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

D10a (1805007-14)      Matrix: Water      Sampled: May-02-18 10:29      Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	2.54			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.194			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	130			0.200	"	"	"	"	"
Chromium	0.265			0.005	"	"	"	"	"
Cobalt	0.0107			0.006	"	"	"	"	"
Copper	0.0951			0.0200	"	"	"	"	"
Iron	36.3			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	66.3			0.200	"	"	"	"	May-10-18
Manganese	1.97			0.008	"	"	"	"	May-10-18
Molybdenum	0.0353			0.0120	"	"	"	"	"
Nickel	0.0592			0.0120	"	"	"	"	"
Potassium	5.91			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	3.59			0.400	"	"	"	"	"
Strontium	0.214			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0270			0.006	"	"	"	"	"
Vanadium	0.0071			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-31-18 13:59

### Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

D10a Dup (1805007-15)

Matrix: Water

Sampled: May-02-18 10:29

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	1.81			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.156			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	105			0.200	"	"	"	"	"
Chromium	0.187			0.005	"	"	"	"	"
Cobalt	0.0083			0.006	"	"	"	"	"
Copper	0.0684			0.0200	"	"	"	"	"
Iron	24.8			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	51.3			0.200	"	"	"	"	May-10-18
Manganese	1.56			0.008	"	"	"	"	May-10-18
Molybdenum	0.0269			0.0120	"	"	"	"	"
Nickel	0.0412			0.0120	"	"	"	"	"
Potassium	5.38			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	3.42			0.400	"	"	"	"	"
Strontium	0.207			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0220			0.006	"	"	"	"	"
Vanadium	0.0054			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-31-18 13:59

## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

D10b (1805007-16)

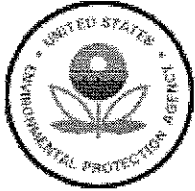
Matrix: Water

Sampled: May-02-18 10:41

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	3.63			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.297			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	49.8			0.200	"	"	"	"	"
Chromium	0.218			0.005	"	"	"	"	"
Cobalt	0.0152			0.006	"	"	"	"	"
Copper	0.104			0.0200	"	"	"	"	"
Iron	29.1			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	20.8			0.200	"	"	"	"	May-10-18
Manganese	5.00			0.008	"	"	"	"	May-10-18
Molybdenum	0.0225			0.0120	"	"	"	"	"
Nickel	0.0531			0.0120	"	"	"	"	"
Potassium	3.39			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	3.63			0.400	"	"	"	"	"
Strontium	0.210			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0309			0.006	"	"	"	"	"
Vanadium	0.0151			0.005	"	"	"	"	"
Zinc	0.0494			0.0300	"	"	"	"	"





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Chicago Regional Laboratory**

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Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**D10b Dup (1805007-17)**

**Matrix: Water**

**Sampled: May-02-18 10:41**

**Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	4.82			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.330			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	51.0			0.200	"	"	"	"	"
Chromium	0.201			0.005	"	"	"	"	"
Cobalt	0.0166			0.006	"	"	"	"	"
Copper	0.105			0.0200	"	"	"	"	"
Iron	29.7			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	21.7			0.200	"	"	"	"	May-10-18
Manganese	6.74			0.008	"	"	"	"	May-10-18
Molybdenum	0.0174			0.0120	"	"	"	"	"
Nickel	0.0529			0.0120	"	"	"	"	"
Potassium	3.28			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	3.59			0.400	"	"	"	"	"
Strontium	0.213			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0359			0.006	"	"	"	"	"
Vanadium	0.0226			0.005	"	"	"	"	"
Zinc	0.0550			0.0300	"	"	"	"	"



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-31-18 13:59
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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

D11a (1805007-18)      Matrix: Water      Sampled: May-02-18 11:19      Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	1.83			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.357			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	87.4			0.200	"	"	"	"	"
Chromium	0.0166			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	0.0388			0.0200	"	"	"	"	"
Iron	3.33			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	43.5			0.200	"	"	"	"	May-10-18
Manganese	2.58			0.008	"	"	"	"	May-10-18
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0120			0.0120	"	"	"	"	"
Potassium	3.35			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	7.49			0.400	"	"	"	"	"
Strontium	0.373			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0124			0.006	"	"	"	"	"
Vanadium	U			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

D11b (1805007-19)

Matrix: Water

Sampled: May-02-18 11:42

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	3.36			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.193			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0654			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	45.5			0.200	"	"	"	"	"
Chromium	0.0224			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	0.0278			0.0200	"	"	"	"	"
Iron	4.03			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	16.7			0.200	"	"	"	"	May-10-18
Manganese	2.27			0.008	"	"	"	"	May-10-18
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	U			0.0120	"	"	"	"	"
Potassium	15.9			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	9.29			0.400	"	"	"	"	"
Strontium	0.123			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0207			0.006	"	"	"	"	"
Vanadium	U			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> May-31-18 13:59
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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

E1a (1805007-20)      Matrix: Water      Sampled: May-02-18 12:41      Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	1.03			0.200	mg/L	1	B18E017	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.173			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0509			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	110			0.200	"	"	"	"	"
Chromium	0.0728			0.005	"	"	"	"	"
Cobalt	0.0104			0.006	"	"	"	"	"
Copper	0.0754			0.0200	"	"	"	"	"
Iron	11.6			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	52.3			0.200	"	"	"	"	May-10-18
Manganese	4.35			0.008	"	"	"	"	May-10-18
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0257			0.0120	"	"	"	"	"
Potassium	2.28			0.800	"	"	"	"	May-10-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	4.58			0.400	"	"	"	"	"
Strontium	0.307			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0270			0.006	"	"	"	"	"
Vanadium	U			0.005	"	"	"	"	"
Zinc	U			0.0300	"	"	"	"	"



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-31-18 13:59

### Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

E1b (1805007-21)

Matrix: Water

Sampled: May-02-18 12:58

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	5.06			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.611			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	73.5			0.200	"	"	"	"	"
Chromium	0.199			0.005	"	"	"	"	"
Cobalt	0.0698			0.006	"	"	"	"	"
Copper	0.112			0.0200	"	"	"	"	"
Iron	30.7			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	21.2			0.200	"	"	"	"	"
Manganese	5.08			0.008	"	"	"	"	"
Molybdenum	0.0133			0.0120	"	"	"	"	"
Nickel	0.0566			0.0120	"	"	"	"	"
Potassium	8.86			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	4.94			0.400	"	"	"	"	"
Strontium	0.480			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0276	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0216			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"



**Environmental Protection Agency Region 5**  
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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-31-18 13:59
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**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E2a (1805007-22)                      Matrix: Water      Sampled: May-02-18 13:28      Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	1.09			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.101			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	38.8			0.200	"	"	"	"	"
Chromium	0.0397			0.005	"	"	"	"	"
Cobalt	0.0174			0.006	"	"	"	"	"
Copper	0.0546			0.0200	"	"	"	"	"
Iron	8.17			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	19.9			0.200	"	"	"	"	"
Manganese	2.46			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0312			0.0120	"	"	"	"	"
Potassium	1.72			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	23.3			0.400	"	"	"	"	"
Strontium	0.0553			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0272	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0061			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"





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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-31-18 13:59

### Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

E2b (1805007-23)

Matrix: Water

Sampled: May-02-18 13:37

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	4.92			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.371			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	29.9			0.200	"	"	"	"	"
Chromium	0.179			0.005	"	"	"	"	"
Cobalt	0.0302			0.006	"	"	"	"	"
Copper	0.126			0.0200	"	"	"	"	"
Iron	29.9			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	12.1			0.200	"	"	"	"	"
Manganese	3.93			0.008	"	"	"	"	"
Molybdenum	0.0167			0.0120	"	"	"	"	"
Nickel	0.0641			0.0120	"	"	"	"	"
Potassium	4.02			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	3.00			0.400	"	"	"	"	"
Strontium	0.140			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0296	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0238			0.005	"	"	"	"	May-10-18
Zinc	0.0363			0.0300	"	"	"	"	"



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-31-18 13:59
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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

E2a Dup (1805007-24)

Matrix: Water

Sampled: May-02-18 13:28

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	1.51			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.164			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	87.4			0.200	"	"	"	"	"
Chromium	0.0509			0.005	"	"	"	"	"
Cobalt	0.0223			0.006	"	"	"	"	"
Copper	0.0793			0.0200	"	"	"	"	"
Iron	10.5			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	49.5			0.200	"	"	"	"	"
Manganese	3.73			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0447			0.0120	"	"	"	"	"
Potassium	1.92			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	24.0			0.400	"	"	"	"	"
Strontium	0.0796			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0282	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0075			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"



## Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-31-18 13:59

### Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

E2b Dup (1805007-25)

Matrix: Water

Sampled: May-02-18 13:37

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	5.44			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.480			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	31.9			0.200	"	"	"	"	"
Chromium	0.204			0.005	"	"	"	"	"
Cobalt	0.0355			0.006	"	"	"	"	"
Copper	0.141			0.0200	"	"	"	"	"
Iron	31.1			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	13.4			0.200	"	"	"	"	"
Manganese	4.86			0.008	"	"	"	"	"
Molybdenum	0.0129			0.0120	"	"	"	"	"
Nickel	0.0694			0.0120	"	"	"	"	"
Potassium	4.36			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	3.26			0.400	"	"	"	"	"
Strontium	0.148			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0282	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0241			0.005	"	"	"	"	May-10-18
Zinc	0.0449			0.0300	"	"	"	"	"





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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

### Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

E3a (1805007-26)

Matrix: Water

Sampled: May-02-18 14:03

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	2.08			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.228			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	118			0.200	"	"	"	"	"
Chromium	0.123			0.005	"	"	"	"	"
Cobalt	0.0228			0.006	"	"	"	"	"
Copper	0.0724			0.0200	"	"	"	"	"
Iron	24.8			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	68.6			0.200	"	"	"	"	"
Manganese	2.01			0.008	"	"	"	"	"
Molybdenum	0.0152			0.0120	"	"	"	"	"
Nickel	0.0543			0.0120	"	"	"	"	"
Potassium	2.48			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	3.11			0.400	"	"	"	"	"
Strontium	0.101			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0227	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0076			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-31-18 13:59
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

E3b (1805007-27)      Matrix: Water      Sampled: May-02-18 14:09      Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	2.43			0.200	mg/L	J	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.215			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0519			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	81.6			0.200	"	"	"	"	"
Chromium	0.240			0.005	"	"	"	"	"
Cobalt	0.0326			0.006	"	"	"	"	"
Copper	0.0921			0.0200	"	"	"	"	"
Iron	31.6			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	45.2			0.200	"	"	"	"	"
Manganese	2.68			0.008	"	"	"	"	"
Molybdenum	0.0246			0.0120	"	"	"	"	"
Nickel	0.0513			0.0120	"	"	"	"	"
Potassium	2.20			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	2.76			0.400	"	"	"	"	"
Strontium	0.108			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0274	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0076			0.005	"	"	"	"	May-10-18
Zinc	0.0356			0.0300	"	"	"	"	"



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-31-18 13:59
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

E4a (1805007-28)                      Matrix: Water                      Sampled: May-02-18 14:37                      Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	4.09			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.251			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0542			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	161			0.200	"	"	"	"	"
Chromium	0.293			0.005	"	"	"	"	"
Cobalt	0.0148			0.006	"	"	"	"	"
Copper	0.121			0.0200	"	"	"	"	"
Iron	45.7			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hf	76.9			0.200	"	"	"	"	"
Manganese	1.25			0.008	"	"	"	"	"
Molybdenum	0.0463			0.0120	"	"	"	"	"
Nickel	0.0658			0.0120	"	"	"	"	"
Potassium	4.36			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	5.46			0.400	"	"	"	"	"
Strontium	0.367			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0346	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0111			0.005	"	"	"	"	May-10-18
Zinc	0.0325			0.0300	"	"	"	"	"





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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**E4b (1805007-29) Matrix: Water Sampled: May-02-18 14:43 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	8.12			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.437			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	71.8			0.200	"	"	"	"	"
Chromium	0.306			0.005	"	"	"	"	"
Cobalt	0.0450			0.006	"	"	"	"	"
Copper	0.183			0.0200	"	"	"	"	"
Iron	49.3			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	27.7			0.200	"	"	"	"	"
Manganese	5.97			0.008	"	"	"	"	"
Molybdenum	0.0347			0.0120	"	"	"	"	"
Nickel	0.0864			0.0120	"	"	"	"	"
Potassium	17.6			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	5.12			0.400	"	"	"	"	"
Strontium	0.625			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0519	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0226			0.005	"	"	"	"	May-10-18
Zinc	0.0601			0.0300	"	"	"	"	"



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Chicago Regional Laboratory**

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-31-18 13:59
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

E5a (1805007-30)      Matrix: Water      Sampled: May-02-18 15:08      Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	2.63			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.359			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	141			0.200	"	"	"	"	"
Chromium	0.190			0.005	"	"	"	"	"
Cobalt	0.0187			0.006	"	"	"	"	"
Copper	0.0658			0.0200	"	"	"	"	"
Iron	26.7			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	74.5			0.200	"	"	"	"	"
Manganese	1.31			0.008	"	"	"	"	"
Molybdenum	0.0272			0.0120	"	"	"	"	"
Nickel	0.0412			0.0120	"	"	"	"	"
Potassium	16.0			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	6.58			0.400	"	"	"	"	"
Strontium	0.705			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0473	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0089			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"



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Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-31-18 13:59

### Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

E5b (1805007-31)      Matrix: Water      Sampled: May-02-18 15:13      Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	5.40			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.240			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	127			0.200	"	"	"	"	"
Chromium	0.315			0.005	"	"	"	"	"
Cobalt	0.0256			0.006	"	"	"	"	"
Copper	0.123			0.0200	"	"	"	"	"
Iron	44.6			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	64.3			0.200	"	"	"	"	"
Manganese	2.77			0.008	"	"	"	"	"
Molybdenum	0.0396			0.0120	"	"	"	"	"
Nickel	0.0715			0.0120	"	"	"	"	"
Potassium	19.1			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	6.29			0.400	"	"	"	"	"
Strontium	0.218			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0468	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0138			0.005	"	"	"	"	May-10-18
Zinc	0.0499			0.0300	"	"	"	"	"





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-31-18 13:59
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

E6a (1805007-32)      Matrix: Water      Sampled: May-02-18 15:38      Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	3.01			0.200	mg/L	J	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.171			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	74.7			0.200	"	"	"	"	"
Chromium	0.0819			0.005	"	"	"	"	"
Cobalt	0.0369			0.006	"	"	"	"	"
Copper	0.0607			0.0200	"	"	"	"	"
Iron	15.1			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium hi	42.0			0.200	"	"	"	"	"
Manganese	1.64			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0340			0.0120	"	"	"	"	"
Potassium	1.72			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	1.97			0.400	"	"	"	"	"
Strontium	0.0739			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0420	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0078			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-31-18 13:59

## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

E6b (1805007-33)

Matrix: Water

Sampled: May-02-18 15:44

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	13.6			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	1.10			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	30.9			0.200	"	"	"	"	"
Chromium	0.300			0.005	"	"	"	"	"
Cobalt	0.0515			0.006	"	"	"	"	"
Copper	0.134			0.0200	"	"	"	"	"
Iron	42.9			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	10.7			0.200	"	"	"	"	"
Manganese	1.62			0.008	"	"	"	"	"
Molybdenum	0.0266			0.0120	"	"	"	"	"
Nickel	0.0621			0.0120	"	"	"	"	"
Potassium	3.55			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	2.32			0.400	"	"	"	"	"
Strontium	0.186			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0642	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0603			0.005	"	"	"	"	May-10-18
Zinc	0.0838			0.0300	"	"	"	"	"



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-31-18 13:59
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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

E7a (1805007-34)                      Matrix: Water      Sampled: May-02-18 16:09      Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	3.80			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.246			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	34.0			0.200	"	"	"	"	"
Chromium	0.0942			0.005	"	"	"	"	"
Cobalt	0.0143			0.006	"	"	"	"	"
Copper	0.0476			0.0200	"	"	"	"	"
Iron	19.5			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	11.9			0.200	"	"	"	"	"
Manganese	2.11			0.008	"	"	"	"	"
Molybdenum	0.0120			0.0120	"	"	"	"	"
Nickel	0.0276			0.0120	"	"	"	"	"
Potassium	23.5			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	4.38			0.400	"	"	"	"	"
Strontium	0.459			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0883	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0177			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"





**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

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Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

E7b (1805007-35)

Matrix: Water

Sampled: May-02-18 16:35

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	8.19			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.272			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	46.5			0.200	"	"	"	"	"
Chromium	0.0503			0.005	"	"	"	"	"
Cobalt	0.0146			0.006	"	"	"	"	"
Copper	0.0313			0.0200	"	"	"	"	"
Iron	10.9			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	11.2			0.200	"	"	"	"	"
Manganese	1.52			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0146			0.0120	"	"	"	"	"
Potassium	15.7			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	4.40			0.400	"	"	"	"	"
Strontium	0.0562			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.194	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0325			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-31-18 13:59
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## Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

E8a (1805007-36)                      Matrix: Water                      Sampled: May-03-18 08:40                      Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	4.93			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.223			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0685			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	60.6			0.200	"	"	"	"	"
Chromium	0.0598			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	0.0354			0.0200	"	"	"	"	"
Iron	12.6			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	11.9			0.200	"	"	"	"	"
Manganese	0.177			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0194			0.0120	"	"	"	"	"
Potassium	3.88			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	5.08			0.400	"	"	"	"	"
Strontium	0.432			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0850	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0208			0.005	"	"	"	"	May-10-18
Zinc	0.115			0.0300	"	"	"	"	"



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-31-18 13:59

### Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

E8b (1805007-37)

Matrix: Water

Sampled: May-03-18 08:48

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	11.6			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.217			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	0.0862			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	47.8			0.200	"	"	"	"	"
Chromium	0.261			0.005	"	"	"	"	"
Cobalt	0.0155			0.006	"	"	"	"	"
Copper	0.0939			0.0200	"	"	"	"	"
Iron	33.9			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	20.9			0.200	"	"	"	"	"
Manganese	0.562			0.008	"	"	"	"	"
Molybdenum	0.0339			0.0120	"	"	"	"	"
Nickel	0.0410			0.0120	"	"	"	"	"
Potassium	16.3			0.800	"	"	"	"	"
Selenium	U			0.0500	"	"	"	"	"
Silver	U			0.0100	"	"	"	"	"
Sodium	5.28			0.400	"	"	"	"	"
Strontium	0.162			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.181	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0465			0.005	"	"	"	"	May-10-18
Zinc	0.696			0.0300	"	"	"	"	"





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-31-18 13:59
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**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

E10a (1805007-38)      Matrix: Water      Sampled: May-03-18 07:15      Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminium	2.10			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.137			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	13.2			0.200	"	"	"	"	"
Chromium	0.0350			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	U			0.0200	"	"	"	"	"
Iron	7.83			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	4.54			0.200	"	"	"	"	"
Manganese	0.238			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	U			0.0120	"	"	"	"	"
Potassium	0.948			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	1.82			0.400	"	"	"	"	"
Strontium	0.0218			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0547	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0145			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"



**Environmental Protection Agency Region 5**  
**Chicago Regional Laboratory**

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Water Division, WECA Region 5  
 77 West Jackson Boulevard  
 Chicago IL, 60604

Project: Central Sands  
 Project Number: CB022018  
 Project Manager: Cheryl Burdett

**Reported:**  
 May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E10a Dup (1805007-39)

Matrix: Water

Sampled: May-03-18 07:15

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	1.20			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.0845			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	12.9			0.200	"	"	"	"	"
Chromium	0.0213			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	U			0.0200	"	"	"	"	"
Iron	4.60			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	4.52			0.200	"	"	"	"	"
Manganese	0.130			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	U			0.0120	"	"	"	"	"
Potassium	0.804			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	1.79			0.400	"	"	"	"	"
Strontium	0.0181			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0255	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0088			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-31-18 13:59
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**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**E10b (1805007-40) Matrix: Water Sampled: May-03-18 07:27 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	16.1			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.279			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	17.3			0.200	"	"	"	"	"
Chromium	0.386			0.005	"	"	"	"	"
Cobalt	0.0162			0.006	"	"	"	"	"
Copper	0.112			0.0200	"	"	"	"	"
Iron	44.4			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	8.33			0.200	"	"	"	"	"
Manganese	1.01			0.008	"	"	"	"	"
Molybdenum	0.0356			0.0120	"	"	"	"	"
Nickel	0.0470			0.0120	"	"	"	"	"
Potassium	2.89			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	2.14			0.400	"	"	"	"	"
Strontium	0.0550			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.441	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0480			0.005	"	"	"	"	May-10-18
Zinc	0.0844			0.0300	"	"	"	"	"





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Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-31-18 13:59

### Metals by ICP-AES using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

FB4 (1805007-41)

Matrix: Water

Sampled: May-03-18 07:36

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	U			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	U			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	U			0.200	"	"	"	"	"
Chromium	U			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	U			0.0200	"	"	"	"	"
Iron	U			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	U			0.200	"	"	"	"	"
Manganese	U			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	U			0.0120	"	"	"	"	"
Potassium	U			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	U			0.400	"	"	"	"	"
Strontium	U			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	U	K		0.006	"	"	"	"	May-21-18
Vanadium	U			0.005	"	"	"	"	May-10-18
Zinc	U			0.0300	"	"	"	"	"



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 Chicago IL, 60604

Project: Central Sands  
 Project Number: CB022018  
 Project Manager: Cheryl Burdett

**Reported:**  
 May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E10 Equip (1805007-42)

Matrix: Water

Sampled: May-03-18 07:13

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	U			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.0067			0.003	"	"	"	"	May-21-18
Beryllium	U			0.002	"	"	"	"	May-10-18
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	0.867			0.200	"	"	"	"	"
Chromium	U			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	U			0.0200	"	"	"	"	"
Iron	0.508			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	0.240			0.200	"	"	"	"	"
Manganese	0.0119			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	U			0.0120	"	"	"	"	"
Potassium	U			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	1.08			0.400	"	"	"	"	"
Strontium	U			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	U	K		0.006	"	"	"	"	May-21-18
Vanadium	U			0.005	"	"	"	"	May-10-18
Zinc	0.0302			0.0300	"	"	"	"	"



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

E9a (1805007-43)

Matrix: Water

Sampled: May-03-18 09:53

Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	3.35			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.156			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	49.0			0.200	"	"	"	"	"
Chromium	0.0852			0.005	"	"	"	"	"
Cobalt	U			0.006	"	"	"	"	"
Copper	0.0598			0.0200	"	"	"	"	"
Iron	15.9			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	18.7			0.200	"	"	"	"	"
Manganese	0.240			0.008	"	"	"	"	"
Molybdenum	U			0.0120	"	"	"	"	"
Nickel	0.0201			0.0120	"	"	"	"	"
Potassium	3.84			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	4.38			0.400	"	"	"	"	"
Strontium	0.249			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.0496	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0502			0.005	"	"	"	"	May-10-18
Zinc	0.135			0.0300	"	"	"	"	"





**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

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Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
May-31-18 13:59

**Metals by ICP-AES using EPA 200.7 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

E9b (1805007-44)      Matrix: Water      Sampled: May-03-18 10:02      Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	9.52			0.200	mg/L	1	B18E018	May-09-18	May-10-18
Antimony	U			0.0200	"	"	"	"	"
Arsenic	U			0.0400	"	"	"	"	"
Barium	0.327			0.003	"	"	"	"	"
Beryllium	U			0.002	"	"	"	"	"
Boron	U			0.0500	"	"	"	"	"
Cadmium	U			0.002	"	"	"	"	"
Calcium	45.1			0.200	"	"	"	"	"
Chromium	0.294			0.005	"	"	"	"	"
Cobalt	0.0267			0.006	"	"	"	"	"
Copper	0.0924			0.0200	"	"	"	"	"
Iron	40.5			0.0800	"	"	"	"	"
Lead	U			0.0300	"	"	"	"	"
Lithium	U			0.0250	"	"	"	"	"
Magnesium	15.6			0.200	"	"	"	"	"
Manganese	1.04			0.008	"	"	"	"	"
Molybdenum	0.0371			0.0120	"	"	"	"	"
Nickel	0.0435			0.0120	"	"	"	"	"
Potassium	7.67			0.800	"	"	"	"	May-21-18
Selenium	U			0.0500	"	"	"	"	May-10-18
Silver	U			0.0100	"	"	"	"	"
Sodium	4.81			0.400	"	"	"	"	"
Strontium	0.366			0.003	"	"	"	"	"
Thallium	U			0.0600	"	"	"	"	"
Tin	U			0.0200	"	"	"	"	"
Titanium	0.284	K		0.006	"	"	"	"	May-21-18
Vanadium	0.0605			0.005	"	"	"	"	May-10-18
Zinc	0.184			0.0300	"	"	"	"	"



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

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Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-31-18 13:59

**Notes and Definitions**

- K The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value.
- U Not Detected
- NR Not Reported
- Q QC limit Exceeded



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5 CHICAGO REGIONAL LABORATORY  
536 SOUTH CLARK STREET  
CHICAGO, ILLINOIS 60605

**Date:** 6/1/2018  
**Subject:** Review of Region 5 Data for Central Sands  
**To:** Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604  
**From:** Anna Knoebel, Chemist  
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with the EPA QA/G-8 *Guidance on Environmental Data Verification and Data Validation* and the U.S. EPA Region 5 RMD QMP, CRL performs data verification on all the data generated internally. CRL does not perform data validation or quality assessment procedures.

This report was reviewed and the information provided herein accurately represents the analysis performed.

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*Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.*

**Attached are Results for: Central Sands**

**Analyses included in this report:**

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Ammonia N DA, Distilled

Report Name: 1805005,1805007 Ammonia N DA, Distilled FINAL Jun 01 18 1034





# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-01-18 10:34
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## Accredited Analyses included in this Report



*Method: SM 4500 - H- B in Water*  
*Analysis: Ammonia N DA, Distilled*  
**Analyte**

**Certifications**

Ammonia as N	ISO/IEC 17025:2005
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Analytes not listed above are not accredited by ANAB.



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
Jun-01-18 10:34

## ANALYSIS CASE NARRATIVE – Distilled Ammonia Nitrogen in Water

Work Order: 1805005, 1805007  
Analyst: Anna Knoebel  
Phone #: (312) 353-9467

### General Information

Ninety-eight water samples for Ammonia Nitrogen were received on May 2, 2018 and May 4, 2018. All holding times were met. The samples in the table below were underpreserved. These samples were qualified "J" (The identification of the analyte is acceptable; the reported value is an estimate).

LIMS ID	Sample Name
1805005-01	A1a
1805005-04	A2b
1805005-12	B1a
1805005-14	Bsa
1805005-17	B3b
1805005-19	B4b
1805005-24	C3a
1805005-29	C6b
1805005-41	C11a
1805005-45	C13a
1805005-48	D1b
1805005-49	D2a
1805005-54	D4b

### Sample Analysis and Results

The samples were distilled on May 22 – 29, 2018 and analyzed on May 24, 2018 and May 30, 2018 for Ammonia Nitrogen in water using CRL SOP AIG029B, Version # 6 (based on method 4500 – NH3- B & H). The data reported herein meets any laboratory specifications referenced in the sampling QAPP "*FINAL\_2018 GW Sampling Plan4\_27\_2018.pdf*" and the requirements referenced in CRL SOP AIG029B, Version # 6 (based on method 4500 – NH3- B & H).

### Quality Control

All quality control audits were within CRL limits or did not result in qualification of the data.





**WORK ORDER**

Printed: 5/3/2018 3:33:25PM

**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

Client: <b>Water Division, WECA Region 5</b> Project: <b>Central Sands</b>	Project Manager: <b>Angela Ockrassa Davis</b> Project Number: <b>[none]</b>
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Sample ID: 1805005-02      Sampled: Apr-30-18 07:32      Matrix: Water

Sample Name: A1b      Sample Location/Comments: 1st Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-07-18 07:32	pH = 5
TKN DA	28	May-28-18 07:32	pH = 2
TOC	28	May-28-18 07:32	pH = 2
Total Phosphorus DA	28	May-28-18 07:32	pH = 2

Sample ID: 1805005-03      Sampled: Apr-30-18 08:15      Matrix: Water

Sample Name: A2a      Sample Location/Comments: 22nd Avenue North

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 08:15	pH = 2
Anions by IC	28	May-28-18 08:15	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 08:15	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 08:15	pH = 2
Solids, TDS	7	May-07-18 08:15	pH = 6
TKN DA	28	May-28-18 08:15	pH = 2
TOC	28	May-28-18 08:15	pH = 2
Total Phosphorus DA	28	May-28-18 08:15	pH = 2

Sample ID: 1805005-04      Sampled: Apr-30-18 08:24      Matrix: Water

Sample Name: A2b      Sample Location/Comments: 22nd Avenue North

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 08:24	pH = 2
Anions by IC	28	May-28-18 08:24	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 08:24	pH = 5
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 08:24	pH = 2
Solids, TDS	7	May-07-18 08:24	pH = 6
TKN DA	28	May-28-18 08:24	pH = 2
TOC	28	May-28-18 08:24	pH = 2
Total Phosphorus DA	28	May-28-18 08:24	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-05      Sampled: Apr-30-18 09:06      Matrix: Water      OC Source Sample MS/MSD

Sample Name: A3a      Sample Location/Comments: 2nd Street

Sample Comments: MS/MSD

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:06	pH = 2
Anions by IC	28	May-28-18 09:06	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:06	pH = 2
Solids, TDS	7	May-07-18 09:06	pH = 6
TKN DA	28	May-28-18 09:06	pH = 2
TOC	28	May-28-18 09:06	pH = 2
Total Phosphorus DA	28	May-28-18 09:06	pH = 2

Sample ID: 1805005-06      Sampled: Apr-30-18 09:14      Matrix: Water

Sample Name: A3b      Sample Location/Comments: 2nd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:14	pH = 2
Anions by IC	28	May-28-18 09:14	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:14	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:14	pH = 2
Solids, TDS	7	May-07-18 09:14	pH = 6
TKN DA	28	May-28-18 09:14	pH = 2
TOC	28	May-28-18 09:14	pH = 2
Total Phosphorus DA	28	May-28-18 09:14	pH = 2

Sample ID: 1805005-07      Sampled: Apr-30-18 09:38      Matrix: Water

Sample Name: A4 Equip      Sample Location/Comments: Cranberry Rock Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:38	pH = 2
Anions by IC	28	May-28-18 09:38	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 09:38	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:38	pH = 2
Solids, TDS	7	May-07-18 09:38	pH = 5
TKN DA	28	May-28-18 09:38	pH = 2
TOC	28	May-28-18 09:38	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-07      Sampled: Apr-30-18 09:38      Matrix: Water

Sample Name: A4 Equip      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 09:38	pH = 2

Sample ID: 1805005-08      Sampled: Apr-30-18 09:06      Matrix: Water

Sample Name: A3a (Dup)      Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:06	pH = 2
Anions by IC	28	May-28-18 09:06	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:06	pH = 2
Solids, TDS	7	May-07-18 09:06	pH = 6
TKN DA	28	May-28-18 09:06	pH = 2
TOC	28	May-28-18 09:06	pH = 2
Total Phosphorus DA	28	May-28-18 09:06	pH = 2

Sample ID: 1805005-09      Sampled: Apr-30-18 09:49      Matrix: Water

Sample Name: FB1      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:49	pH = 2
Anions by IC	28	May-28-18 09:49	pH = 4
Metals ICP-AES (w)	180	Oct-27-18 09:49	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:49	pH = 2
Solids, TDS	7	May-07-18 09:49	pH = 4
TKN DA	28	May-28-18 09:49	pH = 2
TOC	28	May-28-18 09:49	pH = 2
Total Phosphorus DA	28	May-28-18 09:49	pH = 2

Sample ID: 1805005-10      Sampled: Apr-30-18 09:58      Matrix: Water

Sample Name: A4a      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:58	pH = 2
Anions by IC	28	May-28-18 09:58	pH = 6



1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-10 Sampled: Apr-30-18 09:58 Matrix: Water

Sample Name: A4a Sample Location/Comments: Cranberry Rock Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-27-18 09:58	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:58	pH = 2
Solids, TDS	7	May-07-18 09:58	pH = 6
TKN DA	28	May-28-18 09:58	pH = 2
TOC	28	May-28-18 09:58	pH = 2
Total Phosphorus DA	28	May-28-18 09:58	pH = 2

Sample ID: 1805005-11 Sampled: Apr-30-18 10:09 Matrix: Water

Sample Name: A4b Sample Location/Comments: Cranberry Rock Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:09	pH = 2
Anions by IC	28	May-28-18 10:09	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:09	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:09	pH = 2
Solids, TDS	7	May-07-18 10:09	pH = 5
TKN DA	28	May-28-18 10:09	pH = 2
TOC	28	May-28-18 10:09	pH = 2
Total Phosphorus DA	28	May-28-18 10:09	pH = 2

Sample ID: 1805005-12 Sampled: Apr-30-18 10:51 Matrix: Water

Sample Name: B1a Sample Location/Comments: 20th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:51	pH = 3
Anions by IC	28	May-28-18 10:51	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:51	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:51	pH = 3
Solids, TDS	7	May-07-18 10:51	pH = 5
TKN DA	28	May-28-18 10:51	pH = 3
TOC	28	May-28-18 10:51	pH = 3
Total Phosphorus DA	28	May-28-18 10:51	pH = 3

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-13      Sampled: Apr-30-18 10:58      Matrix: Water

Sample Name: B1b      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:58	pH = 2
Anions by IC	28	May-28-18 10:58	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:58	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:58	pH = 2
Solids, TDS	7	May-07-18 10:58	pH = 5
TKN DA	28	May-28-18 10:58	pH = 2
TOC	28	May-28-18 10:58	pH = 2
Total Phosphorus DA	28	May-28-18 10:58	pH = 2

Sample ID: 1805005-14      Sampled: Apr-30-18 11:40      Matrix: Water

Sample Name: B2a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 11:40	pH = 2
Anions by IC	28	May-28-18 11:40	pH = 7
Metals ICP-AES (w)	180	Oct-27-18 11:40	pH = 4
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 11:40	pH = 2
Solids, TDS	7	May-07-18 11:40	pH = 7
TKN DA	28	May-28-18 11:40	pH = 2
TOC	28	May-28-18 11:40	pH = 2
Total Phosphorus DA	28	May-28-18 11:40	pH = 2

Sample ID: 1805005-15      Sampled: Apr-30-18 11:48      Matrix: Water

Sample Name: B2b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 11:48	pH = 2
Anions by IC	28	May-28-18 11:48	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 11:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 11:48	pH = 2
Solids, TDS	7	May-07-18 11:48	pH = 5
TKN DA	28	May-28-18 11:48	pH = 2
TOC	28	May-28-18 11:48	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b>	Project Manager: <b>Angela Ockrassa Davis</b>
Project: <b>Central Sands</b>	Project Number: <b>[none]</b>

Sample ID: 1805005-15      Sampled: Apr-30-18 11:48      Matrix: Water

Sample Name: B2b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 11:48	pH = 2

Sample ID: 1805005-16      Sampled: Apr-30-18 12:29      Matrix: Water

Sample Name: B3a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 12:29	pH = 2
Anions by IC	28	May-28-18 12:29	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 12:29	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 12:29	pH = 2
Solids, TDS	7	May-07-18 12:29	pH = 6
TKN DA	28	May-28-18 12:29	pH = 2
TOC	28	May-28-18 12:29	pH = 2
Total Phosphorus DA	28	May-28-18 12:29	pH = 2

Sample ID: 1805005-17      Sampled: Apr-30-18 12:36      Matrix: Water

Sample Name: B3b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 12:36	pH = 2
Anions by IC	28	May-28-18 12:36	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 12:36	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 12:36	pH = 2
Solids, TDS	7	May-07-18 12:36	pH = 5
TKN DA	28	May-28-18 12:36	pH = 2
TOC	28	May-28-18 12:36	pH = 2
Total Phosphorus DA	28	May-28-18 12:36	pH = 2

Sample ID: 1805005-18      Sampled: Apr-30-18 13:10      Matrix: Water

Sample Name: B4a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 13:10	pH = 2
Anions by IC	28	May-28-18 13:10	pH = 5



1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-18      Sampled: Apr-30-18 13:10      Matrix: Water

Sample Name: B4a

Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-27-18 13:10	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 13:10	pH = 2
Solids, TDS	7	May-07-18 13:10	pH = 5
TKN DA	28	May-28-18 13:10	pH = 2
TOC	28	May-28-18 13:10	pH = 2
Total Phosphorus DA	28	May-28-18 13:10	pH = 2

Sample ID: 1805005-19      Sampled: Apr-30-18 13:41      Matrix: Water

Sample Name: B4b

Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 13:41	pH = 2
Anions by IC	28	May-28-18 13:41	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 13:41	pH = 4
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 13:41	pH = 2
Solids, TDS	7	May-07-18 13:41	pH = 5
TKN DA	28	May-28-18 13:41	pH = 2
TOC	28	May-28-18 13:41	pH = 2
Total Phosphorus DA	28	May-28-18 13:41	pH = 2

Sample ID: 1805005-20      Sampled: Apr-30-18 15:02      Matrix: Water

Sample Name: CIa

Sample Location/Comments: 2nd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 15:02	pH = 2
Anions by IC	28	May-28-18 15:02	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 15:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 15:02	pH = 2
Solids, TDS	7	May-07-18 15:02	pH = 5
TKN DA	28	May-28-18 15:02	pH = 2
TOC	28	May-28-18 15:02	pH = 2
Total Phosphorus DA	28	May-28-18 15:02	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-21      Sampled: Apr-30-18 15:27      Matrix: Water

Sample Name: C1b

Sample Location/Comments: 2nd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 15:27	pH = 2
Anions by IC	28	May-28-18 15:27	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 15:27	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 15:27	pH = 2
Solids, TDS	7	May-07-18 15:27	pH = 5
TKN DA	28	May-28-18 15:27	pH = 2
TOC	28	May-28-18 15:27	pH = 2
Total Phosphorus DA	28	May-28-18 15:27	pH = 2

Sample ID: 1805005-22      Sampled: Apr-30-18 16:06      Matrix: Water

Sample Name: C2a

Sample Location/Comments: Nelson Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 16:06	pH = 2
Anions by IC	28	May-28-18 16:06	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 16:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 16:06	pH = 2
Solids, TDS	7	May-07-18 16:06	pH = 5
TKN DA	28	May-28-18 16:06	pH = 2
TOC	28	May-28-18 16:06	pH = 2
Total Phosphorus DA	28	May-28-18 16:06	pH = 2

Sample ID: 1805005-23      Sampled: Apr-30-18 16:14      Matrix: Water

Sample Name: C2b

Sample Location/Comments: Nelson Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 16:14	pH = 2
Anions by IC	28	May-28-18 16:14	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 16:14	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 16:14	pH = 2
Solids, TDS	7	May-07-18 16:14	pH = 5
TKN DA	28	May-28-18 16:14	pH = 2
TOC	28	May-28-18 16:14	pH = 2

1805005

**US EPA Region 5 Chicago Regional Laboratory**

Client: <b>Water Division, WECA Region 5</b> Project: <b>Central Sands</b>	Project Manager: <b>Angela Ockrassa Davis</b> Project Number: <b>[none]</b>
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Sample ID: 1805005-23      Sampled: Apr-30-18 16:14      Matrix: Water

Sample Name: C2b      Sample Location/Comments: Nelson Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 16:14	pH = 2

Sample ID: 1805005-24      Sampled: Apr-30-18 14:16      Matrix: Water

Sample Name: C3a      Sample Location/Comments: 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 14:16	pH = 2
Anions by IC	28	May-28-18 14:16	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 14:16	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 14:16	pH = 2
Solids, TDS	7	May-07-18 14:16	pH = 5
TKN DA	28	May-28-18 14:16	pH = 2
TOC	28	May-28-18 14:16	pH = 2
Total Phosphorus DA	28	May-28-18 14:16	pH = 2

Sample ID: 1805005-25      Sampled: Apr-30-18 14:26      Matrix: Water

Sample Name: C3b      Sample Location/Comments: 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 14:26	pH = 2
Anions by IC	28	May-28-18 14:26	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 14:26	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 14:26	pH = 2
Solids, TDS	7	May-07-18 14:26	pH = 5
TKN DA	28	May-28-18 14:26	pH = 2
TOC	28	May-28-18 14:26	pH = 2
Total Phosphorus DA	28	May-28-18 14:26	pH = 2

Sample ID: 1805005-26      Sampled: May-01-18 06:29      Matrix: Water

Sample Name: C5Aa      Sample Location/Comments: CR G (Nelson Road)

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 06:29	pH = 2
Anions by IC	28	May-29-18 06:29	pH = 5



1805005

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-26      **Sampled:** May-01-18 06:29      **Matrix:** Water

**Sample Name:** C5Aa      **Sample Location/Comments:** CR G (Nelson Road)

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 06:29	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 06:29	pH = 2
Solids, TDS	7	May-08-18 06:29	pH = 5
TKN DA	28	May-29-18 06:29	pH = 2
TOC	28	May-29-18 06:29	pH = 2
Total Phosphorus DA	28	May-29-18 06:29	pH = 2

**Sample ID:** 1805005-27      **Sampled:** May-01-18 06:43      **Matrix:** Water

**Sample Name:** C5Ab      **Sample Location/Comments:** CR G (Nelson Road)

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 06:43	pH = 2
Anions by IC	28	May-29-18 06:43	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 06:43	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 06:43	pH = 2
Solids, TDS	7	May-08-18 06:43	pH = 5
TKN DA	28	May-29-18 06:43	pH = 2
TOC	28	May-29-18 06:43	pH = 2
Total Phosphorus DA	28	May-29-18 06:43	pH = 2

**Sample ID:** 1805005-28      **Sampled:** May-01-18 07:06      **Matrix:** Water

**Sample Name:** C6a      **Sample Location/Comments:** CR G (Nelson Road)

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:06	pH = 2
Anions by IC	28	May-29-18 07:06	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 07:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:06	pH = 2
Solids, TDS	7	May-08-18 07:06	pH = 6
TKN DA	28	May-29-18 07:06	pH = 2
TOC	28	May-29-18 07:06	pH = 2
Total Phosphorus DA	28	May-29-18 07:06	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-29      Sampled: May-01-18 07:15      Matrix: Water

Sample Name: C6b      Sample Location/Comments: CR G (Neison Road)

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:15	pH = 3
Anions by IC	28	May-29-18 07:15	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 07:15	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:15	pH = 3
Solids, TDS	7	May-08-18 07:15	pH = 5
TKN DA	28	May-29-18 07:15	pH = 3
TOC	28	May-29-18 07:15	pH = 3
Total Phosphorus DA	28	May-29-18 07:15	pH = 3

Sample ID: 1805005-30      Sampled: May-01-18 07:48      Matrix: Water

Sample Name: C7a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:48	pH = 2
Anions by IC	28	May-29-18 07:48	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 07:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:48	pH = 2
Solids, TDS	7	May-08-18 07:48	pH = 6
TKN DA	28	May-29-18 07:48	pH = 2
TOC	28	May-29-18 07:48	pH = 2
Total Phosphorus DA	28	May-29-18 07:48	pH = 2

Sample ID: 1805005-31      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:02	pH = 2
Anions by IC	28	May-29-18 08:02	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:02	pH = 2
Solids, TDS	7	May-08-18 08:02	pH = 5
TKN DA	28	May-29-18 08:02	pH = 2
TOC	28	May-29-18 08:02	pH = 2

**WORK ORDER**

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**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> [none]
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**Sample ID:** 1805005-31      **Sampled:** May-01-18 08:02      **Matrix:** Water

**Sample Name:** C7b      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 08:02	pH = 2

**Sample ID:** 1805005-32      **Sampled:** May-01-18 07:39      **Matrix:** Water

**Sample Name:** FB2      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:39	pH = 2
Anions by IC	28	May-29-18 07:39	pH = 4
Metals ICP-AES (w)	180	Oct-28-18 07:39	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:39	pH = 2
Solids, TDS	7	May-08-18 07:39	pH = 4
TKN DA	28	May-29-18 07:39	pH = 2
TOC	28	May-29-18 07:39	pH = 2
Total Phosphorus DA	28	May-29-18 07:39	pH = 2

**Sample ID:** 1805005-33      **Sampled:** May-01-18 07:38      **Matrix:** Water

**Sample Name:** C7 equip      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:38	pH = 2
Anions by IC	28	May-29-18 07:38	pH = 4
Metals ICP-AES (w)	180	Oct-28-18 07:38	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:38	pH = 2
Solids, TDS	7	May-08-18 07:38	pH = 4
TKN DA	28	May-29-18 07:38	pH = 2
TOC	28	May-29-18 07:38	pH = 2
Total Phosphorus DA	28	May-29-18 07:38	pH = 2

**Sample ID:** 1805005-34      **Sampled:** May-01-18 08:02      **Matrix:** Water

**Sample Name:** C7 Dup      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:02	pH = 2
Anions by IC	28	May-29-18 08:02	pH = 5



WORK ORDER

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-34      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7 Dup      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 08:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:02	pH = 2
Solids, TDS	7	May-08-18 08:02	pH = 5
TKN DA	28	May-29-18 08:02	pH = 2
TOC	28	May-29-18 08:02	pH = 2
Total Phosphorus DA	28	May-29-18 08:02	pH = 2

Sample ID: 1805005-35      Sampled: May-01-18 08:35      Matrix: Water

Sample Name: C8a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:35	pH = 2
Anions by IC	28	May-29-18 08:35	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:35	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:35	pH = 2
Solids, TDS	7	May-08-18 08:35	pH = 5
TKN DA	28	May-29-18 08:35	pH = 2
TOC	28	May-29-18 08:35	pH = 2
Total Phosphorus DA	28	May-29-18 08:35	pH = 2

Sample ID: 1805005-36      Sampled: May-01-18 08:42      Matrix: Water

Sample Name: C8b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:42	pH = 2
Anions by IC	28	May-29-18 08:42	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:42	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:42	pH = 2
Solids, TDS	7	May-08-18 08:42	pH = 5
TKN DA	28	May-29-18 08:42	pH = 2
TOC	28	May-29-18 08:42	pH = 2
Total Phosphorus DA	28	May-29-18 08:42	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-37      Sampled: May-01-18 10:00      Matrix: Water

Sample Name: C9a

Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 10:00	pH = 2
Anions by IC	28	May-29-18 10:00	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 10:00	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 10:00	pH = 2
Solids, TDS	7	May-08-18 10:00	pH = 5
TKN DA	28	May-29-18 10:00	pH = 2
TOC	28	May-29-18 10:00	pH = 2
Total Phosphorus DA	28	May-29-18 10:00	pH = 2

Sample ID: 1805005-38      Sampled: May-01-18 10:21      Matrix: Water

Sample Name: C9b

Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 10:21	pH = 2
Anions by IC	28	May-29-18 10:21	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 10:21	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 10:21	pH = 2
Solids, TDS	7	May-08-18 10:21	pH = 5
TKN DA	28	May-29-18 10:21	pH = 2
TOC	28	May-29-18 10:21	pH = 2
Total Phosphorus DA	28	May-29-18 10:21	pH = 2

Sample ID: 1805005-39      Sampled: May-01-18 11:05      Matrix: Water

Sample Name: C10a

Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:05	pH = 2
Anions by IC	28	May-29-18 11:05	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 11:05	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:05	pH = 2
Solids, TDS	7	May-08-18 11:05	pH = 6
TKN DA	28	May-29-18 11:05	pH = 2
TOC	28	May-29-18 11:05	pH = 2

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-39      Sampled: May-01-18 11:05      Matrix: Water

Sample Name: C10a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 11:05	pH = 2

Sample ID: 1805005-40      Sampled: May-01-18 11:12      Matrix: Water

Sample Name: C10b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:12	pH = 2
Anions by IC	28	May-29-18 11:12	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 11:12	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:12	pH = 2
Solids, TDS	7	May-08-18 11:12	pH = 5
TKN DA	28	May-29-18 11:12	pH = 2
TOC	28	May-29-18 11:12	pH = 2
Total Phosphorus DA	28	May-29-18 11:12	pH = 2

Sample ID: 1805005-41      Sampled: May-01-18 11:46      Matrix: Water

Sample Name: C11a      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:46	pH = 3
Anions by IC	28	May-29-18 11:46	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 11:46	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:46	pH = 3
Solids, TDS	7	May-08-18 11:46	pH = 6
TKN DA	28	May-29-18 11:46	pH = 3
TOC	28	May-29-18 11:46	pH = 3
Total Phosphorus DA	28	May-29-18 11:46	pH = 3

Sample ID: 1805005-42      Sampled: May-01-18 11:52      Matrix: Water

Sample Name: C11b      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:52	pH = 2
Anions by IC	28	May-29-18 11:52	pH = 5



1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-42 Sampled: May-01-18 11:52 Matrix: Water

Sample Name: C11b

Sample Location/Comments: 20th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 11:52	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:52	pH = 2
Solids, TDS	7	May-08-18 11:52	pH = 5
TKN DA	28	May-29-18 11:52	pH = 2
TOC	28	May-29-18 11:52	pH = 2
Total Phosphorus DA	28	May-29-18 11:52	pH = 2

Sample ID: 1805005-43 Sampled: May-01-18 12:41 Matrix: Water

Sample Name: C12a

Sample Location/Comments: 19th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 12:41	pH = 2
Anions by IC	28	May-29-18 12:41	pH = 7
Metals ICP-AES (w)	180	Oct-28-18 12:41	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 12:41	pH = 2
Solids, TDS	7	May-08-18 12:41	pH = 7
TKN DA	28	May-29-18 12:41	pH = 2
TOC	28	May-29-18 12:41	pH = 2
Total Phosphorus DA	28	May-29-18 12:41	pH = 2

Sample ID: 1805005-44 Sampled: May-01-18 12:47 Matrix: Water

Sample Name: C12b

Sample Location/Comments: 19th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 12:47	pH = 2
Anions by IC	28	May-29-18 12:47	pH = 7
Metals ICP-AES (w)	180	Oct-28-18 12:47	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 12:47	pH = 2
Solids, TDS	7	May-08-18 12:47	pH = 7
TKN DA	28	May-29-18 12:47	pH = 2
TOC	28	May-29-18 12:47	pH = 2
Total Phosphorus DA	28	May-29-18 12:47	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-45      Sampled: May-01-18 13:30      Matrix: Water

Sample Name: C13a      Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 13:30	pH = 3
Anions by IC	28	May-29-18 13:30	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 13:30	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 13:30	pH = 3
Solids, TDS	7	May-08-18 13:30	pH = 6
TKN DA	28	May-29-18 13:30	pH = 3
TOC	28	May-29-18 13:30	pH = 3
Total Phosphorus DA	28	May-29-18 13:30	pH = 3

Sample ID: 1805005-46      Sampled: May-01-18 13:39      Matrix: Water

Sample Name: C13b      Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 13:39	pH = 2
Anions by IC	28	May-29-18 13:39	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 13:39	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 13:39	pH = 2
Solids, TDS	7	May-08-18 13:39	pH = 5
TKN DA	28	May-29-18 13:39	pH = 2
TOC	28	May-29-18 13:39	pH = 2
Total Phosphorus DA	28	May-29-18 13:39	pH = 2

Sample ID: 1805005-47      Sampled: May-01-18 14:19      Matrix: Water

Sample Name: D1a      Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 14:19	pH = 2
Anions by IC	28	May-29-18 14:19	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 14:19	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 14:19	pH = 2
Solids, TDS	7	May-08-18 14:19	pH = 6
TKN DA	28	May-29-18 14:19	pH = 2
TOC	28	May-29-18 14:19	pH = 2

**WORK ORDER**

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**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-47      **Sampled:** May-01-18 14:19      **Matrix:** Water

**Sample Name:** D1a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 14:19	pH = 2

**Sample ID:** 1805005-48      **Sampled:** May-01-18 14:26      **Matrix:** Water

**Sample Name:** D1b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 14:26	pH = 3
Anions by IC	28	May-29-18 14:26	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 14:26	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 14:26	pH = 3
Solids, TDS	7	May-08-18 14:26	pH = 5
TKN DA	28	May-29-18 14:26	pH = 3
TOC	28	May-29-18 14:26	pH = 3
Total Phosphorus DA	28	May-29-18 14:26	pH = 3

**Sample ID:** 1805005-49      **Sampled:** May-01-18 15:00      **Matrix:** Water

**Sample Name:** D2a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:00	pH = 3
Anions by IC	28	May-29-18 15:00	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:00	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:00	pH = 3
Solids, TDS	7	May-08-18 15:00	pH = 6
TKN DA	28	May-29-18 15:00	pH = 3
TOC	28	May-29-18 15:00	pH = 3
Total Phosphorus DA	28	May-29-18 15:00	pH = 3

**Sample ID:** 1805005-50      **Sampled:** May-01-18 15:06      **Matrix:** Water

**Sample Name:** D2b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:06	pH = 2
Anions by IC	28	May-29-18 15:06	pH = 6

WORK ORDER

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-50      Sampled: May-01-18 15:06      Matrix: Water

Sample Name: D2b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 15:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:06	pH = 2
Solids, TDS	7	May-08-18 15:06	pH = 6
TKN DA	28	May-29-18 15:06	pH = 2
TOC	28	May-29-18 15:06	pH = 2
Total Phosphorus DA	28	May-29-18 15:06	pH = 2

Sample ID: 1805005-51      Sampled: May-01-18 15:41      Matrix: Water

Sample Name: D3a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:41	pH = 2
Anions by IC	28	May-29-18 15:41	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:41	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:41	pH = 2
Solids, TDS	7	May-08-18 15:41	pH = 6
TKN DA	28	May-29-18 15:41	pH = 2
TOC	28	May-29-18 15:41	pH = 2
Total Phosphorus DA	28	May-29-18 15:41	pH = 2

Sample ID: 1805005-52      Sampled: May-01-18 15:48      Matrix: Water

Sample Name: D3b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:48	pH = 2
Anions by IC	28	May-29-18 15:48	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 15:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:48	pH = 2
Solids, TDS	7	May-08-18 15:48	pH = 5
TKN DA	28	May-29-18 15:48	pH = 2
TOC	28	May-29-18 15:48	pH = 2
Total Phosphorus DA	28	May-29-18 15:48	pH = 2



WORK ORDER

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b>	Project Manager: <b>Angela Ockrassa Davis</b>
Project: <b>Central Sands</b>	Project Number: <b>[none]</b>

Sample ID: 1805005-53      Sampled: May-01-18 16:19      Matrix: Water

Sample Name: D4a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 16:19	pH = 2
Anions by IC	28	May-29-18 16:19	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 16:19	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 16:19	pH = 2
Solids, TDS	7	May-08-18 16:19	pH = 6
TKN DA	28	May-29-18 16:19	pH = 2
TOC	28	May-29-18 16:19	pH = 2
Total Phosphorus DA	28	May-29-18 16:19	pH = 2

Sample ID: 1805005-54      Sampled: May-01-18 16:26      Matrix: Water

Sample Name: D4b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 16:26	pH = 2
Anions by IC	28	May-29-18 16:26	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 16:26	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 16:26	pH = 2
Solids, TDS	7	May-08-18 16:26	pH = 5
TKN DA	28	May-29-18 16:26	pH = 2
TOC	28	May-29-18 16:26	pH = 2
Total Phosphorus DA	28	May-29-18 16:26	pH = 2

WORK ORDER MEMO: NCR 14118

PROJECT COMMENTS: Anions: Chloride, fluoride, bromide, sulfate.  
Full List metals

**REVIEWED**

*By Amanda Wroble at 3:35 pm, May 03, 2018*

Reviewed By \_\_\_\_\_ Date \_\_\_\_\_



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
 Phone:(312)353-8370 Fax:(312)886-2591

**WORK ORDER**

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**1805007**

**US EPA Region 5 Chicago Regional Laboratory**

**Client:** Water Division, WECA Region 5      **Project Manager:** Angela Ockrassa Davis  
**Project:** Central Sands      **Project Number:** CB022018

**Report To:**  
 Cheryl Burdett      77 West Jackson Boulevard      Phone: (312) 886-1463  
 Water Division, WECA Region 5      Chicago, IL 60604      Fax: (312) 886-2001

**Date Due:** Jun-04-18 15:00 (30 day TAT)  
**Received By:** Robert Snyder      **Date Received:** May-04-18 10:00  
**Logged In By:** Robert Snyder      **Date Logged In:** May-07-18 07:38

**Samples Received at:**      **Work Order Comments:**  
 Sample tags/labels      Yes      Copy/Relog from 1805005. Anions: Chloride and nitrate as NO3  
 Seals intact      Yes      Full List metals  
 Received on ice      Yes      pH paper used in SC 16H2601  
 Paperwork Included      Yes

**Sample ID:** 1805007-01      **Sampled:** May-02-18 06:38      **Matrix:** Water  
**Sample Name:** D5a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 06:38	pH = 1
Anions by IC	28	May-30-18 06:38	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 06:38	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 06:38	pH = 1
Solids, TDS	7	May-09-18 06:38	pH = 6
TKN DA	28	May-30-18 06:38	pH = 1
TOC	28	May-30-18 06:38	pH = 1
Total Phosphorus DA	28	May-30-18 06:38	pH = 1

**Sample ID:** 1805007-02      **Sampled:** May-02-18 06:46      **Matrix:** Water  
**Sample Name:** D5b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 06:46	pH = 1
Anions by IC	28	May-30-18 06:46	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 06:46	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 06:46	pH = 1

WORK ORDER

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**1805007**

US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

**Sample ID:** 1805007-02      **Sampled:** May-02-18 06:46      **Matrix:** Water  
**Sample Name:** D5b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-09-18 06:46	pH = 5
TKN DA	28	May-30-18 06:46	pH = 1
TOC	28	May-30-18 06:46	pH = 1
Total Phosphorus DA	28	May-30-18 06:46	pH = 1

**Sample ID:** 1805007-03      **Sampled:** May-02-18 07:17      **Matrix:** Water  
**Sample Name:** D6a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 07:17	pH = 1
Anions by IC	28	May-30-18 07:17	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 07:17	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 07:17	pH = 1
Solids, TDS	7	May-09-18 07:17	pH = 6
TKN DA	28	May-30-18 07:17	pH = 1
TOC	28	May-30-18 07:17	pH = 1
Total Phosphorus DA	28	May-30-18 07:17	pH = 1

**Sample ID:** 1805007-04      **Sampled:** May-02-18 07:29      **Matrix:** Water  
**Sample Name:** D6b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 07:29	pH = 1
Anions by IC	28	May-30-18 07:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 07:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 07:29	pH = 1
Solids, TDS	7	May-09-18 07:29	pH = 6
TKN DA	28	May-30-18 07:29	pH = 1
TOC	28	May-30-18 07:29	pH = 1
Total Phosphorus DA	28	May-30-18 07:29	pH = 1

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-05      Sampled: May-02-18 08:01      Matrix: Water  
Sample Name: D7 equip      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:01	pH = 1
Anions by IC	28	May-30-18 08:01	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 08:01	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:01	pH = 1
Solids, TDS	7	May-09-18 08:01	pH = 5
TKN DA	28	May-30-18 08:01	pH = 1
TOC	28	May-30-18 08:01	pH = 1
Total Phosphorus DA	28	May-30-18 08:01	pH = 1

Sample ID: 1805007-06      Sampled: May-02-18 08:03      Matrix: Water  
Sample Name: FB3      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:03	pH = 1
Anions by IC	28	May-30-18 08:03	pH = 4
Metals ICP-AES (w)	180	Oct-29-18 08:03	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:03	pH = 1
Solids, TDS	7	May-09-18 08:03	pH = 4
TKN DA	28	May-30-18 08:03	pH = 1
TOC	28	May-30-18 08:03	pH = 1
Total Phosphorus DA	28	May-30-18 08:03	pH = 1

Sample ID: 1805007-07      Sampled: May-02-18 08:12      Matrix: Water  
Sample Name: D7a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:12	pH = 1
Anions by IC	28	May-30-18 08:12	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:12	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:12	pH = 1
Solids, TDS	7	May-09-18 08:12	pH = 6
TKN DA	28	May-30-18 08:12	pH = 1
TOC	28	May-30-18 08:12	pH = 1



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1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-07      Sampled: May-02-18 08:12      Matrix: Water  
 Sample Name: D7a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 08:12	pH = 1

Sample ID: 1805007-08      Sampled: May-02-18 08:12      Matrix: Water      OC Source Sample MS/MSD  
 Sample Name: D7a      Sample Location/Comments: 23rd Avenue

Sample Comments: MS/MSD

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:12	pH = 1
Anions by IC	28	May-30-18 08:12	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:12	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:12	pH = 1
Solids, TDS	7	May-09-18 08:12	pH = 6
TKN DA	28	May-30-18 08:12	pH = 1
TOC	28	May-30-18 08:12	pH = 1
Total Phosphorus DA	28	May-30-18 08:12	pH = 1

Sample ID: 1805007-09      Sampled: May-02-18 08:19      Matrix: Water  
 Sample Name: D7b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:19	pH = 1
Anions by IC	28	May-30-18 08:19	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 08:19	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:19	pH = 1
Solids, TDS	7	May-09-18 08:19	pH = 5
TKN DA	28	May-30-18 08:19	pH = 1
TOC	28	May-30-18 08:19	pH = 1
Total Phosphorus DA	28	May-30-18 08:19	pH = 1

Sample ID: 1805007-10      Sampled: May-02-18 08:55      Matrix: Water  
 Sample Name: D8a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:55	pH = 1
Anions by IC	28	May-30-18 08:55	pH = 6

1805007

US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> CB022018
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**Sample ID:** 1805007-10      **Sampled:** May-02-18 08:55      **Matrix:** Water  
**Sample Name:** D8a      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 08:55	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:55	pH = 1
Solids, TDS	7	May-09-18 08:55	pH = 6
TKN DA	28	May-30-18 08:55	pH = 1
TOC	28	May-30-18 08:55	pH = 1
Total Phosphorus DA	28	May-30-18 08:55	pH = 1

**Sample ID:** 1805007-11      **Sampled:** May-02-18 09:11      **Matrix:** Water  
**Sample Name:** D8b      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:11	pH = 1
Anions by IC	28	May-30-18 09:11	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:11	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:11	pH = 1
Solids, TDS	7	May-09-18 09:11	pH = 6
TKN DA	28	May-30-18 09:11	pH = 1
TOC	28	May-30-18 09:11	pH = 1
Total Phosphorus DA	28	May-30-18 09:11	pH = 1

**Sample ID:** 1805007-12      **Sampled:** May-02-18 09:45      **Matrix:** Water  
**Sample Name:** D9a      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:45	pH = 1
Anions by IC	28	May-30-18 09:45	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:45	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:45	pH = 1
Solids, TDS	7	May-09-18 09:45	pH = 6
TKN DA	28	May-30-18 09:45	pH = 1
TOC	28	May-30-18 09:45	pH = 1
Total Phosphorus DA	28	May-30-18 09:45	pH = 1

WORK ORDER

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1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-13      Sampled: May-02-18 09:54      Matrix: Water

Sample Name: D9b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:54	pH = 1
Anions by IC	28	May-30-18 09:54	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:54	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:54	pH = 1
Solids, TDS	7	May-09-18 09:54	pH = 6
TKN DA	28	May-30-18 09:54	pH = 1
TOC	28	May-30-18 09:54	pH = 1
Total Phosphorus DA	28	May-30-18 09:54	pH = 1

Sample ID: 1805007-14      Sampled: May-02-18 10:29      Matrix: Water

Sample Name: D10a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:29	pH = 1
Anions by IC	28	May-30-18 10:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 10:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:29	pH = 1
Solids, TDS	7	May-09-18 10:29	pH = 6
TKN DA	28	May-30-18 10:29	pH = 1
TOC	28	May-30-18 10:29	pH = 1
Total Phosphorus DA	28	May-30-18 10:29	pH = 1

Sample ID: 1805007-15      Sampled: May-02-18 10:29      Matrix: Water

Sample Name: D10a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:29	pH = 1
Anions by IC	28	May-30-18 10:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 10:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:29	pH = 1
Solids, TDS	7	May-09-18 10:29	pH = 6
TKN DA	28	May-30-18 10:29	pH = 1
TOC	28	May-30-18 10:29	pH = 1

WORK ORDER

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1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-15      Sampled: May-02-18 10:29      Matrix: Water  
 Sample Name: D10a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 10:29	pH = 1

Sample ID: 1805007-16      Sampled: May-02-18 10:41      Matrix: Water  
 Sample Name: D10b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:41	pH = 1
Anions by IC	28	May-30-18 10:41	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 10:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:41	pH = 1
Solids, TDS	7	May-09-18 10:41	pH = 5
TKN DA	28	May-30-18 10:41	pH = 1
TOC	28	May-30-18 10:41	pH = 1
Total Phosphorus DA	28	May-30-18 10:41	pH = 1

Sample ID: 1805007-17      Sampled: May-02-18 10:41      Matrix: Water  
 Sample Name: D10b Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:41	pH = 1
Anions by IC	28	May-30-18 10:41	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 10:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:41	pH = 1
Solids, TDS	7	May-09-18 10:41	pH = 5
TKN DA	28	May-30-18 10:41	pH = 1
TOC	28	May-30-18 10:41	pH = 1
Total Phosphorus DA	28	May-30-18 10:41	pH = 1

Sample ID: 1805007-18      Sampled: May-02-18 11:19      Matrix: Water  
 Sample Name: D11a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 11:19	pH = 1
Anions by IC	28	May-30-18 11:19	pH = 6



WORK ORDER

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1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-18      Sampled: May-02-18 11:19      Matrix: Water  
 Sample Name: D11a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 11:19	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 11:19	pH = 1
Solids, TDS	7	May-09-18 11:19	pH = 6
TKN DA	28	May-30-18 11:19	pH = 1
TOC	28	May-30-18 11:19	pH = 1
Total Phosphorus DA	28	May-30-18 11:19	pH = 1

Sample ID: 1805007-19      Sampled: May-02-18 11:42      Matrix: Water  
 Sample Name: D11b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 11:42	pH = 1
Anions by IC	28	May-30-18 11:42	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 11:42	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 11:42	pH = 1
Solids, TDS	7	May-09-18 11:42	pH = 5
TKN DA	28	May-30-18 11:42	pH = 1
TOC	28	May-30-18 11:42	pH = 1
Total Phosphorus DA	28	May-30-18 11:42	pH = 1

Sample ID: 1805007-20      Sampled: May-02-18 12:41      Matrix: Water  
 Sample Name: E1a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 12:41	pH = 1
Anions by IC	28	May-30-18 12:41	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 12:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 12:41	pH = 1
Solids, TDS	7	May-09-18 12:41	pH = 6
TKN DA	28	May-30-18 12:41	pH = 1
TOC	28	May-30-18 12:41	pH = 1
Total Phosphorus DA	28	May-30-18 12:41	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-21      Sampled: May-02-18 12:58      Matrix: Water  
 Sample Name: E1b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 12:58	pH = 1
Anions by IC	28	May-30-18 12:58	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 12:58	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 12:58	pH = 1
Solids, TDS	7	May-09-18 12:58	pH = 6
TKN DA	28	May-30-18 12:58	pH = 1
TOC	28	May-30-18 12:58	pH = 1
Total Phosphorus DA	28	May-30-18 12:58	pH = 1

Sample ID: 1805007-22      Sampled: May-02-18 13:28      Matrix: Water  
 Sample Name: E2a      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:28	pH = 1
Anions by IC	28	May-30-18 13:28	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 13:28	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:28	pH = 1
Solids, TDS	7	May-09-18 13:28	pH = 6
TKN DA	28	May-30-18 13:28	pH = 1
TOC	28	May-30-18 13:28	pH = 1
Total Phosphorus DA	28	May-30-18 13:28	pH = 1

Sample ID: 1805007-23      Sampled: May-02-18 13:37      Matrix: Water  
 Sample Name: E2b      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:37	pH = 1
Anions by IC	28	May-30-18 13:37	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 13:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:37	pH = 1
Solids, TDS	7	May-09-18 13:37	pH = 5
TKN DA	28	May-30-18 13:37	pH = 1
TOC	28	May-30-18 13:37	pH = 1

WORK ORDER

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1805007

US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> CB022018
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**Sample ID:** 1805007-23      **Sampled:** May-02-18 13:37      **Matrix:** Water

**Sample Name:** E2b      **Sample Location/Comments:** Porter Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 13:37	pH = 1

**Sample ID:** 1805007-24      **Sampled:** May-02-18 13:28      **Matrix:** Water

**Sample Name:** E2a Dup      **Sample Location/Comments:** Porter Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:28	pH = 1
Anions by IC	28	May-30-18 13:28	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 13:28	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:28	pH = 1
Solids, TDS	7	May-09-18 13:28	pH = 6
TKN DA	28	May-30-18 13:28	pH = 1
TOC	28	May-30-18 13:28	pH = 1
Total Phosphorus DA	28	May-30-18 13:28	pH = 1

**Sample ID:** 1805007-25      **Sampled:** May-02-18 13:37      **Matrix:** Water

**Sample Name:** E2b Dup      **Sample Location/Comments:** Porter Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:37	pH = 1
Anions by IC	28	May-30-18 13:37	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 13:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:37	pH = 1
Solids, TDS	7	May-09-18 13:37	pH = 5
TKN DA	28	May-30-18 13:37	pH = 1
TOC	28	May-30-18 13:37	pH = 1
Total Phosphorus DA	28	May-30-18 13:37	pH = 1

**Sample ID:** 1805007-26      **Sampled:** May-02-18 14:03      **Matrix:** Water

**Sample Name:** E3a      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:03	pH = 1
Anions by IC	28	May-30-18 14:03	pH = 6

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-26      Sampled: May-02-18 14:03      Matrix: Water

Sample Name: E3a      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 14:03	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:03	pH = 1
Solids, TDS	7	May-09-18 14:03	pH = 6
TKN DA	28	May-30-18 14:03	pH = 1
TOC	28	May-30-18 14:03	pH = 1
Total Phosphorus DA	28	May-30-18 14:03	pH = 1

Sample ID: 1805007-27      Sampled: May-02-18 14:09      Matrix: Water

Sample Name: E3b      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:09	pH = 1
Anions by IC	28	May-30-18 14:09	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:09	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:09	pH = 1
Solids, TDS	7	May-09-18 14:09	pH = 6
TKN DA	28	May-30-18 14:09	pH = 1
TOC	28	May-30-18 14:09	pH = 1
Total Phosphorus DA	28	May-30-18 14:09	pH = 1

Sample ID: 1805007-28      Sampled: May-02-18 14:37      Matrix: Water

Sample Name: E4a      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:37	pH = 1
Anions by IC	28	May-30-18 14:37	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:37	pH = 1
Solids, TDS	7	May-09-18 14:37	pH = 6
TKN DA	28	May-30-18 14:37	pH = 1
TOC	28	May-30-18 14:37	pH = 1
Total Phosphorus DA	28	May-30-18 14:37	pH = 1



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US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> CB022018
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**Sample ID:** 1805007-29      **Sampled:** May-02-18 14:43      **Matrix:** Water  
**Sample Name:** E4b      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:43	pH = 1
Anions by IC	28	May-30-18 14:43	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:43	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:43	pH = 1
Solids, TDS	7	May-09-18 14:43	pH = 6
TKN DA	28	May-30-18 14:43	pH = 1
TOC	28	May-30-18 14:43	pH = 1
Total Phosphorus DA	28	May-30-18 14:43	pH = 1

**Sample ID:** 1805007-30      **Sampled:** May-02-18 15:08      **Matrix:** Water  
**Sample Name:** E5a      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:08	pH = 1
Anions by IC	28	May-30-18 15:08	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:08	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:08	pH = 1
Solids, TDS	7	May-09-18 15:08	pH = 6
TKN DA	28	May-30-18 15:08	pH = 1
TOC	28	May-30-18 15:08	pH = 1
Total Phosphorus DA	28	May-30-18 15:08	pH = 1

**Sample ID:** 1805007-31      **Sampled:** May-02-18 15:13      **Matrix:** Water  
**Sample Name:** E5b      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:13	pH = 1
Anions by IC	28	May-30-18 15:13	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:13	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:13	pH = 1
Solids, TDS	7	May-09-18 15:13	pH = 6
TKN DA	28	May-30-18 15:13	pH = 1
TOC	28	May-30-18 15:13	pH = 1

1805007

**US EPA Region 5 Chicago Regional Laboratory**

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-31      Sampled: May-02-18 15:13      Matrix: Water  
 Sample Name: E5b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 15:13	pH = 1

Sample ID: 1805007-32      Sampled: May-02-18 15:38      Matrix: Water  
 Sample Name: E6a      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:38	pH = 1
Anions by IC	28	May-30-18 15:38	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:38	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:38	pH = 1
Solids, TDS	7	May-09-18 15:38	pH = 6
TKN DA	28	May-30-18 15:38	pH = 1
TOC	28	May-30-18 15:38	pH = 1
Total Phosphorus DA	28	May-30-18 15:38	pH = 1

Sample ID: 1805007-33      Sampled: May-02-18 15:44      Matrix: Water  
 Sample Name: E6b      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:44	pH = 1
Anions by IC	28	May-30-18 15:44	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:44	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:44	pH = 1
Solids, TDS	7	May-09-18 15:44	pH = 6
TKN DA	28	May-30-18 15:44	pH = 1
TOC	28	May-30-18 15:44	pH = 1
Total Phosphorus DA	28	May-30-18 15:44	pH = 1

Sample ID: 1805007-34      Sampled: May-02-18 16:09      Matrix: Water  
 Sample Name: E7a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 16:09	pH = 1
Anions by IC	28	May-30-18 16:09	pH = 5

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US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

**Sample ID:** 1805007-34      **Sampled:** May-02-18 16:09      **Matrix:** Water  
**Sample Name:** E7a      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 16:09	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 16:09	pH = 1
Solids, TDS	7	May-09-18 16:09	pH = 5
TKN DA	28	May-30-18 16:09	pH = 1
TOC	28	May-30-18 16:09	pH = 1
Total Phosphorus DA	28	May-30-18 16:09	pH = 1

**Sample ID:** 1805007-35      **Sampled:** May-02-18 16:35      **Matrix:** Water  
**Sample Name:** E7b      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 16:35	pH = 1
Anions by IC	28	May-30-18 16:35	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 16:35	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 16:35	pH = 1
Solids, TDS	7	May-09-18 16:35	pH = 5
TKN DA	28	May-30-18 16:35	pH = 1
TOC	28	May-30-18 16:35	pH = 1
Total Phosphorus DA	28	May-30-18 16:35	pH = 1

**Sample ID:** 1805007-36      **Sampled:** May-03-18 08:40      **Matrix:** Water  
**Sample Name:** E8a      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 08:40	pH = 1
Anions by IC	28	May-31-18 08:40	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 08:40	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 08:40	pH = 1
Solids, TDS	7	May-10-18 08:40	pH = 5
TKN DA	28	May-31-18 08:40	pH = 1
TOC	28	May-31-18 08:40	pH = 1
Total Phosphorus DA	28	May-31-18 08:40	pH = 1

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-37      Sampled: May-03-18 08:48      Matrix: Water  
 Sample Name: E8b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 08:48	pH = 1
Anions by IC	28	May-31-18 08:48	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 08:48	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 08:48	pH = 1
Solids, TDS	7	May-10-18 08:48	pH = 6
TKN DA	28	May-31-18 08:48	pH = 1
TOC	28	May-31-18 08:48	pH = 1
Total Phosphorus DA	28	May-31-18 08:48	pH = 1

Sample ID: 1805007-38      Sampled: May-03-18 07:15      Matrix: Water  
 Sample Name: E10a      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:15	pH = 1
Anions by IC	28	May-31-18 07:15	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:15	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:15	pH = 1
Solids, TDS	7	May-10-18 07:15	pH = 6
TKN DA	28	May-31-18 07:15	pH = 1
TOC	28	May-31-18 07:15	pH = 1
Total Phosphorus DA	28	May-31-18 07:15	pH = 1

Sample ID: 1805007-39      Sampled: May-03-18 07:15      Matrix: Water  
 Sample Name: E10a Dup      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:15	pH = 1
Anions by IC	28	May-31-18 07:15	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:15	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:15	pH = 1
Solids, TDS	7	May-10-18 07:15	pH = 6
TKN DA	28	May-31-18 07:15	pH = 1
TOC	28	May-31-18 07:15	pH = 1



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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-39      Sampled: May-03-18 07:15      Matrix: Water  
 Sample Name: E10a Dup      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-31-18 07:15	pH = 1

Sample ID: 1805007-40      Sampled: May-03-18 07:27      Matrix: Water  
 Sample Name: E10b      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:27	pH = 1
Anions by IC	28	May-31-18 07:27	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:27	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:27	pH = 1
Solids, TDS	7	May-10-18 07:27	pH = 6
TKN DA	28	May-31-18 07:27	pH = 1
TOC	28	May-31-18 07:27	pH = 1
Total Phosphorus DA	28	May-31-18 07:27	pH = 1

Sample ID: 1805007-41      Sampled: May-03-18 07:36      Matrix: Water  
 Sample Name: FB4      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:36	pH = 1
Anions by IC	28	May-31-18 07:36	pH = 4
Metals ICP-AES (w)	180	Oct-30-18 07:36	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:36	pH = 1
Solids, TDS	7	May-10-18 07:36	pH = 4
TKN DA	28	May-31-18 07:36	pH = 1
TOC	28	May-31-18 07:36	pH = 1
Total Phosphorus DA	28	May-31-18 07:36	pH = 1

Sample ID: 1805007-42      Sampled: May-03-18 07:13      Matrix: Water  
 Sample Name: E10 Equip      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:13	pH = 1
Anions by IC	28	May-31-18 07:13	pH = 4

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-42      Sampled: May-03-18 07:13      Matrix: Water

Sample Name: E10 Equip      Sample Location/Comments: 8th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-30-18 07:13	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:13	pH = 1
Solids, TDS	7	May-10-18 07:13	pH = 4
TKN DA	28	May-31-18 07:13	pH = 1
TOC	28	May-31-18 07:13	pH = 1
Total Phosphorus DA	28	May-31-18 07:13	pH = 1

Sample ID: 1805007-43      Sampled: May-03-18 09:53      Matrix: Water

Sample Name: E9a      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 09:53	pH = 1
Anions by IC	28	May-31-18 09:53	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 09:53	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 09:53	pH = 1
Solids, TDS	7	May-10-18 09:53	pH = 5
TKN DA	28	May-31-18 09:53	pH = 1
TOC	28	May-31-18 09:53	pH = 1
Total Phosphorus DA	28	May-31-18 09:53	pH = 1

Sample ID: 1805007-44      Sampled: May-03-18 10:02      Matrix: Water

Sample Name: E9b      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 10:02	pH = 1
Anions by IC	28	May-31-18 10:02	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 10:02	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 10:02	pH = 1
Solids, TDS	7	May-10-18 10:02	pH = 5
TKN DA	28	May-31-18 10:02	pH = 1
TOC	28	May-31-18 10:02	pH = 1
Total Phosphorus DA	28	May-31-18 10:02	pH = 1

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

PROJECT COMMENTS: Anions: Chloride, fluoride, bromide, sulfite.  
Full List metals

**REVIEWED**  
By Robert Thompson at 9:54 am, May 07, 2018



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312) 353-8370 Fax: (312) 886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-01-18 10:34
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## Ammonia Nitrogen, SM4500B & H (modified) US EPA Region 5 Chicago Regional Laboratory

<b>A1a (1805005-01)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 07:19</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.25	J	0.18	0.20	mg/L	1	B18E052	May-22-18	May-24-18

<b>A1b (1805005-02)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 07:32</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.36		0.18	0.20	mg/L	1	B18E052	May-22-18	May-24-18

<b>A2a (1805005-03)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 08:15</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.31		0.18	0.20	mg/L	1	B18E052	May-22-18	May-24-18

<b>A2b (1805005-04)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 08:24</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.29	J	0.18	0.20	mg/L	1	B18E052	May-22-18	May-24-18

<b>A3a (1805005-05)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 09:06</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E052	May-22-18	May-24-18

<b>A3b (1805005-06)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 09:14</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E052	May-22-18	May-24-18

<b>A4 Equip (1805005-07)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 09:38</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E052	May-22-18	May-24-18

<b>A3a (Dup) (1805005-08)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 09:06</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E052	May-22-18	May-24-18





# Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-01-18 10:34
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## Ammonia Nitrogen, SM4500B & H (modified) US EPA Region 5 Chicago Regional Laboratory

<b>FB1 (1805005-09)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 09:49</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E052	May-22-18	May-24-18

<b>A4a (1805005-10)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 09:58</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E052	May-22-18	May-24-18

<b>A4b (1805005-11)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 10:09</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.25		0.18	0.20	mg/L	1	B18E052	May-22-18	May-24-18

<b>B1a (1805005-12)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 10:51</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.25	J	0.18	0.20	mg/L	1	B18E052	May-22-18	May-24-18

<b>B1b (1805005-13)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 10:58</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.21		0.18	0.20	mg/L	1	B18E052	May-22-18	May-24-18

<b>B2a (1805005-14)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 11:40</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U	J	0.18	0.20	mg/L	1	B18E052	May-22-18	May-24-18

<b>B2b (1805005-15)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 11:48</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E052	May-22-18	May-24-18

<b>B3a (1805005-16)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 12:29</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.62		0.18	0.20	mg/L	1	B18E053	May-22-18	May-24-18



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

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**Ammonia Nitrogen, SM4500B & H (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**B3b (1805005-17) Matrix: Water Sampled: Apr-30-18 12:36 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.37	J	0.18	0.20	mg/L	1	B18E053	May-22-18	May-24-18

**B4a (1805005-18) Matrix: Water Sampled: Apr-30-18 13:10 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.61		0.18	0.20	mg/L	1	B18E053	May-22-18	May-24-18

**B4b (1805005-19) Matrix: Water Sampled: Apr-30-18 13:41 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	3.56	J	0.18	0.20	mg/L	1	B18E053	May-22-18	May-24-18

**C1a (1805005-20) Matrix: Water Sampled: Apr-30-18 15:02 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E053	May-22-18	May-24-18

**C1b (1805005-21) Matrix: Water Sampled: Apr-30-18 15:27 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E053	May-22-18	May-24-18

**C2a (1805005-22) Matrix: Water Sampled: Apr-30-18 16:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.25		0.18	0.20	mg/L	1	B18E053	May-22-18	May-24-18

**C2b (1805005-23) Matrix: Water Sampled: Apr-30-18 16:14 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.81		0.18	0.20	mg/L	1	B18E053	May-22-18	May-24-18

**C3a (1805005-24) Matrix: Water Sampled: Apr-30-18 14:16 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	1.19	J	0.18	0.20	mg/L	1	B18E053	May-22-18	May-24-18



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## Ammonia Nitrogen, SM4500B & H (modified) US EPA Region 5 Chicago Regional Laboratory

**C3b (1805005-25) Matrix: Water Sampled: Apr-30-18 14:26 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.24		0.18	0.20	mg/L	1	B18E053	May-22-18	May-24-18

**C5Aa (1805005-26) Matrix: Water Sampled: May-01-18 06:29 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.60		0.18	0.20	mg/L	1	B18E053	May-22-18	May-24-18

**C5Ab (1805005-27) Matrix: Water Sampled: May-01-18 06:43 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	2.13		0.18	0.20	mg/L	1	B18E053	May-22-18	May-24-18

**C6a (1805005-28) Matrix: Water Sampled: May-01-18 07:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.71		0.18	0.20	mg/L	1	B18E053	May-22-18	May-24-18

**C6b (1805005-29) Matrix: Water Sampled: May-01-18 07:15 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	3.96	J	1.80	2.00	mg/L	10	B18E053	May-22-18	May-24-18

**C7a (1805005-30) Matrix: Water Sampled: May-01-18 07:48 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E053	May-22-18	May-24-18

**C7b (1805005-31) Matrix: Water Sampled: May-01-18 08:02 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.27		0.18	0.20	mg/L	1	B18E055	May-23-18	May-24-18

**FB2 (1805005-32) Matrix: Water Sampled: May-01-18 07:39 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E055	May-23-18	May-24-18



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## Ammonia Nitrogen, SM4500B & H (modified) US EPA Region 5 Chicago Regional Laboratory

**C7 equip (1805005-33)      Matrix: Water      Sampled: May-01-18 07:38      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E055	May-23-18	May-24-18

**C7b Dup (1805005-34)      Matrix: Water      Sampled: May-01-18 08:02      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.48		0.18	0.20	mg/L	1	B18E055	May-23-18	May-24-18

**C8a (1805005-35)      Matrix: Water      Sampled: May-01-18 08:35      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.25		0.18	0.20	mg/L	1	B18E055	May-23-18	May-24-18

**C8b (1805005-36)      Matrix: Water      Sampled: May-01-18 08:42      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.26		0.18	0.20	mg/L	1	B18E055	May-23-18	May-24-18

**C9a (1805005-37)      Matrix: Water      Sampled: May-01-18 10:00      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.20		0.18	0.20	mg/L	1	B18E055	May-23-18	May-24-18

**C9b (1805005-38)      Matrix: Water      Sampled: May-01-18 10:21      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.20		0.18	0.20	mg/L	1	B18E055	May-23-18	May-24-18

**C10a (1805005-39)      Matrix: Water      Sampled: May-01-18 11:05      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.76		0.18	0.20	mg/L	1	B18E055	May-23-18	May-24-18

**C10b (1805005-40)      Matrix: Water      Sampled: May-01-18 11:12      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	3.91		0.18	0.20	mg/L	1	B18E055	May-23-18	May-24-18





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> Jun-01-18 10:34
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## Ammonia Nitrogen, SM4500B & H (modified) US EPA Region 5 Chicago Regional Laboratory

C11a (1805005-41)	Matrix: Water	Sampled: May-01-18 11:46	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.41	J	0.18	0.20	mg/L	1	B18E055	May-23-18	May-24-18

C11b (1805005-42)	Matrix: Water	Sampled: May-01-18 11:52	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	1.08		0.18	0.20	mg/L	1	B18E055	May-23-18	May-24-18

C12a (1805005-43)	Matrix: Water	Sampled: May-01-18 12:41	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	1.22		0.18	0.20	mg/L	1	B18E055	May-23-18	May-24-18

C12b (1805005-44)	Matrix: Water	Sampled: May-01-18 12:47	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	1.51		0.18	0.20	mg/L	1	B18E055	May-23-18	May-24-18

C13a (1805005-45)	Matrix: Water	Sampled: May-01-18 13:30	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.26	J	0.18	0.20	mg/L	1	B18E055	May-23-18	May-24-18

C13b (1805005-46)	Matrix: Water	Sampled: May-01-18 13:39	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	1.32		0.18	0.20	mg/L	1	B18E056	May-23-18	May-24-18

D1a (1805005-47)	Matrix: Water	Sampled: May-01-18 14:19	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.26		0.18	0.20	mg/L	1	B18E056	May-23-18	May-24-18

D1b (1805005-48)	Matrix: Water	Sampled: May-01-18 14:26	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.68	J	0.18	0.20	mg/L	1	B18E056	May-23-18	May-24-18



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## Ammonia Nitrogen, SM4500B & H (modified) US EPA Region 5 Chicago Regional Laboratory

**D2a (1805005-49) Matrix: Water Sampled: May-01-18 15:00 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U	J	0.18	0.20	mg/L	1	B18E056	May-23-18	May-24-18

**D2b (1805005-50) Matrix: Water Sampled: May-01-18 15:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	1.33		0.18	0.20	mg/L	1	B18E056	May-23-18	May-24-18

**D3a (1805005-51) Matrix: Water Sampled: May-01-18 15:41 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.85		0.18	0.20	mg/L	1	B18E056	May-23-18	May-24-18

**D3b (1805005-52) Matrix: Water Sampled: May-01-18 15:48 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	1.12		0.18	0.20	mg/L	1	B18E056	May-23-18	May-24-18

**D4a (1805005-53) Matrix: Water Sampled: May-01-18 16:19 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.41		0.18	0.20	mg/L	1	B18E056	May-23-18	May-24-18

**D4b (1805005-54) Matrix: Water Sampled: May-01-18 16:26 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	2.82	J	0.18	0.20	mg/L	1	B18E056	May-23-18	May-24-18

**D5a (1805007-01) Matrix: Water Sampled: May-02-18 06:38 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.50		0.18	0.20	mg/L	1	B18E056	May-23-18	May-24-18

**D5b (1805007-02) Matrix: Water Sampled: May-02-18 06:46 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.23		0.18	0.20	mg/L	1	B18E056	May-23-18	May-24-18



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## Ammonia Nitrogen, SM4500B & H (modified) US EPA Region 5 Chicago Regional Laboratory

**D6a (1805007-03) Matrix: Water Sampled: May-02-18 07:17 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.49		0.18	0.20	mg/L	1	B18E056	May-23-18	May-24-18

**D6b (1805007-04) Matrix: Water Sampled: May-02-18 07:29 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.67		0.18	0.20	mg/L	1	B18E056	May-23-18	May-24-18

**D7 equip (1805007-05) Matrix: Water Sampled: May-02-18 08:01 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E056	May-23-18	May-24-18

**FB3 (1805007-06) Matrix: Water Sampled: May-02-18 08:03 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E056	May-23-18	May-24-18

**D7a Dup (1805007-07) Matrix: Water Sampled: May-02-18 08:12 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E057	May-23-18	May-24-18

**D7a (1805007-08) Matrix: Water Sampled: May-02-18 08:12 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E057	May-23-18	May-24-18

**D7b (1805007-09) Matrix: Water Sampled: May-02-18 08:19 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.49		0.18	0.20	mg/L	1	B18E057	May-23-18	May-30-18

**D8a (1805007-10) Matrix: Water Sampled: May-02-18 08:55 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.77		0.18	0.20	mg/L	1	B18E057	May-23-18	May-24-18



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312) 353-8370 Fax: (312) 886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-01-18 10:34
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## Ammonia Nitrogen, SM4500B & H (modified) US EPA Region 5 Chicago Regional Laboratory

<b>D8b (1805007-11)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 09:11</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.68		0.18	0.20	mg/L	1	B18E057	May-23-18	May-24-18

<b>D9a (1805007-12)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 09:45</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.21		0.18	0.20	mg/L	1	B18E057	May-23-18	May-24-18

<b>D9b (1805007-13)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 09:54</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.34		0.18	0.20	mg/L	1	B18E057	May-23-18	May-24-18

<b>D10a (1805007-14)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 10:29</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.22		0.18	0.20	mg/L	1	B18E057	May-23-18	May-24-18

<b>D10a Dup (1805007-15)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 10:29</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.21		0.18	0.20	mg/L	1	B18E057	May-23-18	May-24-18

<b>D10b (1805007-16)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 10:41</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.31		0.18	0.20	mg/L	1	B18E057	May-23-18	May-24-18

<b>D10b Dup (1805007-17)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 10:41</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.42		0.18	0.20	mg/L	1	B18E057	May-23-18	May-24-18

<b>D11a (1805007-18)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 11:19</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E057	May-23-18	May-24-18





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-01-18 10:34
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## Ammonia Nitrogen, SM4500B & H (modified) US EPA Region 5 Chicago Regional Laboratory

**D11b (1805007-19) Matrix: Water Sampled: May-02-18 11:42 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E057	May-23-18	May-24-18

**E1a (1805007-20) Matrix: Water Sampled: May-02-18 12:41 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E057	May-23-18	May-24-18

**E1b (1805007-21) Matrix: Water Sampled: May-02-18 12:58 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	1.02		0.18	0.20	mg/L	1	B18E057	May-23-18	May-24-18

**E2a (1805007-22) Matrix: Water Sampled: May-02-18 13:28 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E058	May-29-18	May-30-18

**E2b (1805007-23) Matrix: Water Sampled: May-02-18 13:37 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.73		0.18	0.20	mg/L	1	B18E058	May-29-18	May-30-18

**E2a Dup (1805007-24) Matrix: Water Sampled: May-02-18 13:28 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E058	May-29-18	May-30-18

**E2b Dup (1805007-25) Matrix: Water Sampled: May-02-18 13:37 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.69		0.18	0.20	mg/L	1	B18E058	May-29-18	May-30-18

**E3a (1805007-26) Matrix: Water Sampled: May-02-18 14:03 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.21		0.18	0.20	mg/L	1	B18E058	May-29-18	May-30-18



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-01-18 10:34
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## Ammonia Nitrogen, SM4500B & H (modified) US EPA Region 5 Chicago Regional Laboratory

**E3b (1805007-27) Matrix: Water Sampled: May-02-18 14:09 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.35		0.18	0.20	mg/L	1	B18E058	May-29-18	May-30-18

**E4a (1805007-28) Matrix: Water Sampled: May-02-18 14:37 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.87		0.18	0.20	mg/L	1	B18E058	May-29-18	May-30-18

**E4b (1805007-29) Matrix: Water Sampled: May-02-18 14:43 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	1.37		0.18	0.20	mg/L	1	B18E058	May-29-18	May-30-18

**E5a (1805007-30) Matrix: Water Sampled: May-02-18 15:08 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.22		0.18	0.20	mg/L	1	B18E058	May-29-18	May-30-18

**E5b (1805007-31) Matrix: Water Sampled: May-02-18 15:13 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.73		0.18	0.20	mg/L	1	B18E058	May-29-18	May-30-18

**E6a (1805007-32) Matrix: Water Sampled: May-02-18 15:38 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.26		0.18	0.20	mg/L	1	B18E058	May-29-18	May-30-18

**E6b (1805007-33) Matrix: Water Sampled: May-02-18 15:44 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.39		0.18	0.20	mg/L	1	B18E058	May-29-18	May-30-18

**E7a (1805007-34) Matrix: Water Sampled: May-02-18 16:09 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E058	May-29-18	May-30-18



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-01-18 10:34
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## Ammonia Nitrogen, SM4500B & H (modified) US EPA Region 5 Chicago Regional Laboratory

**E7b (1805007-35) Matrix: Water Sampled: May-02-18 16:35 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E058	May-29-18	May-30-18

**E8a (1805007-36) Matrix: Water Sampled: May-03-18 08:40 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E058	May-29-18	May-30-18

**E8b (1805007-37) Matrix: Water Sampled: May-03-18 08:48 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.46		0.18	0.20	mg/L	1	B18E059	May-29-18	May-30-18

**E10a (1805007-38) Matrix: Water Sampled: May-03-18 07:15 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E059	May-29-18	May-30-18

**E10a Dup (1805007-39) Matrix: Water Sampled: May-03-18 07:15 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E059	May-29-18	May-30-18

**E10b (1805007-40) Matrix: Water Sampled: May-03-18 07:27 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E059	May-29-18	May-30-18

**FB4 (1805007-41) Matrix: Water Sampled: May-03-18 07:36 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E059	May-29-18	May-30-18

**E10 Equip (1805007-42) Matrix: Water Sampled: May-03-18 07:13 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E059	May-29-18	May-30-18



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> Jun-01-18 10:34
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**Ammonia Nitrogen, SM4500B & H (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**E9a (1805007-43) Matrix: Water Sampled: May-03-18 09:53 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U		0.18	0.20	mg/L	1	B18E059	May-29-18	May-30-18

**E9b (1805007-44) Matrix: Water Sampled: May-03-18 10:02 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	0.34		0.18	0.20	mg/L	1	B18E059	May-29-18	May-30-18





Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

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Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
Jun-01-18 10:34

**Notes and Definitions**

- J The identification of the analyte is acceptable; the reported value is an estimate.
- \* This Quality Control measure meets the requirements of the CRL SOP for this analyte.
- U Not Detected
- NR Not Reported
- Q QC limit Exceeded



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5 CHICAGO REGIONAL LABORATORY  
536 SOUTH CLARK STREET  
CHICAGO, ILLINOIS 60605

**Date:** 5/22/2018  
**Subject:** Review of Region 5 Data for Central Sands  
**To:** Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604  
**From:** Anna Knoebel, Chemist  
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with the EPA QA/G-8 *Guidance on Environmental Data Verification and Data Validation* and the U.S. EPA Region 5 RMD QMP, CRL performs data verification on all the data generated internally. CRL does not perform data validation or quality assessment procedures.

This report was reviewed and the information provided herein accurately represents the analysis performed.

A handwritten signature in cursive script that reads "Anna Knoebel".

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*Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.*

**Attached are Results for: Central Sands**

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**Analyses included in this report:**

Nitrate-Nitrite N DA, Enzymatic reduction

Report Name: 1805005,1805007 Nitrate-Nitrite N DA, Enzymatic reduction FINAL May 22 18 1454



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> May-22-18 14:54
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### Accredited Analyses included in this Report



**Method:** *ASTM D7781-14 in Water*  
**Analysis:** *Nitrate-Nitrite N DA, Enzymatic reduction*

Analyte	Certifications
Nitrate-Nitrite N	ISO/IEC 17025:2005

Analytes not listed above are not accredited by ANAB.



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-22-18 14:54
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**ANALYSIS CASE NARRATIVE – Nitrate-Nitrite Nitrogen in Water**

Work Order: 1805005, 1805007  
Analyst: Anna Knoebel  
Phone #: (312) 353-9467

**General Information**

Ninety-eight water samples for Nitrate-Nitrite Nitrogen were received on May 2, 2018 and May 4, 2018. All holding times were met.

**Sample Analysis and Results**

The samples were analyzed for Nitrate-Nitrite Nitrogen in water on May 10, 2018 using CRL SOP AIG031B, Version # 4 (SOP based on NECi Method N070003). The samples were stored in the refrigerator at all times except when in use.

The data reported herein meets any laboratory specifications referenced in the sampling QAPP “FINAL\_2018 GW Sampling Plan4\_27\_2018.pdf” and the requirements referenced in CRL SOP AIG031B, Version # 4 (based on NECi Method N070003) except for those listed in the quality control section below.

**Quality Control**

Matrix Spike (MS)

All five matrix spike recoveries were outside the acceptance limit (90 – 110 %). The source samples were not affected by these recoveries and are not qualified because the samples were either non-detect or the spikes were diluted out.

Blank Spike (BS)

Four of the eighteen BS sample recoveries were slightly higher than the acceptance limit (90 – 110 %). The samples affected by these spikes were qualified “K” (The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value).

All other quality control audits were within CRL limits or did not result in qualification of the data.





**WORK ORDER**

Printed: 5/3/2018 3:33:25PM

**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-02      **Sampled:** Apr-30-18 07:32      **Matrix:** Water

**Sample Name:** A1b      **Sample Location/Comments:** 1st Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-07-18 07:32	pH = 5
TKN DA	28	May-28-18 07:32	pH = 2
TOC	28	May-28-18 07:32	pH = 2
Total Phosphorus DA	28	May-28-18 07:32	pH = 2

**Sample ID:** 1805005-03      **Sampled:** Apr-30-18 08:15      **Matrix:** Water

**Sample Name:** A2a      **Sample Location/Comments:** 22nd Avenue North

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 08:15	pH = 2
Anions by IC	28	May-28-18 08:15	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 08:15	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 08:15	pH = 2
Solids, TDS	7	May-07-18 08:15	pH = 6
TKN DA	28	May-28-18 08:15	pH = 2
TOC	28	May-28-18 08:15	pH = 2
Total Phosphorus DA	28	May-28-18 08:15	pH = 2

**Sample ID:** 1805005-04      **Sampled:** Apr-30-18 08:24      **Matrix:** Water

**Sample Name:** A2b      **Sample Location/Comments:** 22nd Avenue North

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 08:24	pH = 2
Anions by IC	28	May-28-18 08:24	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 08:24	pH = 5
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 08:24	pH = 2
Solids, TDS	7	May-07-18 08:24	pH = 6
TKN DA	28	May-28-18 08:24	pH = 2
TOC	28	May-28-18 08:24	pH = 2
Total Phosphorus DA	28	May-28-18 08:24	pH = 2

1805005

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-05      **Sampled:** Apr-30-18 09:06      **Matrix:** Water      OC Source Sample MS/MSD

**Sample Name:** A3a      **Sample Location/Comments:** 2nd Street

**Sample Comments:** MS/MSD

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:06	pH = 2
Anions by IC	28	May-28-18 09:06	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:06	pH = 2
Solids, TDS	7	May-07-18 09:06	pH = 6
TKN DA	28	May-28-18 09:06	pH = 2
TOC	28	May-28-18 09:06	pH = 2
Total Phosphorus DA	28	May-28-18 09:06	pH = 2

**Sample ID:** 1805005-06      **Sampled:** Apr-30-18 09:14      **Matrix:** Water

**Sample Name:** A3b      **Sample Location/Comments:** 2nd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:14	pH = 2
Anions by IC	28	May-28-18 09:14	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:14	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:14	pH = 2
Solids, TDS	7	May-07-18 09:14	pH = 6
TKN DA	28	May-28-18 09:14	pH = 2
TOC	28	May-28-18 09:14	pH = 2
Total Phosphorus DA	28	May-28-18 09:14	pH = 2

**Sample ID:** 1805005-07      **Sampled:** Apr-30-18 09:38      **Matrix:** Water

**Sample Name:** A4 Equip      **Sample Location/Comments:** Cranberry Rock Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:38	pH = 2
Anions by IC	28	May-28-18 09:38	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 09:38	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:38	pH = 2
Solids, TDS	7	May-07-18 09:38	pH = 5
TKN DA	28	May-28-18 09:38	pH = 2
TOC	28	May-28-18 09:38	pH = 2

WORK ORDER

Printed: 5/3/2018 3:33:25PM

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-07      Sampled: Apr-30-18 09:38      Matrix: Water

Sample Name: A4 Equip      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 09:38	pH = 2

Sample ID: 1805005-08      Sampled: Apr-30-18 09:06      Matrix: Water

Sample Name: A3a (Dup)      Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:06	pH = 2
Anions by IC	28	May-28-18 09:06	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:06	pH = 2
Solids, TDS	7	May-07-18 09:06	pH = 6
TKN DA	28	May-28-18 09:06	pH = 2
TOC	28	May-28-18 09:06	pH = 2
Total Phosphorus DA	28	May-28-18 09:06	pH = 2

Sample ID: 1805005-09      Sampled: Apr-30-18 09:49      Matrix: Water

Sample Name: FB1      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:49	pH = 2
Anions by IC	28	May-28-18 09:49	pH = 4
Metals ICP-AES (w)	180	Oct-27-18 09:49	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:49	pH = 2
Solids, TDS	7	May-07-18 09:49	pH = 4
TKN DA	28	May-28-18 09:49	pH = 2
TOC	28	May-28-18 09:49	pH = 2
Total Phosphorus DA	28	May-28-18 09:49	pH = 2

Sample ID: 1805005-10      Sampled: Apr-30-18 09:58      Matrix: Water

Sample Name: A4a      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:58	pH = 2
Anions by IC	28	May-28-18 09:58	pH = 6



1805005

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b> Project: <b>Central Sands</b>	Project Manager: <b>Angela Ockrassa Davis</b> Project Number: <b>[none]</b>
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Sample ID: 1805005-10      Sampled: Apr-30-18 09:58      Matrix: Water

Sample Name: A4a      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-27-18 09:58	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:58	pH = 2
Solids, TDS	7	May-07-18 09:58	pH = 6
TKN DA	28	May-28-18 09:58	pH = 2
TOC	28	May-28-18 09:58	pH = 2
Total Phosphorus DA	28	May-28-18 09:58	pH = 2

Sample ID: 1805005-11      Sampled: Apr-30-18 10:09      Matrix: Water

Sample Name: A4b      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:09	pH = 2
Anions by IC	28	May-28-18 10:09	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:09	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:09	pH = 2
Solids, TDS	7	May-07-18 10:09	pH = 5
TKN DA	28	May-28-18 10:09	pH = 2
TOC	28	May-28-18 10:09	pH = 2
Total Phosphorus DA	28	May-28-18 10:09	pH = 2

Sample ID: 1805005-12      Sampled: Apr-30-18 10:51      Matrix: Water

Sample Name: B1a      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:51	pH = 3
Anions by IC	28	May-28-18 10:51	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:51	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:51	pH = 3
Solids, TDS	7	May-07-18 10:51	pH = 5
TKN DA	28	May-28-18 10:51	pH = 3
TOC	28	May-28-18 10:51	pH = 3
Total Phosphorus DA	28	May-28-18 10:51	pH = 3

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-13      Sampled: Apr-30-18 10:58      Matrix: Water

Sample Name: B1b      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:58	pH = 2
Anions by IC	28	May-28-18 10:58	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:58	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:58	pH = 2
Solids, TDS	7	May-07-18 10:58	pH = 5
TKN DA	28	May-28-18 10:58	pH = 2
TOC	28	May-28-18 10:58	pH = 2
Total Phosphorus DA	28	May-28-18 10:58	pH = 2

Sample ID: 1805005-14      Sampled: Apr-30-18 11:40      Matrix: Water

Sample Name: B2a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 11:40	pH = 2
Anions by IC	28	May-28-18 11:40	pH = 7
Metals ICP-AES (w)	180	Oct-27-18 11:40	pH = 4
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 11:40	pH = 2
Solids, TDS	7	May-07-18 11:40	pH = 7
TKN DA	28	May-28-18 11:40	pH = 2
TOC	28	May-28-18 11:40	pH = 2
Total Phosphorus DA	28	May-28-18 11:40	pH = 2

Sample ID: 1805005-15      Sampled: Apr-30-18 11:48      Matrix: Water

Sample Name: B2b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 11:48	pH = 2
Anions by IC	28	May-28-18 11:48	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 11:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 11:48	pH = 2
Solids, TDS	7	May-07-18 11:48	pH = 5
TKN DA	28	May-28-18 11:48	pH = 2
TOC	28	May-28-18 11:48	pH = 2

**WORK ORDER**

Printed: 5/3/2018 3:33:25PM

**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> [none]
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**Sample ID:** 1805005-15      **Sampled:** Apr-30-18 11:48      **Matrix:** Water

**Sample Name:** B2b      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 11:48	pH = 2

**Sample ID:** 1805005-16      **Sampled:** Apr-30-18 12:29      **Matrix:** Water

**Sample Name:** B3a      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 12:29	pH = 2
Anions by IC	28	May-28-18 12:29	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 12:29	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 12:29	pH = 2
Solids, TDS	7	May-07-18 12:29	pH = 6
TKN DA	28	May-28-18 12:29	pH = 2
TOC	28	May-28-18 12:29	pH = 2
Total Phosphorus DA	28	May-28-18 12:29	pH = 2

**Sample ID:** 1805005-17      **Sampled:** Apr-30-18 12:36      **Matrix:** Water

**Sample Name:** B3b      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 12:36	pH = 2
Anions by IC	28	May-28-18 12:36	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 12:36	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 12:36	pH = 2
Solids, TDS	7	May-07-18 12:36	pH = 5
TKN DA	28	May-28-18 12:36	pH = 2
TOC	28	May-28-18 12:36	pH = 2
Total Phosphorus DA	28	May-28-18 12:36	pH = 2

**Sample ID:** 1805005-18      **Sampled:** Apr-30-18 13:10      **Matrix:** Water

**Sample Name:** B4a      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 13:10	pH = 2
Anions by IC	28	May-28-18 13:10	pH = 5

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-18      Sampled: Apr-30-18 13:10      Matrix: Water

Sample Name: B4a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-27-18 13:10	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 13:10	pH = 2
Solids, TDS	7	May-07-18 13:10	pH = 5
TKN DA	28	May-28-18 13:10	pH = 2
TOC	28	May-28-18 13:10	pH = 2
Total Phosphorus DA	28	May-28-18 13:10	pH = 2

Sample ID: 1805005-19      Sampled: Apr-30-18 13:41      Matrix: Water

Sample Name: B4b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 13:41	pH = 2
Anions by IC	28	May-28-18 13:41	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 13:41	pH = 4
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 13:41	pH = 2
Solids, TDS	7	May-07-18 13:41	pH = 5
TKN DA	28	May-28-18 13:41	pH = 2
TOC	28	May-28-18 13:41	pH = 2
Total Phosphorus DA	28	May-28-18 13:41	pH = 2

Sample ID: 1805005-20      Sampled: Apr-30-18 15:02      Matrix: Water

Sample Name: C1a      Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 15:02	pH = 2
Anions by IC	28	May-28-18 15:02	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 15:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 15:02	pH = 2
Solids, TDS	7	May-07-18 15:02	pH = 5
TKN DA	28	May-28-18 15:02	pH = 2
TOC	28	May-28-18 15:02	pH = 2
Total Phosphorus DA	28	May-28-18 15:02	pH = 2



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US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> [none]
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**Sample ID:** 1805005-21      **Sampled:** Apr-30-18 15:27      **Matrix:** Water

**Sample Name:** C1b      **Sample Location/Comments:** 2nd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 15:27	pH = 2
Anions by IC	28	May-28-18 15:27	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 15:27	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 15:27	pH = 2
Solids, TDS	7	May-07-18 15:27	pH = 5
TKN DA	28	May-28-18 15:27	pH = 2
TOC	28	May-28-18 15:27	pH = 2
Total Phosphorus DA	28	May-28-18 15:27	pH = 2

**Sample ID:** 1805005-22      **Sampled:** Apr-30-18 16:06      **Matrix:** Water

**Sample Name:** C2a      **Sample Location/Comments:** Nelson Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 16:06	pH = 2
Anions by IC	28	May-28-18 16:06	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 16:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 16:06	pH = 2
Solids, TDS	7	May-07-18 16:06	pH = 5
TKN DA	28	May-28-18 16:06	pH = 2
TOC	28	May-28-18 16:06	pH = 2
Total Phosphorus DA	28	May-28-18 16:06	pH = 2

**Sample ID:** 1805005-23      **Sampled:** Apr-30-18 16:14      **Matrix:** Water

**Sample Name:** C2b      **Sample Location/Comments:** Nelson Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 16:14	pH = 2
Anions by IC	28	May-28-18 16:14	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 16:14	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 16:14	pH = 2
Solids, TDS	7	May-07-18 16:14	pH = 5
TKN DA	28	May-28-18 16:14	pH = 2
TOC	28	May-28-18 16:14	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-23    Sampled: Apr-30-18 16:14    Matrix: Water

Sample Name: C2b    Sample Location/Comments: Nelson Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 16:14	pH = 2

Sample ID: 1805005-24    Sampled: Apr-30-18 14:16    Matrix: Water

Sample Name: C3a    Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 14:16	pH = 2
Anions by IC	28	May-28-18 14:16	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 14:16	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 14:16	pH = 2
Solids, TDS	7	May-07-18 14:16	pH = 5
TKN DA	28	May-28-18 14:16	pH = 2
TOC	28	May-28-18 14:16	pH = 2
Total Phosphorus DA	28	May-28-18 14:16	pH = 2

Sample ID: 1805005-25    Sampled: Apr-30-18 14:26    Matrix: Water

Sample Name: C3b    Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 14:26	pH = 2
Anions by IC	28	May-28-18 14:26	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 14:26	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 14:26	pH = 2
Solids, TDS	7	May-07-18 14:26	pH = 5
TKN DA	28	May-28-18 14:26	pH = 2
TOC	28	May-28-18 14:26	pH = 2
Total Phosphorus DA	28	May-28-18 14:26	pH = 2

Sample ID: 1805005-26    Sampled: May-01-18 06:29    Matrix: Water

Sample Name: C5Aa    Sample Location/Comments: CR G (Nelson Road)

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 06:29	pH = 2
Anions by IC	28	May-29-18 06:29	pH = 5

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-26 Sampled: May-01-18 06:29 Matrix: Water

Sample Name: C5Aa Sample Location/Comments: CR G (Nelson Road)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 06:29	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 06:29	pH = 2
Solids, TDS	7	May-08-18 06:29	pH = 5
TKN DA	28	May-29-18 06:29	pH = 2
TOC	28	May-29-18 06:29	pH = 2
Total Phosphorus DA	28	May-29-18 06:29	pH = 2

Sample ID: 1805005-27 Sampled: May-01-18 06:43 Matrix: Water

Sample Name: C5Ab Sample Location/Comments: CR G (Nelson Road)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 06:43	pH = 2
Anions by IC	28	May-29-18 06:43	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 06:43	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 06:43	pH = 2
Solids, TDS	7	May-08-18 06:43	pH = 5
TKN DA	28	May-29-18 06:43	pH = 2
TOC	28	May-29-18 06:43	pH = 2
Total Phosphorus DA	28	May-29-18 06:43	pH = 2

Sample ID: 1805005-28 Sampled: May-01-18 07:06 Matrix: Water

Sample Name: C6a Sample Location/Comments: CR G (Nelson Road)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:06	pH = 2
Anions by IC	28	May-29-18 07:06	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 07:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:06	pH = 2
Solids, TDS	7	May-08-18 07:06	pH = 6
TKN DA	28	May-29-18 07:06	pH = 2
TOC	28	May-29-18 07:06	pH = 2
Total Phosphorus DA	28	May-29-18 07:06	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-29      Sampled: May-01-18 07:15      Matrix: Water

Sample Name: C6b      Sample Location/Comments: CR G (Nelson Road)

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:15	pH = 3
Anions by IC	28	May-29-18 07:15	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 07:15	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:15	pH = 3
Solids, TDS	7	May-08-18 07:15	pH = 5
TKN DA	28	May-29-18 07:15	pH = 3
TOC	28	May-29-18 07:15	pH = 3
Total Phosphorus DA	28	May-29-18 07:15	pH = 3

Sample ID: 1805005-30      Sampled: May-01-18 07:48      Matrix: Water

Sample Name: C7a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:48	pH = 2
Anions by IC	28	May-29-18 07:48	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 07:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:48	pH = 2
Solids, TDS	7	May-08-18 07:48	pH = 6
TKN DA	28	May-29-18 07:48	pH = 2
TOC	28	May-29-18 07:48	pH = 2
Total Phosphorus DA	28	May-29-18 07:48	pH = 2

Sample ID: 1805005-31      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:02	pH = 2
Anions by IC	28	May-29-18 08:02	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:02	pH = 2
Solids, TDS	7	May-08-18 08:02	pH = 5
TKN DA	28	May-29-18 08:02	pH = 2
TOC	28	May-29-18 08:02	pH = 2



1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-31      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7b

Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 08:02	pH = 2

Sample ID: 1805005-32      Sampled: May-01-18 07:39      Matrix: Water

Sample Name: FB2

Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:39	pH = 2
Anions by IC	28	May-29-18 07:39	pH = 4
Metals ICP-AES (w)	180	Oct-28-18 07:39	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:39	pH = 2
Solids, TDS	7	May-08-18 07:39	pH = 4
TKN DA	28	May-29-18 07:39	pH = 2
TOC	28	May-29-18 07:39	pH = 2
Total Phosphorus DA	28	May-29-18 07:39	pH = 2

Sample ID: 1805005-33      Sampled: May-01-18 07:38      Matrix: Water

Sample Name: C7 equip

Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:38	pH = 2
Anions by IC	28	May-29-18 07:38	pH = 4
Metals ICP-AES (w)	180	Oct-28-18 07:38	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:38	pH = 2
Solids, TDS	7	May-08-18 07:38	pH = 4
TKN DA	28	May-29-18 07:38	pH = 2
TOC	28	May-29-18 07:38	pH = 2
Total Phosphorus DA	28	May-29-18 07:38	pH = 2

Sample ID: 1805005-34      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7 Dup

Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:02	pH = 2
Anions by IC	28	May-29-18 08:02	pH = 5

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b> Project: <b>Central Sands</b>	Project Manager: <b>Angela Ockrassa Davis</b> Project Number: <b>[none]</b>
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Sample ID: 1805005-34      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7 Dup      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 08:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:02	pH = 2
Solids, TDS	7	May-08-18 08:02	pH = 5
TKN DA	28	May-29-18 08:02	pH = 2
TOC	28	May-29-18 08:02	pH = 2
Total Phosphorus DA	28	May-29-18 08:02	pH = 2

Sample ID: 1805005-35      Sampled: May-01-18 08:35      Matrix: Water

Sample Name: C8a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:35	pH = 2
Anions by IC	28	May-29-18 08:35	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:35	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:35	pH = 2
Solids, TDS	7	May-08-18 08:35	pH = 5
TKN DA	28	May-29-18 08:35	pH = 2
TOC	28	May-29-18 08:35	pH = 2
Total Phosphorus DA	28	May-29-18 08:35	pH = 2

Sample ID: 1805005-36      Sampled: May-01-18 08:42      Matrix: Water

Sample Name: C8b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:42	pH = 2
Anions by IC	28	May-29-18 08:42	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:42	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:42	pH = 2
Solids, TDS	7	May-08-18 08:42	pH = 5
TKN DA	28	May-29-18 08:42	pH = 2
TOC	28	May-29-18 08:42	pH = 2
Total Phosphorus DA	28	May-29-18 08:42	pH = 2

1805005

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> [none]
---	--

**Sample ID:** 1805005-37      **Sampled:** May-01-18 10:00      **Matrix:** Water

**Sample Name:** C9a      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 10:00	pH = 2
Anions by IC	28	May-29-18 10:00	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 10:00	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 10:00	pH = 2
Solids, TDS	7	May-08-18 10:00	pH = 5
TKN DA	28	May-29-18 10:00	pH = 2
TOC	28	May-29-18 10:00	pH = 2
Total Phosphorus DA	28	May-29-18 10:00	pH = 2

**Sample ID:** 1805005-38      **Sampled:** May-01-18 10:21      **Matrix:** Water

**Sample Name:** C9b      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 10:21	pH = 2
Anions by IC	28	May-29-18 10:21	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 10:21	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 10:21	pH = 2
Solids, TDS	7	May-08-18 10:21	pH = 5
TKN DA	28	May-29-18 10:21	pH = 2
TOC	28	May-29-18 10:21	pH = 2
Total Phosphorus DA	28	May-29-18 10:21	pH = 2

**Sample ID:** 1805005-39      **Sampled:** May-01-18 11:05      **Matrix:** Water

**Sample Name:** C10a      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:05	pH = 2
Anions by IC	28	May-29-18 11:05	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 11:05	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:05	pH = 2
Solids, TDS	7	May-08-18 11:05	pH = 6
TKN DA	28	May-29-18 11:05	pH = 2
TOC	28	May-29-18 11:05	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-39      Sampled: May-01-18 11:05      Matrix: Water

Sample Name: C10a      Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 11:05	pH = 2

Sample ID: 1805005-40      Sampled: May-01-18 11:12      Matrix: Water

Sample Name: C10b      Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:12	pH = 2
Anions by IC	28	May-29-18 11:12	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 11:12	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:12	pH = 2
Solids, TDS	7	May-08-18 11:12	pH = 5
TKN DA	28	May-29-18 11:12	pH = 2
TOC	28	May-29-18 11:12	pH = 2
Total Phosphorus DA	28	May-29-18 11:12	pH = 2

Sample ID: 1805005-41      Sampled: May-01-18 11:46      Matrix: Water

Sample Name: C11a      Sample Location/Comments: 20th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:46	pH = 3
Anions by IC	28	May-29-18 11:46	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 11:46	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:46	pH = 3
Solids, TDS	7	May-08-18 11:46	pH = 6
TKN DA	28	May-29-18 11:46	pH = 3
TOC	28	May-29-18 11:46	pH = 3
Total Phosphorus DA	28	May-29-18 11:46	pH = 3

Sample ID: 1805005-42      Sampled: May-01-18 11:52      Matrix: Water

Sample Name: C11b      Sample Location/Comments: 20th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:52	pH = 2
Anions by IC	28	May-29-18 11:52	pH = 5



1805005

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-42      **Sampled:** May-01-18 11:52      **Matrix:** Water

**Sample Name:** C11b      **Sample Location/Comments:** 20th Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 11:52	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:52	pH = 2
Solids, TDS	7	May-08-18 11:52	pH = 5
TKN DA	28	May-29-18 11:52	pH = 2
TOC	28	May-29-18 11:52	pH = 2
Total Phosphorus DA	28	May-29-18 11:52	pH = 2

**Sample ID:** 1805005-43      **Sampled:** May-01-18 12:41      **Matrix:** Water

**Sample Name:** C12a      **Sample Location/Comments:** 19th Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 12:41	pH = 2
Anions by IC	28	May-29-18 12:41	pH = 7
Metals ICP-AES (w)	180	Oct-28-18 12:41	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 12:41	pH = 2
Solids, TDS	7	May-08-18 12:41	pH = 7
TKN DA	28	May-29-18 12:41	pH = 2
TOC	28	May-29-18 12:41	pH = 2
Total Phosphorus DA	28	May-29-18 12:41	pH = 2

**Sample ID:** 1805005-44      **Sampled:** May-01-18 12:47      **Matrix:** Water

**Sample Name:** C12b      **Sample Location/Comments:** 19th Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 12:47	pH = 2
Anions by IC	28	May-29-18 12:47	pH = 7
Metals ICP-AES (w)	180	Oct-28-18 12:47	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 12:47	pH = 2
Solids, TDS	7	May-08-18 12:47	pH = 7
TKN DA	28	May-29-18 12:47	pH = 2
TOC	28	May-29-18 12:47	pH = 2
Total Phosphorus DA	28	May-29-18 12:47	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
---	--

Sample ID: 1805005-45      Sampled: May-01-18 13:30      Matrix: Water

Sample Name: C13a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 13:30	pH = 3
Anions by IC	28	May-29-18 13:30	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 13:30	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 13:30	pH = 3
Solids, TDS	7	May-08-18 13:30	pH = 6
TKN DA	28	May-29-18 13:30	pH = 3
TOC	28	May-29-18 13:30	pH = 3
Total Phosphorus DA	28	May-29-18 13:30	pH = 3

Sample ID: 1805005-46      Sampled: May-01-18 13:39      Matrix: Water

Sample Name: C13b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 13:39	pH = 2
Anions by IC	28	May-29-18 13:39	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 13:39	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 13:39	pH = 2
Solids, TDS	7	May-08-18 13:39	pH = 5
TKN DA	28	May-29-18 13:39	pH = 2
TOC	28	May-29-18 13:39	pH = 2
Total Phosphorus DA	28	May-29-18 13:39	pH = 2

Sample ID: 1805005-47      Sampled: May-01-18 14:19      Matrix: Water

Sample Name: D1a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 14:19	pH = 2
Anions by IC	28	May-29-18 14:19	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 14:19	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 14:19	pH = 2
Solids, TDS	7	May-08-18 14:19	pH = 6
TKN DA	28	May-29-18 14:19	pH = 2
TOC	28	May-29-18 14:19	pH = 2

**WORK ORDER**

Printed: 5/3/2018 3:33:25PM

**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> [none]
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**Sample ID:** 1805005-47      **Sampled:** May-01-18 14:19      **Matrix:** Water

**Sample Name:** D1a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 14:19	pH = 2

**Sample ID:** 1805005-48      **Sampled:** May-01-18 14:26      **Matrix:** Water

**Sample Name:** D1b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 14:26	pH = 3
Anions by IC	28	May-29-18 14:26	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 14:26	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 14:26	pH = 3
Solids, TDS	7	May-08-18 14:26	pH = 5
TKN DA	28	May-29-18 14:26	pH = 3
TOC	28	May-29-18 14:26	pH = 3
Total Phosphorus DA	28	May-29-18 14:26	pH = 3

**Sample ID:** 1805005-49      **Sampled:** May-01-18 15:00      **Matrix:** Water

**Sample Name:** D2a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:00	pH = 3
Anions by IC	28	May-29-18 15:00	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:00	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:00	pH = 3
Solids, TDS	7	May-08-18 15:00	pH = 6
TKN DA	28	May-29-18 15:00	pH = 3
TOC	28	May-29-18 15:00	pH = 3
Total Phosphorus DA	28	May-29-18 15:00	pH = 3

**Sample ID:** 1805005-50      **Sampled:** May-01-18 15:06      **Matrix:** Water

**Sample Name:** D2b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:06	pH = 2
Anions by IC	28	May-29-18 15:06	pH = 6

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-50      Sampled: May-01-18 15:06      Matrix: Water

Sample Name: D2b

Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 15:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:06	pH = 2
Solids, TDS	7	May-08-18 15:06	pH = 6
TKN DA	28	May-29-18 15:06	pH = 2
TOC	28	May-29-18 15:06	pH = 2
Total Phosphorus DA	28	May-29-18 15:06	pH = 2

Sample ID: 1805005-51      Sampled: May-01-18 15:41      Matrix: Water

Sample Name: D3a

Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:41	pH = 2
Anions by IC	28	May-29-18 15:41	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:41	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:41	pH = 2
Solids, TDS	7	May-08-18 15:41	pH = 6
TKN DA	28	May-29-18 15:41	pH = 2
TOC	28	May-29-18 15:41	pH = 2
Total Phosphorus DA	28	May-29-18 15:41	pH = 2

Sample ID: 1805005-52      Sampled: May-01-18 15:48      Matrix: Water

Sample Name: D3b

Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:48	pH = 2
Anions by IC	28	May-29-18 15:48	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 15:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:48	pH = 2
Solids, TDS	7	May-08-18 15:48	pH = 5
TKN DA	28	May-29-18 15:48	pH = 2
TOC	28	May-29-18 15:48	pH = 2
Total Phosphorus DA	28	May-29-18 15:48	pH = 2



1805005

**US EPA Region 5 Chicago Regional Laboratory**

Client: <b>Water Division, WECA Region 5</b> Project: <b>Central Sands</b>	Project Manager: <b>Angela Ockrassa Davis</b> Project Number: <b>[none]</b>
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Sample ID: 1805005-53      Sampled: May-01-18 16:19      Matrix: Water

Sample Name: D4a      Sample Location/Comments: 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 16:19	pH = 2
Anions by IC	28	May-29-18 16:19	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 16:19	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 16:19	pH = 2
Solids, TDS	7	May-08-18 16:19	pH = 6
TKN DA	28	May-29-18 16:19	pH = 2
TOC	28	May-29-18 16:19	pH = 2
Total Phosphorus DA	28	May-29-18 16:19	pH = 2

Sample ID: 1805005-54      Sampled: May-01-18 16:26      Matrix: Water

Sample Name: D4b      Sample Location/Comments: 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 16:26	pH = 2
Anions by IC	28	May-29-18 16:26	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 16:26	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 16:26	pH = 2
Solids, TDS	7	May-08-18 16:26	pH = 5
TKN DA	28	May-29-18 16:26	pH = 2
TOC	28	May-29-18 16:26	pH = 2
Total Phosphorus DA	28	May-29-18 16:26	pH = 2

WORK ORDER MEMO: NCR 14118

PROJECT COMMENTS: Anions: Chloride, fluoride, bromide, sulfate.  
Full List metals

REVIEWED

By Amanda Wroble at 3:35 pm, May 03, 2018

Reviewed By \_\_\_\_\_ Date \_\_\_\_\_



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
 Phone:(312)353-8370 Fax:(312)886-2591

**WORK ORDER**

Printed: 5/7/2018 9:53:28AM

**1805007**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

<b>Report To:</b>		
Cheryl Burdett	77 West Jackson Boulevard	Phone: (312) 886-1463
Water Division, WECA Region 5	Chicago, IL 60604	Fax: (312) 886-2001

Date Due:	Jun-04-18 15:00 (30 day TAT)	Date Received:	May-04-18 10:00
Received By:	Robert Snyder	Date Logged In:	May-07-18 07:38
Logged In By:	Robert Snyder		

<b>Samples Received at:</b>	<b>Work Order Comments:</b>
Sample tags/labels <b>Yes</b>	Copy/Relog from 1805005. Anions: Chloride and nitrate as NO3
Seals intact <b>Yes</b>	Full List metals
Received on ice <b>Yes</b>	pH paper used in SC 16H2601
Paperwork Included <b>Yes</b>	

**Sample ID:** 1805007-01      **Sampled:** May-02-18 06:38      **Matrix:** Water  
**Sample Name:** D5a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 06:38	pH = 1
Anions by IC	28	May-30-18 06:38	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 06:38	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 06:38	pH = 1
Solids, TDS	7	May-09-18 06:38	pH = 6
TKN DA	28	May-30-18 06:38	pH = 1
TOC	28	May-30-18 06:38	pH = 1
Total Phosphorus DA	28	May-30-18 06:38	pH = 1

**Sample ID:** 1805007-02      **Sampled:** May-02-18 06:46      **Matrix:** Water  
**Sample Name:** D5b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 06:46	pH = 1
Anions by IC	28	May-30-18 06:46	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 06:46	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 06:46	pH = 1

1805007

US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> CB022018
---	--

**Sample ID:** 1805007-02      **Sampled:** May-02-18 06:46      **Matrix:** Water  
**Sample Name:** D5b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-09-18 06:46	pH = 5
TKN DA	28	May-30-18 06:46	pH = 1
TOC	28	May-30-18 06:46	pH = 1
Total Phosphorus DA	28	May-30-18 06:46	pH = 1

**Sample ID:** 1805007-03      **Sampled:** May-02-18 07:17      **Matrix:** Water  
**Sample Name:** D6a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 07:17	pH = 1
Anions by IC	28	May-30-18 07:17	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 07:17	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 07:17	pH = 1
Solids, TDS	7	May-09-18 07:17	pH = 6
TKN DA	28	May-30-18 07:17	pH = 1
TOC	28	May-30-18 07:17	pH = 1
Total Phosphorus DA	28	May-30-18 07:17	pH = 1

**Sample ID:** 1805007-04      **Sampled:** May-02-18 07:29      **Matrix:** Water  
**Sample Name:** D6b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 07:29	pH = 1
Anions by IC	28	May-30-18 07:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 07:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 07:29	pH = 1
Solids, TDS	7	May-09-18 07:29	pH = 6
TKN DA	28	May-30-18 07:29	pH = 1
TOC	28	May-30-18 07:29	pH = 1
Total Phosphorus DA	28	May-30-18 07:29	pH = 1

WORK ORDER

Printed: 5/7/2018 9:53:28AM

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b> Project: <b>Central Sands</b>	Project Manager: <b>Angela Ockrassa Davis</b> Project Number: <b>CB022018</b>
---	--

**Sample ID:** 1805007-05      **Sampled:** May-02-18 08:01      **Matrix:** Water  
**Sample Name:** D7 equip      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:01	pH = 1
Anions by IC	28	May-30-18 08:01	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 08:01	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:01	pH = 1
Solids, TDS	7	May-09-18 08:01	pH = 5
TKN DA	28	May-30-18 08:01	pH = 1
TOC	28	May-30-18 08:01	pH = 1
Total Phosphorus DA	28	May-30-18 08:01	pH = 1

**Sample ID:** 1805007-06      **Sampled:** May-02-18 08:03      **Matrix:** Water  
**Sample Name:** FB3      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:03	pH = 1
Anions by IC	28	May-30-18 08:03	pH = 4
Metals ICP-AES (w)	180	Oct-29-18 08:03	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:03	pH = 1
Solids, TDS	7	May-09-18 08:03	pH = 4
TKN DA	28	May-30-18 08:03	pH = 1
TOC	28	May-30-18 08:03	pH = 1
Total Phosphorus DA	28	May-30-18 08:03	pH = 1

**Sample ID:** 1805007-07      **Sampled:** May-02-18 08:12      **Matrix:** Water  
**Sample Name:** D7a Dup      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:12	pH = 1
Anions by IC	28	May-30-18 08:12	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:12	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:12	pH = 1
Solids, TDS	7	May-09-18 08:12	pH = 6
TKN DA	28	May-30-18 08:12	pH = 1
TOC	28	May-30-18 08:12	pH = 1



1805007

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b> Project: <b>Central Sands</b>	Project Manager: <b>Angela Ockrassa Davis</b> Project Number: <b>CB022018</b>
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**Sample ID:** 1805007-07      **Sampled:** May-02-18 08:12      **Matrix:** Water  
**Sample Name:** D7a Dup      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 08:12	pH = 1

**Sample ID:** 1805007-08      **Sampled:** May-02-18 08:12      **Matrix:** Water      OC Source Sample MS/MSD  
**Sample Name:** D7a      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:** MS/MSD

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:12	pH = 1
Anions by IC	28	May-30-18 08:12	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:12	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:12	pH = 1
Solids, TDS	7	May-09-18 08:12	pH = 6
TKN DA	28	May-30-18 08:12	pH = 1
TOC	28	May-30-18 08:12	pH = 1
Total Phosphorus DA	28	May-30-18 08:12	pH = 1

**Sample ID:** 1805007-09      **Sampled:** May-02-18 08:19      **Matrix:** Water  
**Sample Name:** D7b      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:19	pH = 1
Anions by IC	28	May-30-18 08:19	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 08:19	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:19	pH = 1
Solids, TDS	7	May-09-18 08:19	pH = 5
TKN DA	28	May-30-18 08:19	pH = 1
TOC	28	May-30-18 08:19	pH = 1
Total Phosphorus DA	28	May-30-18 08:19	pH = 1

**Sample ID:** 1805007-10      **Sampled:** May-02-18 08:55      **Matrix:** Water  
**Sample Name:** D8a      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:55	pH = 1
Anions by IC	28	May-30-18 08:55	pH = 6

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## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
 Project: Central Sands

Project Manager: Angela Ockrassa Davis  
 Project Number: CB022018

Sample ID: 1805007-10      Sampled: May-02-18 08:55      Matrix: Water

Sample Name: D8a      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 08:55	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:55	pH = 1
Solids, TDS	7	May-09-18 08:55	pH = 6
TKN DA	28	May-30-18 08:55	pH = 1
TOC	28	May-30-18 08:55	pH = 1
Total Phosphorus DA	28	May-30-18 08:55	pH = 1

Sample ID: 1805007-11      Sampled: May-02-18 09:11      Matrix: Water

Sample Name: D8b      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:11	pH = 1
Anions by IC	28	May-30-18 09:11	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:11	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:11	pH = 1
Solids, TDS	7	May-09-18 09:11	pH = 6
TKN DA	28	May-30-18 09:11	pH = 1
TOC	28	May-30-18 09:11	pH = 1
Total Phosphorus DA	28	May-30-18 09:11	pH = 1

Sample ID: 1805007-12      Sampled: May-02-18 09:45      Matrix: Water

Sample Name: D9a      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:45	pH = 1
Anions by IC	28	May-30-18 09:45	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:45	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:45	pH = 1
Solids, TDS	7	May-09-18 09:45	pH = 6
TKN DA	28	May-30-18 09:45	pH = 1
TOC	28	May-30-18 09:45	pH = 1
Total Phosphorus DA	28	May-30-18 09:45	pH = 1

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## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-13      Sampled: May-02-18 09:54      Matrix: Water

Sample Name: D9h      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:54	pH = 1
Anions by IC	28	May-30-18 09:54	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:54	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:54	pH = 1
Solids, TDS	7	May-09-18 09:54	pH = 6
TKN DA	28	May-30-18 09:54	pH = 1
TOC	28	May-30-18 09:54	pH = 1
Total Phosphorus DA	28	May-30-18 09:54	pH = 1

Sample ID: 1805007-14      Sampled: May-02-18 10:29      Matrix: Water

Sample Name: D10a      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:29	pH = 1
Anions by IC	28	May-30-18 10:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 10:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:29	pH = 1
Solids, TDS	7	May-09-18 10:29	pH = 6
TKN DA	28	May-30-18 10:29	pH = 1
TOC	28	May-30-18 10:29	pH = 1
Total Phosphorus DA	28	May-30-18 10:29	pH = 1

Sample ID: 1805007-15      Sampled: May-02-18 10:29      Matrix: Water

Sample Name: D10a Dup      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:29	pH = 1
Anions by IC	28	May-30-18 10:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 10:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:29	pH = 1
Solids, TDS	7	May-09-18 10:29	pH = 6
TKN DA	28	May-30-18 10:29	pH = 1
TOC	28	May-30-18 10:29	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b>	Project Manager: <b>Angela Ockrassa Davis</b>
Project: <b>Central Sands</b>	Project Number: <b>CB022018</b>

Sample ID: 1805007-15      Sampled: May-02-18 10:29      Matrix: Water  
 Sample Name: D10a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 10:29	pH = 1

Sample ID: 1805007-16      Sampled: May-02-18 10:41      Matrix: Water  
 Sample Name: D10b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:41	pH = 1
Anions by IC	28	May-30-18 10:41	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 10:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:41	pH = 1
Solids, TDS	7	May-09-18 10:41	pH = 5
TKN DA	28	May-30-18 10:41	pH = 1
TOC	28	May-30-18 10:41	pH = 1
Total Phosphorus DA	28	May-30-18 10:41	pH = 1

Sample ID: 1805007-17      Sampled: May-02-18 10:41      Matrix: Water  
 Sample Name: D10b Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:41	pH = 1
Anions by IC	28	May-30-18 10:41	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 10:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:41	pH = 1
Solids, TDS	7	May-09-18 10:41	pH = 5
TKN DA	28	May-30-18 10:41	pH = 1
TOC	28	May-30-18 10:41	pH = 1
Total Phosphorus DA	28	May-30-18 10:41	pH = 1

Sample ID: 1805007-18      Sampled: May-02-18 11:19      Matrix: Water  
 Sample Name: D11a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 11:19	pH = 1
Anions by IC	28	May-30-18 11:19	pH = 6



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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-18      Sampled: May-02-18 11:19      Matrix: Water

Sample Name: D11a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 11:19	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 11:19	pH = 1
Solids, TDS	7	May-09-18 11:19	pH = 6
TKN DA	28	May-30-18 11:19	pH = 1
TOC	28	May-30-18 11:19	pH = 1
Total Phosphorus DA	28	May-30-18 11:19	pH = 1

Sample ID: 1805007-19      Sampled: May-02-18 11:42      Matrix: Water

Sample Name: D11b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 11:42	pH = 1
Anions by IC	28	May-30-18 11:42	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 11:42	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 11:42	pH = 1
Solids, TDS	7	May-09-18 11:42	pH = 5
TKN DA	28	May-30-18 11:42	pH = 1
TOC	28	May-30-18 11:42	pH = 1
Total Phosphorus DA	28	May-30-18 11:42	pH = 1

Sample ID: 1805007-20      Sampled: May-02-18 12:41      Matrix: Water

Sample Name: E1a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 12:41	pH = 1
Anions by IC	28	May-30-18 12:41	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 12:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 12:41	pH = 1
Solids, TDS	7	May-09-18 12:41	pH = 6
TKN DA	28	May-30-18 12:41	pH = 1
TOC	28	May-30-18 12:41	pH = 1
Total Phosphorus DA	28	May-30-18 12:41	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-21      Sampled: May-02-18 12:58      Matrix: Water

Sample Name: E1b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 12:58	pH = 1
Anions by IC	28	May-30-18 12:58	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 12:58	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 12:58	pH = 1
Solids, TDS	7	May-09-18 12:58	pH = 6
TKN DA	28	May-30-18 12:58	pH = 1
TOC	28	May-30-18 12:58	pH = 1
Total Phosphorus DA	28	May-30-18 12:58	pH = 1

Sample ID: 1805007-22      Sampled: May-02-18 13:28      Matrix: Water

Sample Name: E2a      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:28	pH = 1
Anions by IC	28	May-30-18 13:28	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 13:28	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:28	pH = 1
Solids, TDS	7	May-09-18 13:28	pH = 6
TKN DA	28	May-30-18 13:28	pH = 1
TOC	28	May-30-18 13:28	pH = 1
Total Phosphorus DA	28	May-30-18 13:28	pH = 1

Sample ID: 1805007-23      Sampled: May-02-18 13:37      Matrix: Water

Sample Name: E2b      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:37	pH = 1
Anions by IC	28	May-30-18 13:37	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 13:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:37	pH = 1
Solids, TDS	7	May-09-18 13:37	pH = 5
TKN DA	28	May-30-18 13:37	pH = 1
TOC	28	May-30-18 13:37	pH = 1

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**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> CB022018
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**Sample ID:** 1805007-23      **Sampled:** May-02-18 13:37      **Matrix:** Water  
**Sample Name:** E2b      **Sample Location/Comments:** Porter Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 13:37	pH = 1

**Sample ID:** 1805007-24      **Sampled:** May-02-18 13:28      **Matrix:** Water  
**Sample Name:** E2a Dup      **Sample Location/Comments:** Porter Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:28	pH = 1
Anions by IC	28	May-30-18 13:28	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 13:28	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:28	pH = 1
Solids, TDS	7	May-09-18 13:28	pH = 6
TKN DA	28	May-30-18 13:28	pH = 1
TOC	28	May-30-18 13:28	pH = 1
Total Phosphorus DA	28	May-30-18 13:28	pH = 1

**Sample ID:** 1805007-25      **Sampled:** May-02-18 13:37      **Matrix:** Water  
**Sample Name:** E2b Dup      **Sample Location/Comments:** Porter Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:37	pH = 1
Anions by IC	28	May-30-18 13:37	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 13:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:37	pH = 1
Solids, TDS	7	May-09-18 13:37	pH = 5
TKN DA	28	May-30-18 13:37	pH = 1
TOC	28	May-30-18 13:37	pH = 1
Total Phosphorus DA	28	May-30-18 13:37	pH = 1

**Sample ID:** 1805007-26      **Sampled:** May-02-18 14:03      **Matrix:** Water  
**Sample Name:** E3a      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:03	pH = 1
Anions by IC	28	May-30-18 14:03	pH = 6

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-26      Sampled: May-02-18 14:03      Matrix: Water

Sample Name: E3a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 14:03	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:03	pH = 1
Solids, TDS	7	May-09-18 14:03	pH = 6
TKN DA	28	May-30-18 14:03	pH = 1
TOC	28	May-30-18 14:03	pH = 1
Total Phosphorus DA	28	May-30-18 14:03	pH = 1

Sample ID: 1805007-27      Sampled: May-02-18 14:09      Matrix: Water

Sample Name: E3b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:09	pH = 1
Anions by IC	28	May-30-18 14:09	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:09	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:09	pH = 1
Solids, TDS	7	May-09-18 14:09	pH = 6
TKN DA	28	May-30-18 14:09	pH = 1
TOC	28	May-30-18 14:09	pH = 1
Total Phosphorus DA	28	May-30-18 14:09	pH = 1

Sample ID: 1805007-28      Sampled: May-02-18 14:37      Matrix: Water

Sample Name: E4a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:37	pH = 1
Anions by IC	28	May-30-18 14:37	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:37	pH = 1
Solids, TDS	7	May-09-18 14:37	pH = 6
TKN DA	28	May-30-18 14:37	pH = 1
TOC	28	May-30-18 14:37	pH = 1
Total Phosphorus DA	28	May-30-18 14:37	pH = 1



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**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

**Sample ID:** 1805007-29      **Sampled:** May-02-18 14:43      **Matrix:** Water

**Sample Name:** E4b      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:43	pH = 1
Anions by IC	28	May-30-18 14:43	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:43	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:43	pH = 1
Solids, TDS	7	May-09-18 14:43	pH = 6
TKN DA	28	May-30-18 14:43	pH = 1
TOC	28	May-30-18 14:43	pH = 1
Total Phosphorus DA	28	May-30-18 14:43	pH = 1

**Sample ID:** 1805007-30      **Sampled:** May-02-18 15:08      **Matrix:** Water

**Sample Name:** E5a      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:08	pH = 1
Anions by IC	28	May-30-18 15:08	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:08	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:08	pH = 1
Solids, TDS	7	May-09-18 15:08	pH = 6
TKN DA	28	May-30-18 15:08	pH = 1
TOC	28	May-30-18 15:08	pH = 1
Total Phosphorus DA	28	May-30-18 15:08	pH = 1

**Sample ID:** 1805007-31      **Sampled:** May-02-18 15:13      **Matrix:** Water

**Sample Name:** E5b      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:13	pH = 1
Anions by IC	28	May-30-18 15:13	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:13	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:13	pH = 1
Solids, TDS	7	May-09-18 15:13	pH = 6
TKN DA	28	May-30-18 15:13	pH = 1
TOC	28	May-30-18 15:13	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-31      Sampled: May-02-18 15:13      Matrix: Water  
 Sample Name: E5b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 15:13	pH = 1

Sample ID: 1805007-32      Sampled: May-02-18 15:38      Matrix: Water  
 Sample Name: E6a      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:38	pH = 1
Anions by IC	28	May-30-18 15:38	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:38	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:38	pH = 1
Solids, TDS	7	May-09-18 15:38	pH = 6
TKN DA	28	May-30-18 15:38	pH = 1
TOC	28	May-30-18 15:38	pH = 1
Total Phosphorus DA	28	May-30-18 15:38	pH = 1

Sample ID: 1805007-33      Sampled: May-02-18 15:44      Matrix: Water  
 Sample Name: E6b      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:44	pH = 1
Anions by IC	28	May-30-18 15:44	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:44	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:44	pH = 1
Solids, TDS	7	May-09-18 15:44	pH = 6
TKN DA	28	May-30-18 15:44	pH = 1
TOC	28	May-30-18 15:44	pH = 1
Total Phosphorus DA	28	May-30-18 15:44	pH = 1

Sample ID: 1805007-34      Sampled: May-02-18 16:09      Matrix: Water  
 Sample Name: E7a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 16:09	pH = 1
Anions by IC	28	May-30-18 16:09	pH = 5

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US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

**Sample ID:** 1805007-34      **Sampled:** May-02-18 16:09      **Matrix:** Water  
**Sample Name:** E7a      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 16:09	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 16:09	pH = 1
Solids, TDS	7	May-09-18 16:09	pH = 5
TKN DA	28	May-30-18 16:09	pH = 1
TOC	28	May-30-18 16:09	pH = 1
Total Phosphorus DA	28	May-30-18 16:09	pH = 1

**Sample ID:** 1805007-35      **Sampled:** May-02-18 16:35      **Matrix:** Water  
**Sample Name:** E7b      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 16:35	pH = 1
Anions by IC	28	May-30-18 16:35	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 16:35	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 16:35	pH = 1
Solids, TDS	7	May-09-18 16:35	pH = 5
TKN DA	28	May-30-18 16:35	pH = 1
TOC	28	May-30-18 16:35	pH = 1
Total Phosphorus DA	28	May-30-18 16:35	pH = 1

**Sample ID:** 1805007-36      **Sampled:** May-03-18 08:40      **Matrix:** Water  
**Sample Name:** E8a      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 08:40	pH = 1
Anions by IC	28	May-31-18 08:40	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 08:40	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 08:40	pH = 1
Solids, TDS	7	May-10-18 08:40	pH = 5
TKN DA	28	May-31-18 08:40	pH = 1
TOC	28	May-31-18 08:40	pH = 1
Total Phosphorus DA	28	May-31-18 08:40	pH = 1

WORK ORDER

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1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: CB022018
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**Sample ID:** 1805007-37      **Sampled:** May-03-18 08:48      **Matrix:** Water  
**Sample Name:** E8b      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 08:48	pH = 1
Anions by IC	28	May-31-18 08:48	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 08:48	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 08:48	pH = 1
Solids, TDS	7	May-10-18 08:48	pH = 6
TKN DA	28	May-31-18 08:48	pH = 1
TOC	28	May-31-18 08:48	pH = 1
Total Phosphorus DA	28	May-31-18 08:48	pH = 1

**Sample ID:** 1805007-38      **Sampled:** May-03-18 07:15      **Matrix:** Water  
**Sample Name:** E10a      **Sample Location/Comments:** 8th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:15	pH = 1
Anions by IC	28	May-31-18 07:15	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:15	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:15	pH = 1
Solids, TDS	7	May-10-18 07:15	pH = 6
TKN DA	28	May-31-18 07:15	pH = 1
TOC	28	May-31-18 07:15	pH = 1
Total Phosphorus DA	28	May-31-18 07:15	pH = 1

**Sample ID:** 1805007-39      **Sampled:** May-03-18 07:15      **Matrix:** Water  
**Sample Name:** E10a Dup      **Sample Location/Comments:** 8th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:15	pH = 1
Anions by IC	28	May-31-18 07:15	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:15	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:15	pH = 1
Solids, TDS	7	May-10-18 07:15	pH = 6
TKN DA	28	May-31-18 07:15	pH = 1
TOC	28	May-31-18 07:15	pH = 1



WORK ORDER

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1805007

US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> CB022018
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**Sample ID:** 1805007-39      **Sampled:** May-03-18 07:15      **Matrix:** Water  
**Sample Name:** E10a Dup      **Sample Location/Comments:** 8th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-31-18 07:15	pH = 1

**Sample ID:** 1805007-40      **Sampled:** May-03-18 07:27      **Matrix:** Water  
**Sample Name:** E10b      **Sample Location/Comments:** 8th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:27	pH = 1
Anions by IC	28	May-31-18 07:27	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:27	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:27	pH = 1
Solids, TDS	7	May-10-18 07:27	pH = 6
TKN DA	28	May-31-18 07:27	pH = 1
TOC	28	May-31-18 07:27	pH = 1
Total Phosphorus DA	28	May-31-18 07:27	pH = 1

**Sample ID:** 1805007-41      **Sampled:** May-03-18 07:36      **Matrix:** Water  
**Sample Name:** FB4      **Sample Location/Comments:** 8th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:36	pH = 1
Anions by IC	28	May-31-18 07:36	pH = 4
Metals ICP-AES (w)	180	Oct-30-18 07:36	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:36	pH = 1
Solids, TDS	7	May-10-18 07:36	pH = 4
TKN DA	28	May-31-18 07:36	pH = 1
TOC	28	May-31-18 07:36	pH = 1
Total Phosphorus DA	28	May-31-18 07:36	pH = 1

**Sample ID:** 1805007-42      **Sampled:** May-03-18 07:13      **Matrix:** Water  
**Sample Name:** E10 Equip      **Sample Location/Comments:** 8th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:13	pH = 1
Anions by IC	28	May-31-18 07:13	pH = 4

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-42      Sampled: May-03-18 07:13      Matrix: Water

Sample Name: E10 Equip      Sample Location/Comments: 8th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-30-18 07:13	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:13	pH = 1
Solids, TDS	7	May-10-18 07:13	pH = 4
TKN DA	28	May-31-18 07:13	pH = 1
TOC	28	May-31-18 07:13	pH = 1
Total Phosphorus DA	28	May-31-18 07:13	pH = 1

Sample ID: 1805007-43      Sampled: May-03-18 09:53      Matrix: Water

Sample Name: E9a      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 09:53	pH = 1
Anions by IC	28	May-31-18 09:53	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 09:53	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 09:53	pH = 1
Solids, TDS	7	May-10-18 09:53	pH = 5
TKN DA	28	May-31-18 09:53	pH = 1
TOC	28	May-31-18 09:53	pH = 1
Total Phosphorus DA	28	May-31-18 09:53	pH = 1

Sample ID: 1805007-44      Sampled: May-03-18 10:02      Matrix: Water

Sample Name: E9b      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 10:02	pH = 1
Anions by IC	28	May-31-18 10:02	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 10:02	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 10:02	pH = 1
Solids, TDS	7	May-10-18 10:02	pH = 5
TKN DA	28	May-31-18 10:02	pH = 1
TOC	28	May-31-18 10:02	pH = 1
Total Phosphorus DA	28	May-31-18 10:02	pH = 1

WORK ORDER

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1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

PROJECT COMMENTS: Anions: Chloride, fluoride, bromide, sulfite.  
Full List metals

**REVIEWED**

*By Robert Thompson at 9:54 am, May 07, 2018*

Reviewed By

Date



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312) 353-8370 Fax: (312) 886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-22-18 14:54
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## Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified) US EPA Region 5 Chicago Regional Laboratory

**A1a (1805005-01) Matrix: Water Sampled: Apr-30-18 07:19 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**A1b (1805005-02) Matrix: Water Sampled: Apr-30-18 07:32 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	1.79		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**A2a (1805005-03) Matrix: Water Sampled: Apr-30-18 08:15 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	36.9		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**A2b (1805005-04) Matrix: Water Sampled: Apr-30-18 08:24 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**A3a (1805005-05) Matrix: Water Sampled: Apr-30-18 09:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**A3b (1805005-06) Matrix: Water Sampled: Apr-30-18 09:14 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	0.12		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**A4 Equip (1805005-07) Matrix: Water Sampled: Apr-30-18 09:38 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**A3a (Dup) (1805005-08) Matrix: Water Sampled: Apr-30-18 09:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18





# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312)353-8370 Fax: (312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-22-18 14:54
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## Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified) US EPA Region 5 Chicago Regional Laboratory

<b>FB1 (1805005-09)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 09:49</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>A4a (1805005-10)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 09:58</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	1.25		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>A4b (1805005-11)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 10:09</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	4.61		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>B1a (1805005-12)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 10:51</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>B1b (1805005-13)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 10:58</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>B2a (1805005-14)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 11:40</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>B2b (1805005-15)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 11:48</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	0.23	K	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>B3a (1805005-16)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 12:29</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	4.53	K	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-22-18 14:54
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## Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified) US EPA Region 5 Chicago Regional Laboratory

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>B3b (1805005-17) Matrix: Water Sampled: Apr-30-18 12:36 Received: May-02-18 09:55</b>									
Nitrate-Nitrite N	0.96	K	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18
<b>B4a (1805005-18) Matrix: Water Sampled: Apr-30-18 13:10 Received: May-02-18 09:55</b>									
Nitrate-Nitrite N	33.3	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18
<b>B4b (1805005-19) Matrix: Water Sampled: Apr-30-18 13:41 Received: May-02-18 09:55</b>									
Nitrate-Nitrite N	28.0	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18
<b>C1a (1805005-20) Matrix: Water Sampled: Apr-30-18 15:02 Received: May-02-18 09:55</b>									
Nitrate-Nitrite N	0.12	K	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18
<b>C1b (1805005-21) Matrix: Water Sampled: Apr-30-18 15:27 Received: May-02-18 09:55</b>									
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18
<b>C2a (1805005-22) Matrix: Water Sampled: Apr-30-18 16:06 Received: May-02-18 09:55</b>									
Nitrate-Nitrite N	42.1	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18
<b>C2b (1805005-23) Matrix: Water Sampled: Apr-30-18 16:14 Received: May-02-18 09:55</b>									
Nitrate-Nitrite N	3.39	K	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18
<b>C3a (1805005-24) Matrix: Water Sampled: Apr-30-18 14:16 Received: May-02-18 09:55</b>									
Nitrate-Nitrite N	27.7	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-22-18 14:54
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## Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified) US EPA Region 5 Chicago Regional Laboratory

<b>C3b (1805005-25)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 14:26</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	2.62	K	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>C5Aa (1805005-26)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 06:29</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	44.3	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>C5Ab (1805005-27)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 06:43</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	59.2	K	1.00	2.00	mg/L	20	B18E022	May-09-18	May-10-18

<b>C6a (1805005-28)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 07:06</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	36.8	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>C6b (1805005-29)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 07:15</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	25.3	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>C7a (1805005-30)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 07:48</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	31.7	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>C7b (1805005-31)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 08:02</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	37.3	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>FB2 (1805005-32)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 07:39</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18



## Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-22-18 14:54
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### Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified) US EPA Region 5 Chicago Regional Laboratory

<b>C7 equip (1805005-33)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 07:38</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>C7b Dup (1805005-34)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 08:02</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	36.5	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>C8a (1805005-35)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 08:35</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	17.1	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>C8b (1805005-36)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 08:42</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	2.95	K	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>C9a (1805005-37)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 10:00</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	2.48	K	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>C9b (1805005-38)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 10:21</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	0.69	K	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>C10a (1805005-39)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 11:05</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	8.33		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>C10b (1805005-40)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 11:12</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	16.7		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18





# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312)353-8370 Fax: (312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-22-18 14:54

## Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified) US EPA Region 5 Chicago Regional Laboratory

**C11a (1805005-41)**

**Matrix: Water      Sampled: May-01-18 11:46      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**C11b (1805005-42)**

**Matrix: Water      Sampled: May-01-18 11:52      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	0.57	K	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**C12a (1805005-43)**

**Matrix: Water      Sampled: May-01-18 12:41      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**C12b (1805005-44)**

**Matrix: Water      Sampled: May-01-18 12:47      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**C13a (1805005-45)**

**Matrix: Water      Sampled: May-01-18 13:30      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**C13b (1805005-46)**

**Matrix: Water      Sampled: May-01-18 13:39      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**D1a (1805005-47)**

**Matrix: Water      Sampled: May-01-18 14:19      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**D1b (1805005-48)**

**Matrix: Water      Sampled: May-01-18 14:26      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18



## Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-22-18 14:54
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### Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified) US EPA Region 5 Chicago Regional Laboratory

**D2a (1805005-49)      Matrix: Water      Sampled: May-01-18 15:00      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	2.86		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**D2b (1805005-50)      Matrix: Water      Sampled: May-01-18 15:06      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	32.7		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**D3a (1805005-51)      Matrix: Water      Sampled: May-01-18 15:41      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	21.1		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**D3b (1805005-52)      Matrix: Water      Sampled: May-01-18 15:48      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	23.4		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**D4a (1805005-53)      Matrix: Water      Sampled: May-01-18 16:19      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	20.5		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**D4b (1805005-54)      Matrix: Water      Sampled: May-01-18 16:26      Received: May-02-18 09:55**

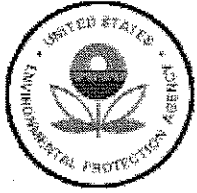
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	50.6		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**D5a (1805007-01)      Matrix: Water      Sampled: May-02-18 06:38      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	0.29		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**D5b (1805007-02)      Matrix: Water      Sampled: May-02-18 06:46      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	1.36		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> May-22-18 14:54
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**Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**D6a (1805007-03) Matrix: Water Sampled: May-02-18 07:17 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**D6b (1805007-04) Matrix: Water Sampled: May-02-18 07:29 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**D7 equip (1805007-05) Matrix: Water Sampled: May-02-18 08:01 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**FB3 (1805007-06) Matrix: Water Sampled: May-02-18 08:03 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**D7a Dup (1805007-07) Matrix: Water Sampled: May-02-18 08:12 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	33.7		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**D7a (1805007-08) Matrix: Water Sampled: May-02-18 08:12 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**D7b (1805007-09) Matrix: Water Sampled: May-02-18 08:19 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	36.8		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**D8a (1805007-10) Matrix: Water Sampled: May-02-18 08:55 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	42.3		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-22-18 14:54
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## Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified) US EPA Region 5 Chicago Regional Laboratory

<b>D8b (1805007-11)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 09:11</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>D9a (1805007-12)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 09:45</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>D9b (1805007-13)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 09:54</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	2.29		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>D10a (1805007-14)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 10:29</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	14.3		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>D10a Dup (1805007-15)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 10:29</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>D10b (1805007-16)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 10:41</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>D10b Dup (1805007-17)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 10:41</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	16.2		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>D11a (1805007-18)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 11:19</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	32.2		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-22-18 14:54
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### Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified) US EPA Region 5 Chicago Regional Laboratory

<b>D11b (1805007-19)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 11:42</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	23.9		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>E1a (1805007-20)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 12:41</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	27.2		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>E1b (1805007-21)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 12:58</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	25.7		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>E2a (1805007-22)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 13:28</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	1.52		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>E2b (1805007-23)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 13:37</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	3.15		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>E2a Dup (1805007-24)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 13:28</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	1.58		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>E2b Dup (1805007-25)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 13:37</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	3.16		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>E3a (1805007-26)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 14:03</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	6.58		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18



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### Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified) US EPA Region 5 Chicago Regional Laboratory

E3b (1805007-27)	Matrix: Water	Sampled: May-02-18 14:09	Received: May-04-18 10:00							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	
Nitrate-Nitrite N	7.40		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18	

E4a (1805007-28)	Matrix: Water	Sampled: May-02-18 14:37	Received: May-04-18 10:00							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	
Nitrate-Nitrite N	23.3		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18	

E4b (1805007-29)	Matrix: Water	Sampled: May-02-18 14:43	Received: May-04-18 10:00							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	
Nitrate-Nitrite N	26.8		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18	

E5a (1805007-30)	Matrix: Water	Sampled: May-02-18 15:08	Received: May-04-18 10:00							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	
Nitrate-Nitrite N	38.7		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18	

E5b (1805007-31)	Matrix: Water	Sampled: May-02-18 15:13	Received: May-04-18 10:00							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	
Nitrate-Nitrite N	26.9		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18	

E6a (1805007-32)	Matrix: Water	Sampled: May-02-18 15:38	Received: May-04-18 10:00							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	
Nitrate-Nitrite N	0.15		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18	

E6b (1805007-33)	Matrix: Water	Sampled: May-02-18 15:44	Received: May-04-18 10:00							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	
Nitrate-Nitrite N	0.15		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18	

E7a (1805007-34)	Matrix: Water	Sampled: May-02-18 16:09	Received: May-04-18 10:00							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18	



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-22-18 14:54
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## Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified) US EPA Region 5 Chicago Regional Laboratory

**E7b (1805007-35) Matrix: Water Sampled: May-02-18 16:35 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**E8a (1805007-36) Matrix: Water Sampled: May-03-18 08:40 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**E8b (1805007-37) Matrix: Water Sampled: May-03-18 08:48 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**E10a (1805007-38) Matrix: Water Sampled: May-03-18 07:15 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	1.13		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**E10a Dup (1805007-39) Matrix: Water Sampled: May-03-18 07:15 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	1.22		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**E10b (1805007-40) Matrix: Water Sampled: May-03-18 07:27 Received: May-04-18 10:00**

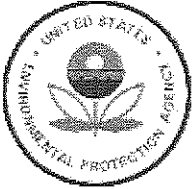
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**FB4 (1805007-41) Matrix: Water Sampled: May-03-18 07:36 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**E10 Equip (1805007-42) Matrix: Water Sampled: May-03-18 07:13 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: May-22-18 14:54
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**Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**E9a (1805007-43) Matrix: Water Sampled: May-03-18 09:53 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**E9b (1805007-44) Matrix: Water Sampled: May-03-18 10:02 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	20.2		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18





Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

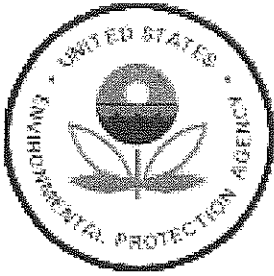
Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
May-22-18 14:54

**Notes and Definitions**

- K The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value.
- \* This Quality Control measure meets the requirements of the CRL SOP for this analyte.
- U Not Detected
- NR Not Reported
- Q QC limit Exceeded



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5 CHICAGO REGIONAL LABORATORY  
536 SOUTH CLARK STREET  
CHICAGO, ILLINOIS 60605

Date: 6/19/2018  
Subject: Review of Region 5 Data for Central Sands  
To: Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604  
From: Anna Knoebel, Chemist  
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with the EPA QA/G-8 *Guidance on Environmental Data Verification and Data Validation* and the U.S. EPA Region 5 RMD QMP, CRL performs data verification on all the data generated internally. CRL does not perform data validation or quality assessment procedures.

This report was reviewed and the information provided herein accurately represents the analysis performed.

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*Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.*

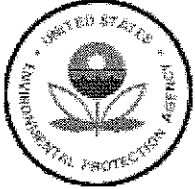
**Attached are Results for: Central Sands**

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**Analyses included in this report:**

Nitrate-Nitrite N DA, Enzymatic reduction

Report Name: 1805005,1805007 Nitrate-Nitrite N DA, Enzymatic reduction FINAL Jun 19 18 0803



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-19-18 08:03
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### Accredited Analyses included in this Report



**Method:** *ASTM D7781-14 in Water*  
**Analysis:** *Nitrate-Nitrite N DA, Enzymatic reduction*  
**Analyte**

#### Certifications

Nitrate-Nitrite N	ISO/IEC 17025:2005
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Analytes not listed above are not accredited by ANAB.



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-19-18 08:03
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## AMENDED ANALYSIS CASE NARRATIVE – Nitrate-Nitrite Nitrogen in Water

Work Order: 1805005, 1805007  
Analyst: Anna Knoebel  
Phone #: (312) 353-9467

### General Information

Ninety-eight water samples for Nitrate-Nitrite Nitrogen were received on May 2, 2018 and May 4, 2018. All holding times were met.

**AMENDED SECTION:** A discrepancy between CRL and University of Nebraska results was observed by the client. This discrepancy was determined to have been caused by over-preservation of the samples that were sent to the CRL. The over-preservation interferes with the analysis and the sample data may be estimated. This issue has been previously seen with Nitrate-Nitrite N results for other project’s samples that were over-preserved.

**NOTE:** Documentation of this instance can be found in Qualtrax Client Contact ID 14731.

### Sample Analysis and Results

The samples were analyzed for Nitrate-Nitrite Nitrogen in water on May 10, 2018 using CRL SOP AIG031B, Version # 4 (SOP based on NECi Method N070003). The samples were stored in the refrigerator at all times except when in use.

The data reported herein meets any laboratory specifications referenced in the sampling QAPP “FINAL\_2018 GW Sampling Plan4\_27\_2018.pdf” and the requirements referenced in CRL SOP AIG031B, Version # 4 (based on NECi Method N070003) except for those listed in the quality control section below.

### Quality Control

#### Matrix Spike (MS)

All five matrix spike recoveries were outside the acceptance limit (90 – 110 %). The source samples were not affected by these recoveries and are not qualified because the samples were either non-detect or the spikes were diluted out.

#### Blank Spike (BS)

Four of the eighteen BS sample recoveries were slightly higher than the acceptance limit (90 – 110 %). The samples affected by these spikes were qualified “K” (The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value).

All other quality control audits were within CRL limits or did not result in qualification of the data.





1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-02      Sampled: Apr-30-18 07:32      Matrix: Water

Sample Name: A1b      Sample Location/Comments: 1st Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-07-18 07:32	pH = 5
TKN DA	28	May-28-18 07:32	pH = 2
TOC	28	May-28-18 07:32	pH = 2
Total Phosphorus DA	28	May-28-18 07:32	pH = 2

Sample ID: 1805005-03      Sampled: Apr-30-18 08:15      Matrix: Water

Sample Name: A2a      Sample Location/Comments: 22nd Avenue North

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 08:15	pH = 2
Anions by IC	28	May-28-18 08:15	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 08:15	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 08:15	pH = 2
Solids, TDS	7	May-07-18 08:15	pH = 6
TKN DA	28	May-28-18 08:15	pH = 2
TOC	28	May-28-18 08:15	pH = 2
Total Phosphorus DA	28	May-28-18 08:15	pH = 2

Sample ID: 1805005-04      Sampled: Apr-30-18 08:24      Matrix: Water

Sample Name: A2b      Sample Location/Comments: 22nd Avenue North

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 08:24	pH = 2
Anions by IC	28	May-28-18 08:24	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 08:24	pH = 5
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 08:24	pH = 2
Solids, TDS	7	May-07-18 08:24	pH = 6
TKN DA	28	May-28-18 08:24	pH = 2
TOC	28	May-28-18 08:24	pH = 2
Total Phosphorus DA	28	May-28-18 08:24	pH = 2

WORK ORDER

Printed: 5/3/2018 3:33:25PM

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-05      Sampled: Apr-30-18 09:06      Matrix: Water      OC Source Sample MS/MSD

Sample Name: A3a      Sample Location/Comments: 2nd Street

Sample Comments: MS/MSD

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:06	pH = 2
Anions by IC	28	May-28-18 09:06	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:06	pH = 2
Solids, TDS	7	May-07-18 09:06	pH = 6
TKN DA	28	May-28-18 09:06	pH = 2
TOC	28	May-28-18 09:06	pH = 2
Total Phosphorus DA	28	May-28-18 09:06	pH = 2

Sample ID: 1805005-06      Sampled: Apr-30-18 09:14      Matrix: Water

Sample Name: A3b      Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:14	pH = 2
Anions by IC	28	May-28-18 09:14	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:14	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:14	pH = 2
Solids, TDS	7	May-07-18 09:14	pH = 6
TKN DA	28	May-28-18 09:14	pH = 2
TOC	28	May-28-18 09:14	pH = 2
Total Phosphorus DA	28	May-28-18 09:14	pH = 2

Sample ID: 1805005-07      Sampled: Apr-30-18 09:38      Matrix: Water

Sample Name: A4 Equip      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:38	pH = 2
Anions by IC	28	May-28-18 09:38	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 09:38	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:38	pH = 2
Solids, TDS	7	May-07-18 09:38	pH = 5
TKN DA	28	May-28-18 09:38	pH = 2
TOC	28	May-28-18 09:38	pH = 2

WORK ORDER

Printed: 5/3/2018 3:33:25PM

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-07      Sampled: Apr-30-18 09:38      Matrix: Water

Sample Name: A4 Equip      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 09:38	pH = 2

Sample ID: 1805005-08      Sampled: Apr-30-18 09:06      Matrix: Water

Sample Name: A3a (Dup)      Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:06	pH = 2
Anions by IC	28	May-28-18 09:06	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:06	pH = 2
Solids, TDS	7	May-07-18 09:06	pH = 6
TKN DA	28	May-28-18 09:06	pH = 2
TOC	28	May-28-18 09:06	pH = 2
Total Phosphorus DA	28	May-28-18 09:06	pH = 2

Sample ID: 1805005-09      Sampled: Apr-30-18 09:49      Matrix: Water

Sample Name: FBI      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:49	pH = 2
Anions by IC	28	May-28-18 09:49	pH = 4
Metals ICP-AES (w)	180	Oct-27-18 09:49	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:49	pH = 2
Solids, TDS	7	May-07-18 09:49	pH = 4
TKN DA	28	May-28-18 09:49	pH = 2
TOC	28	May-28-18 09:49	pH = 2
Total Phosphorus DA	28	May-28-18 09:49	pH = 2

Sample ID: 1805005-10      Sampled: Apr-30-18 09:58      Matrix: Water

Sample Name: A4a      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:58	pH = 2
Anions by IC	28	May-28-18 09:58	pH = 6



1805005

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-10      **Sampled:** Apr-30-18 09:58      **Matrix:** Water

**Sample Name:** A4a      **Sample Location/Comments:** Cranberry Rock Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-27-18 09:58	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:58	pH = 2
Solids, TDS	7	May-07-18 09:58	pH = 6
TKN DA	28	May-28-18 09:58	pH = 2
TOC	28	May-28-18 09:58	pH = 2
Total Phosphorus DA	28	May-28-18 09:58	pH = 2

**Sample ID:** 1805005-11      **Sampled:** Apr-30-18 10:09      **Matrix:** Water

**Sample Name:** A4b      **Sample Location/Comments:** Cranberry Rock Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:09	pH = 2
Anions by IC	28	May-28-18 10:09	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:09	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:09	pH = 2
Solids, TDS	7	May-07-18 10:09	pH = 5
TKN DA	28	May-28-18 10:09	pH = 2
TOC	28	May-28-18 10:09	pH = 2
Total Phosphorus DA	28	May-28-18 10:09	pH = 2

**Sample ID:** 1805005-12      **Sampled:** Apr-30-18 10:51      **Matrix:** Water

**Sample Name:** B1a      **Sample Location/Comments:** 20th Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:51	pH = 3
Anions by IC	28	May-28-18 10:51	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:51	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:51	pH = 3
Solids, TDS	7	May-07-18 10:51	pH = 5
TKN DA	28	May-28-18 10:51	pH = 3
TOC	28	May-28-18 10:51	pH = 3
Total Phosphorus DA	28	May-28-18 10:51	pH = 3

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-13      Sampled: Apr-30-18 10:58      Matrix: Water

Sample Name: B1b      Sample Location/Comments: 20th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:58	pH = 2
Anions by IC	28	May-28-18 10:58	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:58	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:58	pH = 2
Solids, TDS	7	May-07-18 10:58	pH = 5
TKN DA	28	May-28-18 10:58	pH = 2
TOC	28	May-28-18 10:58	pH = 2
Total Phosphorus DA	28	May-28-18 10:58	pH = 2

Sample ID: 1805005-14      Sampled: Apr-30-18 11:40      Matrix: Water

Sample Name: B2a      Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 11:40	pH = 2
Anions by IC	28	May-28-18 11:40	pH = 7
Metals ICP-AES (w)	180	Oct-27-18 11:40	pH = 4
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 11:40	pH = 2
Solids, TDS	7	May-07-18 11:40	pH = 7
TKN DA	28	May-28-18 11:40	pH = 2
TOC	28	May-28-18 11:40	pH = 2
Total Phosphorus DA	28	May-28-18 11:40	pH = 2

Sample ID: 1805005-15      Sampled: Apr-30-18 11:48      Matrix: Water

Sample Name: B2b      Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 11:48	pH = 2
Anions by IC	28	May-28-18 11:48	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 11:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 11:48	pH = 2
Solids, TDS	7	May-07-18 11:48	pH = 5
TKN DA	28	May-28-18 11:48	pH = 2
TOC	28	May-28-18 11:48	pH = 2

WORK ORDER

Printed: 5/3/2018 3:33:25PM

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b> Project: <b>Central Sands</b>	Project Manager: <b>Angela Ockrassa Davis</b> Project Number: <b>[none]</b>
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Sample ID: 1805005-15      Sampled: Apr-30-18 11:48      Matrix: Water

Sample Name: B2b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 11:48	pH = 2

Sample ID: 1805005-16      Sampled: Apr-30-18 12:29      Matrix: Water

Sample Name: B3a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 12:29	pH = 2
Anions by IC	28	May-28-18 12:29	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 12:29	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 12:29	pH = 2
Solids, TDS	7	May-07-18 12:29	pH = 6
TKN DA	28	May-28-18 12:29	pH = 2
TOC	28	May-28-18 12:29	pH = 2
Total Phosphorus DA	28	May-28-18 12:29	pH = 2

Sample ID: 1805005-17      Sampled: Apr-30-18 12:36      Matrix: Water

Sample Name: B3b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 12:36	pH = 2
Anions by IC	28	May-28-18 12:36	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 12:36	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 12:36	pH = 2
Solids, TDS	7	May-07-18 12:36	pH = 5
TKN DA	28	May-28-18 12:36	pH = 2
TOC	28	May-28-18 12:36	pH = 2
Total Phosphorus DA	28	May-28-18 12:36	pH = 2

Sample ID: 1805005-18      Sampled: Apr-30-18 13:10      Matrix: Water

Sample Name: B4a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 13:10	pH = 2
Anions by IC	28	May-28-18 13:10	pH = 5

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-18      Sampled: Apr-30-18 13:10      Matrix: Water

Sample Name: B4a      Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-27-18 13:10	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 13:10	pH = 2
Solids, TDS	7	May-07-18 13:10	pH = 5
TKN DA	28	May-28-18 13:10	pH = 2
TOC	28	May-28-18 13:10	pH = 2
Total Phosphorus DA	28	May-28-18 13:10	pH = 2

Sample ID: 1805005-19      Sampled: Apr-30-18 13:41      Matrix: Water

Sample Name: B4b      Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 13:41	pH = 2
Anions by IC	28	May-28-18 13:41	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 13:41	pH = 4
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 13:41	pH = 2
Solids, TDS	7	May-07-18 13:41	pH = 5
TKN DA	28	May-28-18 13:41	pH = 2
TOC	28	May-28-18 13:41	pH = 2
Total Phosphorus DA	28	May-28-18 13:41	pH = 2

Sample ID: 1805005-20      Sampled: Apr-30-18 15:02      Matrix: Water

Sample Name: C1a      Sample Location/Comments: 2nd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 15:02	pH = 2
Anions by IC	28	May-28-18 15:02	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 15:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 15:02	pH = 2
Solids, TDS	7	May-07-18 15:02	pH = 5
TKN DA	28	May-28-18 15:02	pH = 2
TOC	28	May-28-18 15:02	pH = 2
Total Phosphorus DA	28	May-28-18 15:02	pH = 2



1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-21      Sampled: Apr-30-18 15:27      Matrix: Water

Sample Name: C1b

Sample Location/Comments: 2nd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 15:27	pH = 2
Anions by IC	28	May-28-18 15:27	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 15:27	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 15:27	pH = 2
Solids, TDS	7	May-07-18 15:27	pH = 5
TKN DA	28	May-28-18 15:27	pH = 2
TOC	28	May-28-18 15:27	pH = 2
Total Phosphorus DA	28	May-28-18 15:27	pH = 2

Sample ID: 1805005-22      Sampled: Apr-30-18 16:06      Matrix: Water

Sample Name: C2a

Sample Location/Comments: Nelson Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 16:06	pH = 2
Anions by IC	28	May-28-18 16:06	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 16:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 16:06	pH = 2
Solids, TDS	7	May-07-18 16:06	pH = 5
TKN DA	28	May-28-18 16:06	pH = 2
TOC	28	May-28-18 16:06	pH = 2
Total Phosphorus DA	28	May-28-18 16:06	pH = 2

Sample ID: 1805005-23      Sampled: Apr-30-18 16:14      Matrix: Water

Sample Name: C2b

Sample Location/Comments: Nelson Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 16:14	pH = 2
Anions by IC	28	May-28-18 16:14	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 16:14	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 16:14	pH = 2
Solids, TDS	7	May-07-18 16:14	pH = 5
TKN DA	28	May-28-18 16:14	pH = 2
TOC	28	May-28-18 16:14	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-23      Sampled: Apr-30-18 16:14      Matrix: Water

Sample Name: C2b      Sample Location/Comments: Nelson Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 16:14	pH = 2

Sample ID: 1805005-24      Sampled: Apr-30-18 14:16      Matrix: Water

Sample Name: C3a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 14:16	pH = 2
Anions by IC	28	May-28-18 14:16	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 14:16	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 14:16	pH = 2
Solids, TDS	7	May-07-18 14:16	pH = 5
TKN DA	28	May-28-18 14:16	pH = 2
TOC	28	May-28-18 14:16	pH = 2
Total Phosphorus DA	28	May-28-18 14:16	pH = 2

Sample ID: 1805005-25      Sampled: Apr-30-18 14:26      Matrix: Water

Sample Name: C3b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 14:26	pH = 2
Anions by IC	28	May-28-18 14:26	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 14:26	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 14:26	pH = 2
Solids, TDS	7	May-07-18 14:26	pH = 5
TKN DA	28	May-28-18 14:26	pH = 2
TOC	28	May-28-18 14:26	pH = 2
Total Phosphorus DA	28	May-28-18 14:26	pH = 2

Sample ID: 1805005-26      Sampled: May-01-18 06:29      Matrix: Water

Sample Name: C5Aa      Sample Location/Comments: CR G (Nelson Road)

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 06:29	pH = 2
Anions by IC	28	May-29-18 06:29	pH = 5

WORK ORDER

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1805005

US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-26      **Sampled:** May-01-18 06:29      **Matrix:** Water

**Sample Name:** C5Aa      **Sample Location/Comments:** CR G (Nelson Road)

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 06:29	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 06:29	pH = 2
Solids, TDS	7	May-08-18 06:29	pH = 5
TKN DA	28	May-29-18 06:29	pH = 2
TOC	28	May-29-18 06:29	pH = 2
Total Phosphorus DA	28	May-29-18 06:29	pH = 2

**Sample ID:** 1805005-27      **Sampled:** May-01-18 06:43      **Matrix:** Water

**Sample Name:** C5Ab      **Sample Location/Comments:** CR G (Nelson Road)

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 06:43	pH = 2
Anions by IC	28	May-29-18 06:43	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 06:43	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 06:43	pH = 2
Solids, TDS	7	May-08-18 06:43	pH = 5
TKN DA	28	May-29-18 06:43	pH = 2
TOC	28	May-29-18 06:43	pH = 2
Total Phosphorus DA	28	May-29-18 06:43	pH = 2

**Sample ID:** 1805005-28      **Sampled:** May-01-18 07:06      **Matrix:** Water

**Sample Name:** C6a      **Sample Location/Comments:** CR G (Nelson Road)

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:06	pH = 2
Anions by IC	28	May-29-18 07:06	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 07:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:06	pH = 2
Solids, TDS	7	May-08-18 07:06	pH = 6
TKN DA	28	May-29-18 07:06	pH = 2
TOC	28	May-29-18 07:06	pH = 2
Total Phosphorus DA	28	May-29-18 07:06	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-29      Sampled: May-01-18 07:15      Matrix: Water

Sample Name: C6b      Sample Location/Comments: CR G (Nelson Road)

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:15	pH = 3
Anions by IC	28	May-29-18 07:15	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 07:15	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:15	pH = 3
Solids, TDS	7	May-08-18 07:15	pH = 5
TKN DA	28	May-29-18 07:15	pH = 3
TOC	28	May-29-18 07:15	pH = 3
Total Phosphorus DA	28	May-29-18 07:15	pH = 3

Sample ID: 1805005-30      Sampled: May-01-18 07:48      Matrix: Water

Sample Name: C7a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:48	pH = 2
Anions by IC	28	May-29-18 07:48	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 07:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:48	pH = 2
Solids, TDS	7	May-08-18 07:48	pH = 6
TKN DA	28	May-29-18 07:48	pH = 2
TOC	28	May-29-18 07:48	pH = 2
Total Phosphorus DA	28	May-29-18 07:48	pH = 2

Sample ID: 1805005-31      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:02	pH = 2
Anions by IC	28	May-29-18 08:02	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:02	pH = 2
Solids, TDS	7	May-08-18 08:02	pH = 5
TKN DA	28	May-29-18 08:02	pH = 2
TOC	28	May-29-18 08:02	pH = 2



1805005

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-31      **Sampled:** May-01-18 08:02      **Matrix:** Water

**Sample Name:** C7b      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 08:02	pH = 2

**Sample ID:** 1805005-32      **Sampled:** May-01-18 07:39      **Matrix:** Water

**Sample Name:** FB2      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:39	pH = 2
Anions by IC	28	May-29-18 07:39	pH = 4
Metals ICP-AES (w)	180	Oct-28-18 07:39	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:39	pH = 2
Solids, TDS	7	May-08-18 07:39	pH = 4
TKN DA	28	May-29-18 07:39	pH = 2
TOC	28	May-29-18 07:39	pH = 2
Total Phosphorus DA	28	May-29-18 07:39	pH = 2

**Sample ID:** 1805005-33      **Sampled:** May-01-18 07:38      **Matrix:** Water

**Sample Name:** C7 equip      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:38	pH = 2
Anions by IC	28	May-29-18 07:38	pH = 4
Metals ICP-AES (w)	180	Oct-28-18 07:38	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:38	pH = 2
Solids, TDS	7	May-08-18 07:38	pH = 4
TKN DA	28	May-29-18 07:38	pH = 2
TOC	28	May-29-18 07:38	pH = 2
Total Phosphorus DA	28	May-29-18 07:38	pH = 2

**Sample ID:** 1805005-34      **Sampled:** May-01-18 08:02      **Matrix:** Water

**Sample Name:** C7 Dup      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:02	pH = 2
Anions by IC	28	May-29-18 08:02	pH = 5

WORK ORDER

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-34      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7 Dup      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 08:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:02	pH = 2
Solids, TDS	7	May-08-18 08:02	pH = 5
TKN DA	28	May-29-18 08:02	pH = 2
TOC	28	May-29-18 08:02	pH = 2
Total Phosphorus DA	28	May-29-18 08:02	pH = 2

Sample ID: 1805005-35      Sampled: May-01-18 08:35      Matrix: Water

Sample Name: C8a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:35	pH = 2
Anions by IC	28	May-29-18 08:35	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:35	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:35	pH = 2
Solids, TDS	7	May-08-18 08:35	pH = 5
TKN DA	28	May-29-18 08:35	pH = 2
TOC	28	May-29-18 08:35	pH = 2
Total Phosphorus DA	28	May-29-18 08:35	pH = 2

Sample ID: 1805005-36      Sampled: May-01-18 08:42      Matrix: Water

Sample Name: C8b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:42	pH = 2
Anions by IC	28	May-29-18 08:42	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:42	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:42	pH = 2
Solids, TDS	7	May-08-18 08:42	pH = 5
TKN DA	28	May-29-18 08:42	pH = 2
TOC	28	May-29-18 08:42	pH = 2
Total Phosphorus DA	28	May-29-18 08:42	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-37      **Sampled:** May-01-18 10:00      **Matrix:** Water

**Sample Name:** C9a      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 10:00	pH = 2
Anions by IC	28	May-29-18 10:00	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 10:00	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 10:00	pH = 2
Solids, TDS	7	May-08-18 10:00	pH = 5
TKN DA	28	May-29-18 10:00	pH = 2
TOC	28	May-29-18 10:00	pH = 2
Total Phosphorus DA	28	May-29-18 10:00	pH = 2

**Sample ID:** 1805005-38      **Sampled:** May-01-18 10:21      **Matrix:** Water

**Sample Name:** C9b      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 10:21	pH = 2
Anions by IC	28	May-29-18 10:21	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 10:21	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 10:21	pH = 2
Solids, TDS	7	May-08-18 10:21	pH = 5
TKN DA	28	May-29-18 10:21	pH = 2
TOC	28	May-29-18 10:21	pH = 2
Total Phosphorus DA	28	May-29-18 10:21	pH = 2

**Sample ID:** 1805005-39      **Sampled:** May-01-18 11:05      **Matrix:** Water

**Sample Name:** C10a      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:05	pH = 2
Anions by IC	28	May-29-18 11:05	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 11:05	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:05	pH = 2
Solids, TDS	7	May-08-18 11:05	pH = 6
TKN DA	28	May-29-18 11:05	pH = 2
TOC	28	May-29-18 11:05	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-39      Sampled: May-01-18 11:05      Matrix: Water

Sample Name: C10a      Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 11:05	pH = 2

Sample ID: 1805005-40      Sampled: May-01-18 11:12      Matrix: Water

Sample Name: C10b      Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:12	pH = 2
Anions by IC	28	May-29-18 11:12	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 11:12	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:12	pH = 2
Solids, TDS	7	May-08-18 11:12	pH = 5
TKN DA	28	May-29-18 11:12	pH = 2
TOC	28	May-29-18 11:12	pH = 2
Total Phosphorus DA	28	May-29-18 11:12	pH = 2

Sample ID: 1805005-41      Sampled: May-01-18 11:46      Matrix: Water

Sample Name: C11a      Sample Location/Comments: 20th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:46	pH = 3
Anions by IC	28	May-29-18 11:46	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 11:46	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:46	pH = 3
Solids, TDS	7	May-08-18 11:46	pH = 6
TKN DA	28	May-29-18 11:46	pH = 3
TOC	28	May-29-18 11:46	pH = 3
Total Phosphorus DA	28	May-29-18 11:46	pH = 3

Sample ID: 1805005-42      Sampled: May-01-18 11:52      Matrix: Water

Sample Name: C11b      Sample Location/Comments: 20th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:52	pH = 2
Anions by IC	28	May-29-18 11:52	pH = 5



1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-42      Sampled: May-01-18 11:52      Matrix: Water

Sample Name: C11b      Sample Location/Comments: 20th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 11:52	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:52	pH = 2
Solids, TDS	7	May-08-18 11:52	pH = 5
TKN DA	28	May-29-18 11:52	pH = 2
TOC	28	May-29-18 11:52	pH = 2
Total Phosphorus DA	28	May-29-18 11:52	pH = 2

Sample ID: 1805005-43      Sampled: May-01-18 12:41      Matrix: Water

Sample Name: C12a      Sample Location/Comments: 19th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 12:41	pH = 2
Anions by IC	28	May-29-18 12:41	pH = 7
Metals ICP-AES (w)	180	Oct-28-18 12:41	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 12:41	pH = 2
Solids, TDS	7	May-08-18 12:41	pH = 7
TKN DA	28	May-29-18 12:41	pH = 2
TOC	28	May-29-18 12:41	pH = 2
Total Phosphorus DA	28	May-29-18 12:41	pH = 2

Sample ID: 1805005-44      Sampled: May-01-18 12:47      Matrix: Water

Sample Name: C12b      Sample Location/Comments: 19th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 12:47	pH = 2
Anions by IC	28	May-29-18 12:47	pH = 7
Metals ICP-AES (w)	180	Oct-28-18 12:47	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 12:47	pH = 2
Solids, TDS	7	May-08-18 12:47	pH = 7
TKN DA	28	May-29-18 12:47	pH = 2
TOC	28	May-29-18 12:47	pH = 2
Total Phosphorus DA	28	May-29-18 12:47	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-45      Sampled: May-01-18 13:30      Matrix: Water

Sample Name: C13a

Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 13:30	pH = 3
Anions by IC	28	May-29-18 13:30	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 13:30	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 13:30	pH = 3
Solids, TDS	7	May-08-18 13:30	pH = 6
TKN DA	28	May-29-18 13:30	pH = 3
TOC	28	May-29-18 13:30	pH = 3
Total Phosphorus DA	28	May-29-18 13:30	pH = 3

Sample ID: 1805005-46      Sampled: May-01-18 13:39      Matrix: Water

Sample Name: C13b

Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 13:39	pH = 2
Anions by IC	28	May-29-18 13:39	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 13:39	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 13:39	pH = 2
Solids, TDS	7	May-08-18 13:39	pH = 5
TKN DA	28	May-29-18 13:39	pH = 2
TOC	28	May-29-18 13:39	pH = 2
Total Phosphorus DA	28	May-29-18 13:39	pH = 2

Sample ID: 1805005-47      Sampled: May-01-18 14:19      Matrix: Water

Sample Name: D1a

Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 14:19	pH = 2
Anions by IC	28	May-29-18 14:19	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 14:19	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 14:19	pH = 2
Solids, TDS	7	May-08-18 14:19	pH = 6
TKN DA	28	May-29-18 14:19	pH = 2
TOC	28	May-29-18 14:19	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-47 Sampled: May-01-18 14:19 Matrix: Water

Sample Name: D1a

Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 14:19	pH = 2

Sample ID: 1805005-48 Sampled: May-01-18 14:26 Matrix: Water

Sample Name: D1b

Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 14:26	pH = 3
Anions by IC	28	May-29-18 14:26	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 14:26	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 14:26	pH = 3
Solids, TDS	7	May-08-18 14:26	pH = 5
TKN DA	28	May-29-18 14:26	pH = 3
TOC	28	May-29-18 14:26	pH = 3
Total Phosphorus DA	28	May-29-18 14:26	pH = 3

Sample ID: 1805005-49 Sampled: May-01-18 15:00 Matrix: Water

Sample Name: D2a

Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:00	pH = 3
Anions by IC	28	May-29-18 15:00	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:00	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:00	pH = 3
Solids, TDS	7	May-08-18 15:00	pH = 6
TKN DA	28	May-29-18 15:00	pH = 3
TOC	28	May-29-18 15:00	pH = 3
Total Phosphorus DA	28	May-29-18 15:00	pH = 3

Sample ID: 1805005-50 Sampled: May-01-18 15:06 Matrix: Water

Sample Name: D2b

Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:06	pH = 2
Anions by IC	28	May-29-18 15:06	pH = 6

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-50      Sampled: May-01-18 15:06      Matrix: Water

Sample Name: D2b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 15:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:06	pH = 2
Solids, TDS	7	May-08-18 15:06	pH = 6
TKN DA	28	May-29-18 15:06	pH = 2
TOC	28	May-29-18 15:06	pH = 2
Total Phosphorus DA	28	May-29-18 15:06	pH = 2

Sample ID: 1805005-51      Sampled: May-01-18 15:41      Matrix: Water

Sample Name: D3a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:41	pH = 2
Anions by IC	28	May-29-18 15:41	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:41	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:41	pH = 2
Solids, TDS	7	May-08-18 15:41	pH = 6
TKN DA	28	May-29-18 15:41	pH = 2
TOC	28	May-29-18 15:41	pH = 2
Total Phosphorus DA	28	May-29-18 15:41	pH = 2

Sample ID: 1805005-52      Sampled: May-01-18 15:48      Matrix: Water

Sample Name: D3b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:48	pH = 2
Anions by IC	28	May-29-18 15:48	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 15:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:48	pH = 2
Solids, TDS	7	May-08-18 15:48	pH = 5
TKN DA	28	May-29-18 15:48	pH = 2
TOC	28	May-29-18 15:48	pH = 2
Total Phosphorus DA	28	May-29-18 15:48	pH = 2

**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-53      **Sampled:** May-01-18 16:19      **Matrix:** Water

**Sample Name:** D4a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 16:19	pH = 2
Anions by IC	28	May-29-18 16:19	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 16:19	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 16:19	pH = 2
Solids, TDS	7	May-08-18 16:19	pH = 6
TKN DA	28	May-29-18 16:19	pH = 2
TOC	28	May-29-18 16:19	pH = 2
Total Phosphorus DA	28	May-29-18 16:19	pH = 2

**Sample ID:** 1805005-54      **Sampled:** May-01-18 16:26      **Matrix:** Water

**Sample Name:** D4b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 16:26	pH = 2
Anions by IC	28	May-29-18 16:26	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 16:26	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 16:26	pH = 2
Solids, TDS	7	May-08-18 16:26	pH = 5
TKN DA	28	May-29-18 16:26	pH = 2
TOC	28	May-29-18 16:26	pH = 2
Total Phosphorus DA	28	May-29-18 16:26	pH = 2

WORK ORDER MEMO: NCR 14118

PROJECT COMMENTS: Anions: Chloride, fluoride, bromide, sulfate.  
Full List metals

**REVIEWED**  
By Amanda Wroble at 3:35 pm, May 03, 2018





**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

**WORK ORDER**

Printed: 5/7/2018 9:53:28AM

**1805007**

**US EPA Region 5 Chicago Regional Laboratory**

**Client:** Water Division, WECA Region 5  
**Project:** Central Sands

**Project Manager:** Angela Ockrassa Davis  
**Project Number:** CB022018

**Report To:**

Cheryl Burdett  
Water Division, WECA Region 5

77 West Jackson Boulevard  
Chicago, IL 60604

Phone: (312) 886-1463  
Fax: (312) 886-2001

**Date Due:** Jun-04-18 15:00 (30 day TAT)  
**Received By:** Robert Snyder  
**Logged In By:** Robert Snyder

**Date Received:** May-04-18 10:00  
**Date Logged In:** May-07-18 07:38

**Samples Received at:**

Sample tags/labels **Yes**  
Seals Intact **Yes**  
Received on ice **Yes**  
Paperwork Included **Yes**

**Work Order Comments:**

Copy/Relog from 1805005. Anions: Chloride and nitrate as NO3  
Full List metals  
pH paper used in SC 16H2601

**Sample ID:** 1805007-01      **Sampled:** May-02-18 06:38      **Matrix:** Water

**Sample Name:** D5a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 06:38	pH = 1
Anions by IC	28	May-30-18 06:38	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 06:38	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 06:38	pH = 1
Solids, TDS	7	May-09-18 06:38	pH = 6
TKN DA	28	May-30-18 06:38	pH = 1
TOC	28	May-30-18 06:38	pH = 1
Total Phosphorus DA	28	May-30-18 06:38	pH = 1

**Sample ID:** 1805007-02      **Sampled:** May-02-18 06:46      **Matrix:** Water

**Sample Name:** D5b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 06:46	pH = 1
Anions by IC	28	May-30-18 06:46	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 06:46	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 06:46	pH = 1

WORK ORDER

Printed: 5/7/2018 9:53:28AM

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-02      Sampled: May-02-18 06:46      Matrix: Water  
 Sample Name: D5b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-09-18 06:46	pH = 5
TKN DA	28	May-30-18 06:46	pH = 1
TOC	28	May-30-18 06:46	pH = 1
Total Phosphorus DA	28	May-30-18 06:46	pH = 1

Sample ID: 1805007-03      Sampled: May-02-18 07:17      Matrix: Water  
 Sample Name: D6a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 07:17	pH = 1
Anions by IC	28	May-30-18 07:17	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 07:17	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 07:17	pH = 1
Solids, TDS	7	May-09-18 07:17	pH = 6
TKN DA	28	May-30-18 07:17	pH = 1
TOC	28	May-30-18 07:17	pH = 1
Total Phosphorus DA	28	May-30-18 07:17	pH = 1

Sample ID: 1805007-04      Sampled: May-02-18 07:29      Matrix: Water  
 Sample Name: D6b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 07:29	pH = 1
Anions by IC	28	May-30-18 07:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 07:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 07:29	pH = 1
Solids, TDS	7	May-09-18 07:29	pH = 6
TKN DA	28	May-30-18 07:29	pH = 1
TOC	28	May-30-18 07:29	pH = 1
Total Phosphorus DA	28	May-30-18 07:29	pH = 1

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-05      Sampled: May-02-18 08:01      Matrix: Water  
 Sample Name: D7 equip      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:01	pH = 1
Anions by IC	28	May-30-18 08:01	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 08:01	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:01	pH = 1
Solids, TDS	7	May-09-18 08:01	pH = 5
TKN DA	28	May-30-18 08:01	pH = 1
TOC	28	May-30-18 08:01	pH = 1
Total Phosphorus DA	28	May-30-18 08:01	pH = 1

Sample ID: 1805007-06      Sampled: May-02-18 08:03      Matrix: Water  
 Sample Name: FB3      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:03	pH = 1
Anions by IC	28	May-30-18 08:03	pH = 4
Metals ICP-AES (w)	180	Oct-29-18 08:03	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:03	pH = 1
Solids, TDS	7	May-09-18 08:03	pH = 4
TKN DA	28	May-30-18 08:03	pH = 1
TOC	28	May-30-18 08:03	pH = 1
Total Phosphorus DA	28	May-30-18 08:03	pH = 1

Sample ID: 1805007-07      Sampled: May-02-18 08:12      Matrix: Water  
 Sample Name: D7a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:12	pH = 1
Anions by IC	28	May-30-18 08:12	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:12	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:12	pH = 1
Solids, TDS	7	May-09-18 08:12	pH = 6
TKN DA	28	May-30-18 08:12	pH = 1
TOC	28	May-30-18 08:12	pH = 1

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-07      Sampled: May-02-18 08:12      Matrix: Water  
 Sample Name: D7a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 08:12	pH = 1

Sample ID: 1805007-08      Sampled: May-02-18 08:12      Matrix: Water      OC Source Sample MS/MSD  
 Sample Name: D7a      Sample Location/Comments: 23rd Avenue

Sample Comments: MS/MSD

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:12	pH = 1
Anions by IC	28	May-30-18 08:12	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:12	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:12	pH = 1
Solids, TDS	7	May-09-18 08:12	pH = 6
TKN DA	28	May-30-18 08:12	pH = 1
TOC	28	May-30-18 08:12	pH = 1
Total Phosphorus DA	28	May-30-18 08:12	pH = 1

Sample ID: 1805007-09      Sampled: May-02-18 08:19      Matrix: Water  
 Sample Name: D7b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:19	pH = 1
Anions by IC	28	May-30-18 08:19	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 08:19	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:19	pH = 1
Solids, TDS	7	May-09-18 08:19	pH = 5
TKN DA	28	May-30-18 08:19	pH = 1
TOC	28	May-30-18 08:19	pH = 1
Total Phosphorus DA	28	May-30-18 08:19	pH = 1

Sample ID: 1805007-10      Sampled: May-02-18 08:55      Matrix: Water  
 Sample Name: D8a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:55	pH = 1
Anions by IC	28	May-30-18 08:55	pH = 6

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
 Project: Central Sands

Project Manager: Angela Ockrassa Davis  
 Project Number: CB022018

Sample ID: 1805007-10      Sampled: May-02-18 08:55      Matrix: Water

Sample Name: D8a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 08:55	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:55	pH = 1
Solids, TDS	7	May-09-18 08:55	pH = 6
TKN DA	28	May-30-18 08:55	pH = 1
TOC	28	May-30-18 08:55	pH = 1
Total Phosphorus DA	28	May-30-18 08:55	pH = 1

Sample ID: 1805007-11      Sampled: May-02-18 09:11      Matrix: Water

Sample Name: D8b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:11	pH = 1
Anions by IC	28	May-30-18 09:11	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:11	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:11	pH = 1
Solids, TDS	7	May-09-18 09:11	pH = 6
TKN DA	28	May-30-18 09:11	pH = 1
TOC	28	May-30-18 09:11	pH = 1
Total Phosphorus DA	28	May-30-18 09:11	pH = 1

Sample ID: 1805007-12      Sampled: May-02-18 09:45      Matrix: Water

Sample Name: D9a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:45	pH = 1
Anions by IC	28	May-30-18 09:45	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:45	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:45	pH = 1
Solids, TDS	7	May-09-18 09:45	pH = 6
TKN DA	28	May-30-18 09:45	pH = 1
TOC	28	May-30-18 09:45	pH = 1
Total Phosphorus DA	28	May-30-18 09:45	pH = 1



WORK ORDER

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1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-13      Sampled: May-02-18 09:54      Matrix: Water

Sample Name: D9b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:54	pH = 1
Anions by IC	28	May-30-18 09:54	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:54	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:54	pH = 1
Solids, TDS	7	May-09-18 09:54	pH = 6
TKN DA	28	May-30-18 09:54	pH = 1
TOC	28	May-30-18 09:54	pH = 1
Total Phosphorus DA	28	May-30-18 09:54	pH = 1

Sample ID: 1805007-14      Sampled: May-02-18 10:29      Matrix: Water

Sample Name: D10a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:29	pH = 1
Anions by IC	28	May-30-18 10:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 10:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:29	pH = 1
Solids, TDS	7	May-09-18 10:29	pH = 6
TKN DA	28	May-30-18 10:29	pH = 1
TOC	28	May-30-18 10:29	pH = 1
Total Phosphorus DA	28	May-30-18 10:29	pH = 1

Sample ID: 1805007-15      Sampled: May-02-18 10:29      Matrix: Water

Sample Name: D10a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:29	pH = 1
Anions by IC	28	May-30-18 10:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 10:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:29	pH = 1
Solids, TDS	7	May-09-18 10:29	pH = 6
TKN DA	28	May-30-18 10:29	pH = 1
TOC	28	May-30-18 10:29	pH = 1

WORK ORDER

Printed: 5/7/2018 9:53:28AM

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-15      Sampled: May-02-18 10:29      Matrix: Water

Sample Name: D10a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 10:29	pH = 1

Sample ID: 1805007-16      Sampled: May-02-18 10:41      Matrix: Water

Sample Name: D10b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:41	pH = 1
Anions by IC	28	May-30-18 10:41	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 10:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:41	pH = 1
Solids, TDS	7	May-09-18 10:41	pH = 5
TKN DA	28	May-30-18 10:41	pH = 1
TOC	28	May-30-18 10:41	pH = 1
Total Phosphorus DA	28	May-30-18 10:41	pH = 1

Sample ID: 1805007-17      Sampled: May-02-18 10:41      Matrix: Water

Sample Name: D10b Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:41	pH = 1
Anions by IC	28	May-30-18 10:41	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 10:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:41	pH = 1
Solids, TDS	7	May-09-18 10:41	pH = 5
TKN DA	28	May-30-18 10:41	pH = 1
TOC	28	May-30-18 10:41	pH = 1
Total Phosphorus DA	28	May-30-18 10:41	pH = 1

Sample ID: 1805007-18      Sampled: May-02-18 11:19      Matrix: Water

Sample Name: D11a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 11:19	pH = 1
Anions by IC	28	May-30-18 11:19	pH = 6

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-18      Sampled: May-02-18 11:19      Matrix: Water

Sample Name: D11a      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 11:19	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 11:19	pH = 1
Solids, TDS	7	May-09-18 11:19	pH = 6
TKN DA	28	May-30-18 11:19	pH = 1
TOC	28	May-30-18 11:19	pH = 1
Total Phosphorus DA	28	May-30-18 11:19	pH = 1

Sample ID: 1805007-19      Sampled: May-02-18 11:42      Matrix: Water

Sample Name: D11b      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 11:42	pH = 1
Anions by IC	28	May-30-18 11:42	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 11:42	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 11:42	pH = 1
Solids, TDS	7	May-09-18 11:42	pH = 5
TKN DA	28	May-30-18 11:42	pH = 1
TOC	28	May-30-18 11:42	pH = 1
Total Phosphorus DA	28	May-30-18 11:42	pH = 1

Sample ID: 1805007-20      Sampled: May-02-18 12:41      Matrix: Water

Sample Name: E1a      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 12:41	pH = 1
Anions by IC	28	May-30-18 12:41	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 12:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 12:41	pH = 1
Solids, TDS	7	May-09-18 12:41	pH = 6
TKN DA	28	May-30-18 12:41	pH = 1
TOC	28	May-30-18 12:41	pH = 1
Total Phosphorus DA	28	May-30-18 12:41	pH = 1

1805007

US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> CB022018
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**Sample ID:** 1805007-21      **Sampled:** May-02-18 12:58      **Matrix:** Water  
**Sample Name:** E1b      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 12:58	pH = 1
Anions by IC	28	May-30-18 12:58	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 12:58	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 12:58	pH = 1
Solids, TDS	7	May-09-18 12:58	pH = 6
TKN DA	28	May-30-18 12:58	pH = 1
TOC	28	May-30-18 12:58	pH = 1
Total Phosphorus DA	28	May-30-18 12:58	pH = 1

**Sample ID:** 1805007-22      **Sampled:** May-02-18 13:28      **Matrix:** Water  
**Sample Name:** E2a      **Sample Location/Comments:** Porter Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:28	pH = 1
Anions by IC	28	May-30-18 13:28	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 13:28	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:28	pH = 1
Solids, TDS	7	May-09-18 13:28	pH = 6
TKN DA	28	May-30-18 13:28	pH = 1
TOC	28	May-30-18 13:28	pH = 1
Total Phosphorus DA	28	May-30-18 13:28	pH = 1

**Sample ID:** 1805007-23      **Sampled:** May-02-18 13:37      **Matrix:** Water  
**Sample Name:** E2b      **Sample Location/Comments:** Porter Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:37	pH = 1
Anions by IC	28	May-30-18 13:37	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 13:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:37	pH = 1
Solids, TDS	7	May-09-18 13:37	pH = 5
TKN DA	28	May-30-18 13:37	pH = 1
TOC	28	May-30-18 13:37	pH = 1

WORK ORDER

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1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-23      Sampled: May-02-18 13:37      Matrix: Water  
 Sample Name: E2b      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 13:37	pH = 1

Sample ID: 1805007-24      Sampled: May-02-18 13:28      Matrix: Water  
 Sample Name: E2a Dup      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:28	pH = 1
Anions by IC	28	May-30-18 13:28	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 13:28	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:28	pH = 1
Solids, TDS	7	May-09-18 13:28	pH = 6
TKN DA	28	May-30-18 13:28	pH = 1
TOC	28	May-30-18 13:28	pH = 1
Total Phosphorus DA	28	May-30-18 13:28	pH = 1

Sample ID: 1805007-25      Sampled: May-02-18 13:37      Matrix: Water  
 Sample Name: E2b Dup      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:37	pH = 1
Anions by IC	28	May-30-18 13:37	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 13:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:37	pH = 1
Solids, TDS	7	May-09-18 13:37	pH = 5
TKN DA	28	May-30-18 13:37	pH = 1
TOC	28	May-30-18 13:37	pH = 1
Total Phosphorus DA	28	May-30-18 13:37	pH = 1

Sample ID: 1805007-26      Sampled: May-02-18 14:03      Matrix: Water  
 Sample Name: E3a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:03	pH = 1
Anions by IC	28	May-30-18 14:03	pH = 6



1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-26      Sampled: May-02-18 14:03      Matrix: Water  
 Sample Name: E3a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 14:03	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:03	pH = 1
Solids, TDS	7	May-09-18 14:03	pH = 6
TKN DA	28	May-30-18 14:03	pH = 1
TOC	28	May-30-18 14:03	pH = 1
Total Phosphorus DA	28	May-30-18 14:03	pH = 1

Sample ID: 1805007-27      Sampled: May-02-18 14:09      Matrix: Water  
 Sample Name: E3b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:09	pH = 1
Anions by IC	28	May-30-18 14:09	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:09	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:09	pH = 1
Solids, TDS	7	May-09-18 14:09	pH = 6
TKN DA	28	May-30-18 14:09	pH = 1
TOC	28	May-30-18 14:09	pH = 1
Total Phosphorus DA	28	May-30-18 14:09	pH = 1

Sample ID: 1805007-28      Sampled: May-02-18 14:37      Matrix: Water  
 Sample Name: E4a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:37	pH = 1
Anions by IC	28	May-30-18 14:37	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:37	pH = 1
Solids, TDS	7	May-09-18 14:37	pH = 6
TKN DA	28	May-30-18 14:37	pH = 1
TOC	28	May-30-18 14:37	pH = 1
Total Phosphorus DA	28	May-30-18 14:37	pH = 1

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-29      Sampled: May-02-18 14:43      Matrix: Water

Sample Name: E4b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:43	pH = 1
Anions by IC	28	May-30-18 14:43	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:43	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:43	pH = 1
Solids, TDS	7	May-09-18 14:43	pH = 6
TKN DA	28	May-30-18 14:43	pH = 1
TOC	28	May-30-18 14:43	pH = 1
Total Phosphorus DA	28	May-30-18 14:43	pH = 1

Sample ID: 1805007-30      Sampled: May-02-18 15:08      Matrix: Water

Sample Name: E5a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:08	pH = 1
Anions by IC	28	May-30-18 15:08	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:08	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:08	pH = 1
Solids, TDS	7	May-09-18 15:08	pH = 6
TKN DA	28	May-30-18 15:08	pH = 1
TOC	28	May-30-18 15:08	pH = 1
Total Phosphorus DA	28	May-30-18 15:08	pH = 1

Sample ID: 1805007-31      Sampled: May-02-18 15:13      Matrix: Water

Sample Name: E5b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:13	pH = 1
Anions by IC	28	May-30-18 15:13	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:13	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:13	pH = 1
Solids, TDS	7	May-09-18 15:13	pH = 6
TKN DA	28	May-30-18 15:13	pH = 1
TOC	28	May-30-18 15:13	pH = 1

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-31      Sampled: May-02-18 15:13      Matrix: Water

Sample Name: E5b      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 15:13	pH = 1

Sample ID: 1805007-32      Sampled: May-02-18 15:38      Matrix: Water

Sample Name: E6a      Sample Location/Comments: 20th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:38	pH = 1
Anions by IC	28	May-30-18 15:38	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:38	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:38	pH = 1
Solids, TDS	7	May-09-18 15:38	pH = 6
TKN DA	28	May-30-18 15:38	pH = 1
TOC	28	May-30-18 15:38	pH = 1
Total Phosphorus DA	28	May-30-18 15:38	pH = 1

Sample ID: 1805007-33      Sampled: May-02-18 15:44      Matrix: Water

Sample Name: E6b      Sample Location/Comments: 20th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:44	pH = 1
Anions by IC	28	May-30-18 15:44	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:44	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:44	pH = 1
Solids, TDS	7	May-09-18 15:44	pH = 6
TKN DA	28	May-30-18 15:44	pH = 1
TOC	28	May-30-18 15:44	pH = 1
Total Phosphorus DA	28	May-30-18 15:44	pH = 1

Sample ID: 1805007-34      Sampled: May-02-18 16:09      Matrix: Water

Sample Name: E7a      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 16:09	pH = 1
Anions by IC	28	May-30-18 16:09	pH = 5

1805007

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

**Sample ID:** 1805007-34      **Sampled:** May-02-18 16:09      **Matrix:** Water  
**Sample Name:** E7a      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 16:09	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 16:09	pH = 1
Solids, TDS	7	May-09-18 16:09	pH = 5
TKN DA	28	May-30-18 16:09	pH = 1
TOC	28	May-30-18 16:09	pH = 1
Total Phosphorus DA	28	May-30-18 16:09	pH = 1

**Sample ID:** 1805007-35      **Sampled:** May-02-18 16:35      **Matrix:** Water  
**Sample Name:** E7b      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 16:35	pH = 1
Anions by IC	28	May-30-18 16:35	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 16:35	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 16:35	pH = 1
Solids, TDS	7	May-09-18 16:35	pH = 5
TKN DA	28	May-30-18 16:35	pH = 1
TOC	28	May-30-18 16:35	pH = 1
Total Phosphorus DA	28	May-30-18 16:35	pH = 1

**Sample ID:** 1805007-36      **Sampled:** May-03-18 08:40      **Matrix:** Water  
**Sample Name:** E8a      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 08:40	pH = 1
Anions by IC	28	May-31-18 08:40	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 08:40	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 08:40	pH = 1
Solids, TDS	7	May-10-18 08:40	pH = 5
TKN DA	28	May-31-18 08:40	pH = 1
TOC	28	May-31-18 08:40	pH = 1
Total Phosphorus DA	28	May-31-18 08:40	pH = 1

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-37      Sampled: May-03-18 08:48      Matrix: Water

Sample Name: E8b      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 08:48	pH = 1
Anions by IC	28	May-31-18 08:48	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 08:48	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 08:48	pH = 1
Solids, TDS	7	May-10-18 08:48	pH = 6
TKN DA	28	May-31-18 08:48	pH = 1
TOC	28	May-31-18 08:48	pH = 1
Total Phosphorus DA	28	May-31-18 08:48	pH = 1

Sample ID: 1805007-38      Sampled: May-03-18 07:15      Matrix: Water

Sample Name: E10a      Sample Location/Comments: 8th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:15	pH = 1
Anions by IC	28	May-31-18 07:15	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:15	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:15	pH = 1
Solids, TDS	7	May-10-18 07:15	pH = 6
TKN DA	28	May-31-18 07:15	pH = 1
TOC	28	May-31-18 07:15	pH = 1
Total Phosphorus DA	28	May-31-18 07:15	pH = 1

Sample ID: 1805007-39      Sampled: May-03-18 07:15      Matrix: Water

Sample Name: E10a Dup      Sample Location/Comments: 8th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:15	pH = 1
Anions by IC	28	May-31-18 07:15	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:15	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:15	pH = 1
Solids, TDS	7	May-10-18 07:15	pH = 6
TKN DA	28	May-31-18 07:15	pH = 1
TOC	28	May-31-18 07:15	pH = 1



WORK ORDER

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1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: CB022018
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**Sample ID:** 1805007-39      **Sampled:** May-03-18 07:15      **Matrix:** Water  
**Sample Name:** E10a Dup      **Sample Location/Comments:** 8th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-31-18 07:15	pH = 1

**Sample ID:** 1805007-40      **Sampled:** May-03-18 07:27      **Matrix:** Water  
**Sample Name:** E10b      **Sample Location/Comments:** 8th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:27	pH = 1
Anions by IC	28	May-31-18 07:27	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:27	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:27	pH = 1
Solids, TDS	7	May-10-18 07:27	pH = 6
TKN DA	28	May-31-18 07:27	pH = 1
TOC	28	May-31-18 07:27	pH = 1
Total Phosphorus DA	28	May-31-18 07:27	pH = 1

**Sample ID:** 1805007-41      **Sampled:** May-03-18 07:36      **Matrix:** Water  
**Sample Name:** FB4      **Sample Location/Comments:** 8th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:36	pH = 1
Anions by IC	28	May-31-18 07:36	pH = 4
Metals ICP-AES (w)	180	Oct-30-18 07:36	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:36	pH = 1
Solids, TDS	7	May-10-18 07:36	pH = 4
TKN DA	28	May-31-18 07:36	pH = 1
TOC	28	May-31-18 07:36	pH = 1
Total Phosphorus DA	28	May-31-18 07:36	pH = 1

**Sample ID:** 1805007-42      **Sampled:** May-03-18 07:13      **Matrix:** Water  
**Sample Name:** E10 Equip      **Sample Location/Comments:** 8th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:13	pH = 1
Anions by IC	28	May-31-18 07:13	pH = 4

WORK ORDER

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1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
 Project: Central Sands

Project Manager: Angela Ockrassa Davis  
 Project Number: CB022018

Sample ID: 1805007-42      Sampled: May-03-18 07:13      Matrix: Water  
 Sample Name: E10 Equip      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-30-18 07:13	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:13	pH = 1
Solids, TDS	7	May-10-18 07:13	pH = 4
TKN DA	28	May-31-18 07:13	pH = 1
TOC	28	May-31-18 07:13	pH = 1
Total Phosphorus DA	28	May-31-18 07:13	pH = 1

Sample ID: 1805007-43      Sampled: May-03-18 09:53      Matrix: Water  
 Sample Name: E9a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 09:53	pH = 1
Anions by IC	28	May-31-18 09:53	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 09:53	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 09:53	pH = 1
Solids, TDS	7	May-10-18 09:53	pH = 5
TKN DA	28	May-31-18 09:53	pH = 1
TOC	28	May-31-18 09:53	pH = 1
Total Phosphorus DA	28	May-31-18 09:53	pH = 1

Sample ID: 1805007-44      Sampled: May-03-18 10:02      Matrix: Water  
 Sample Name: E9b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 10:02	pH = 1
Anions by IC	28	May-31-18 10:02	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 10:02	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 10:02	pH = 1
Solids, TDS	7	May-10-18 10:02	pH = 5
TKN DA	28	May-31-18 10:02	pH = 1
TOC	28	May-31-18 10:02	pH = 1
Total Phosphorus DA	28	May-31-18 10:02	pH = 1

WORK ORDER

Printed: 5/7/2018 9:53:28AM

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

PROJECT COMMENTS: Anions: Chloride, fluoride, bromide, sulfite.  
Full List metals

**REVIEWED**

By Robert Thompson at 9:54 am, May 07, 2018

Reviewed By

Date



## Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312) 353-8370 Fax: (312) 886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-19-18 08:03
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### Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified) US EPA Region 5 Chicago Regional Laboratory

**A1a (1805005-01) Matrix: Water Sampled: Apr-30-18 07:19 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**A1b (1805005-02) Matrix: Water Sampled: Apr-30-18 07:32 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	1.79		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**A2a (1805005-03) Matrix: Water Sampled: Apr-30-18 08:15 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	36.9		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**A2b (1805005-04) Matrix: Water Sampled: Apr-30-18 08:24 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**A3a (1805005-05) Matrix: Water Sampled: Apr-30-18 09:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**A3b (1805005-06) Matrix: Water Sampled: Apr-30-18 09:14 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	0.12		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**A4 Equip (1805005-07) Matrix: Water Sampled: Apr-30-18 09:38 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**A3a (Dup) (1805005-08) Matrix: Water Sampled: Apr-30-18 09:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312)353-8370 Fax: (312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-19-18 08:03
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## Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified) US EPA Region 5 Chicago Regional Laboratory

<b>FBI (1805005-09)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 09:49</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>A4a (1805005-10)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 09:58</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	1.25		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>A4b (1805005-11)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 10:09</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	4.61		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>B1a (1805005-12)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 10:51</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

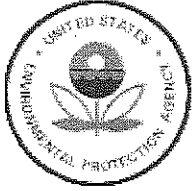
<b>B1b (1805005-13)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 10:58</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>B2a (1805005-14)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 11:40</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>B2b (1805005-15)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 11:48</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	0.23	K	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>B3a (1805005-16)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 12:29</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	4.53	K	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18





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**Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**B3b (1805005-17) Matrix: Water Sampled: Apr-30-18 12:36 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	0.96	K	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**B4a (1805005-18) Matrix: Water Sampled: Apr-30-18 13:10 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	33.3	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**B4b (1805005-19) Matrix: Water Sampled: Apr-30-18 13:41 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	28.0	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**C1a (1805005-20) Matrix: Water Sampled: Apr-30-18 15:02 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	0.12	K	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**C1b (1805005-21) Matrix: Water Sampled: Apr-30-18 15:27 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**C2a (1805005-22) Matrix: Water Sampled: Apr-30-18 16:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	42.1	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**C2b (1805005-23) Matrix: Water Sampled: Apr-30-18 16:14 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	3.39	K	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**C3a (1805005-24) Matrix: Water Sampled: Apr-30-18 14:16 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	27.7	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18



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## Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified) US EPA Region 5 Chicago Regional Laboratory

<b>C3b (1805005-25)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 14:26</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	2.62	K	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>C5Aa (1805005-26)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 06:29</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	44.3	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>C5Ab (1805005-27)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 06:43</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	59.2	K	1.00	2.00	mg/L	20	B18E022	May-09-18	May-10-18

<b>C6a (1805005-28)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 07:06</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	36.8	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>C6b (1805005-29)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 07:15</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	25.3	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>C7a (1805005-30)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 07:48</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	31.7	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>C7b (1805005-31)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 08:02</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	37.3	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>FB2 (1805005-32)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 07:39</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18



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**Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**C7 equip (1805005-33) Matrix: Water Sampled: May-01-18 07:38 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**C7b Dup (1805005-34) Matrix: Water Sampled: May-01-18 08:02 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	36.5	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**C8a (1805005-35) Matrix: Water Sampled: May-01-18 08:35 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	17.1	K	0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**C8b (1805005-36) Matrix: Water Sampled: May-01-18 08:42 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	2.95	K	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**C9a (1805005-37) Matrix: Water Sampled: May-01-18 10:00 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	2.48	K	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**C9b (1805005-38) Matrix: Water Sampled: May-01-18 10:21 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	0.69	K	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**CI0a (1805005-39) Matrix: Water Sampled: May-01-18 11:05 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	8.33		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**CI0b (1805005-40) Matrix: Water Sampled: May-01-18 11:12 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	16.7		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18



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**Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**C11a (1805005-41) Matrix: Water Sampled: May-01-18 11:46 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**C11b (1805005-42) Matrix: Water Sampled: May-01-18 11:52 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	0.57	K	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**C12a (1805005-43) Matrix: Water Sampled: May-01-18 12:41 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**C12b (1805005-44) Matrix: Water Sampled: May-01-18 12:47 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**C13a (1805005-45) Matrix: Water Sampled: May-01-18 13:30 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**C13b (1805005-46) Matrix: Water Sampled: May-01-18 13:39 Received: May-02-18 09:55**

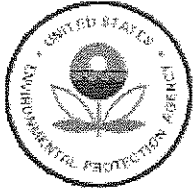
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**D1a (1805005-47) Matrix: Water Sampled: May-01-18 14:19 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**D1b (1805005-48) Matrix: Water Sampled: May-01-18 14:26 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18



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## Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified) US EPA Region 5 Chicago Regional Laboratory

**D2a (1805005-49) Matrix: Water Sampled: May-01-18 15:00 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	2.86		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**D2b (1805005-50) Matrix: Water Sampled: May-01-18 15:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	32.7		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**D3a (1805005-51) Matrix: Water Sampled: May-01-18 15:41 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	21.1		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**D3b (1805005-52) Matrix: Water Sampled: May-01-18 15:48 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	23.4		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**D4a (1805005-53) Matrix: Water Sampled: May-01-18 16:19 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	20.5		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**D4b (1805005-54) Matrix: Water Sampled: May-01-18 16:26 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	50.6		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**D5a (1805007-01) Matrix: Water Sampled: May-02-18 06:38 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	0.29		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**D5b (1805007-02) Matrix: Water Sampled: May-02-18 06:46 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	1.36		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18





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## Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified) US EPA Region 5 Chicago Regional Laboratory

<b>D6a (1805007-03)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 07:17</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>D6b (1805007-04)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 07:29</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>D7 equip (1805007-05)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 08:01</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>FB3 (1805007-06)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 08:03</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>D7a Dup (1805007-07)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 08:12</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	33.7		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>D7a (1805007-08)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 08:12</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>D7b (1805007-09)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 08:19</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	36.8		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>D8a (1805007-10)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 08:55</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	42.3		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> Jun-19-18 08:03
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**Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**D8b (1805007-11) Matrix: Water Sampled: May-02-18 09:11 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**D9a (1805007-12) Matrix: Water Sampled: May-02-18 09:45 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**D9b (1805007-13) Matrix: Water Sampled: May-02-18 09:54 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	2.29		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**D10a (1805007-14) Matrix: Water Sampled: May-02-18 10:29 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	14.3		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**D10a Dup (1805007-15) Matrix: Water Sampled: May-02-18 10:29 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**D10b (1805007-16) Matrix: Water Sampled: May-02-18 10:41 Received: May-04-18 10:00**

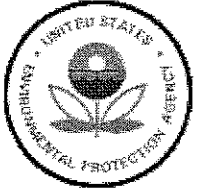
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**D10b Dup (1805007-17) Matrix: Water Sampled: May-02-18 10:41 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	16.2		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

**D11a (1805007-18) Matrix: Water Sampled: May-02-18 11:19 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	32.2		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-19-18 08:03
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## Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified) US EPA Region 5 Chicago Regional Laboratory

D11b (1805007-19)	Matrix: Water	Sampled: May-02-18 11:42	Received: May-04-18 10:00						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	23.9		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

E1a (1805007-20)	Matrix: Water	Sampled: May-02-18 12:41	Received: May-04-18 10:00						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	27.2		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

E1b (1805007-21)	Matrix: Water	Sampled: May-02-18 12:58	Received: May-04-18 10:00						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	25.7		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

E2a (1805007-22)	Matrix: Water	Sampled: May-02-18 13:28	Received: May-04-18 10:00						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	1.52		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

E2b (1805007-23)	Matrix: Water	Sampled: May-02-18 13:37	Received: May-04-18 10:00						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	3.15		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

E2a Dup (1805007-24)	Matrix: Water	Sampled: May-02-18 13:28	Received: May-04-18 10:00						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	1.58		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

E2b Dup (1805007-25)	Matrix: Water	Sampled: May-02-18 13:37	Received: May-04-18 10:00						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	3.16		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

E3a (1805007-26)	Matrix: Water	Sampled: May-02-18 14:03	Received: May-04-18 10:00						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	6.58		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18



## Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-19-18 08:03
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### Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified) US EPA Region 5 Chicago Regional Laboratory

<b>E3b (1805007-27)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 14:09</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	7.40		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>E4a (1805007-28)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 14:37</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	23.3		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>E4b (1805007-29)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 14:43</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	26.8		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>E5a (1805007-30)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 15:08</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	38.7		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>E5b (1805007-31)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 15:13</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	26.9		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18

<b>E6a (1805007-32)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 15:38</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	0.15		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>E6b (1805007-33)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 15:44</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	0.15		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

<b>E7a (1805007-34)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 16:09</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18



**Environmental Protection Agency Region 5**  
**Chicago Regional Laboratory**

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> Jun-19-18 08:03
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**Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**E7b (1805007-35) Matrix: Water Sampled: May-02-18 16:35 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**E8a (1805007-36) Matrix: Water Sampled: May-03-18 08:40 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**E8b (1805007-37) Matrix: Water Sampled: May-03-18 08:48 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**E10a (1805007-38) Matrix: Water Sampled: May-03-18 07:15 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	1.13		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**E10a Dup (1805007-39) Matrix: Water Sampled: May-03-18 07:15 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	1.22		0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**E10b (1805007-40) Matrix: Water Sampled: May-03-18 07:27 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**FB4 (1805007-41) Matrix: Water Sampled: May-03-18 07:36 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**E10 Equip (1805007-42) Matrix: Water Sampled: May-03-18 07:13 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> Jun-19-18 08:03
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**Nitrate-Nitrite Nitrogen, Nitrate Reductase, ASTM D7781 - 14 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**E9a (1805007-43) Matrix: Water Sampled: May-03-18 09:53 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	U	U	0.05	0.10	mg/L	1	B18E022	May-09-18	May-10-18

**E9b (1805007-44) Matrix: Water Sampled: May-03-18 10:02 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite N	20.2		0.50	1.00	mg/L	10	B18E022	May-09-18	May-10-18



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

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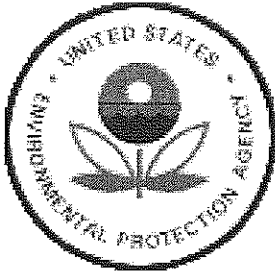
Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
Jun-19-18 08:03

**Notes and Definitions**

- K The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value.
- \* This Quality Control measure meets the requirements of the CRL SOP for this analyte.
- U Not Detected
- NR Not Reported
- Q QC limit Exceeded



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5 CHICAGO REGIONAL LABORATORY  
536 SOUTH CLARK STREET  
CHICAGO, ILLINOIS 60605

**Date:** 6/12/2018  
**Subject:** Review of Region 5 Data for Central Sands  
**To:** Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604  
**From:** Nidia Fuentes, Chemist  
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with the EPA QA/G-8 *Guidance on Environmental Data Verification and Data Validation* and the U.S. EPA Region 5 RMD QMP, CRL performs data verification on all the data generated internally. CRL does not perform data validation or quality assessment procedures.

This report was reviewed and the information provided herein accurately represents the analysis performed.

*Nidia Fuentes*

*Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.*

**Attached are Results for: Central Sands**

**Analyses included in this report:**

TKN DA

Total Phosphorus DA

Report Name: 1805005 TKN DA Total Phosphorus DA FINAL Jun 12 18 1104



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

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Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
Jun-12-18 11:04

**Accredited Analyses included in this Report**



*Method:* EPA 351.2 in Water

*Analysis:* TKN DA

**Analyte**

**Certifications**

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Total Kjeldahl Nitrogen

ISO/IEC 17025:2005

*Method:* EPA 365.4 in Water

*Analysis:* Total Phosphorus DA

**Analyte**

**Certifications**

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Total Phosphorus

ISO/IEC 17025:2005

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Analytes not listed above are not accredited by ANAB.



## Environmental Protection Agency Region 5 Chicago Regional Laboratory

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77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
Jun-12-18 11:04

### Analysis Case Narrative

#### General Information

A total of 98 water sample to be analyzed for Total Phosphorus (TP) were received at the Chicago Regional Laboratory on May 2 and 4, 2018 with work order 1805005 and 1805007 respectively. The samples were digested and analyzed using CRL SOP AIG034B Version #5 (based on EPA method 365.4). The samples were analyzed within the holding time. The designated analyst for the samples is Nidia Fuentes. Nidia can be reached at 312-353-9079.

#### Sample Analysis and Results

The data reported herein meets any laboratory specifications referenced in the sampling Quality Assurance Project Plan (QAPP) *FINAL\_2018 GW Sampling Plan4\_27\_2018*, and the limits referenced in CRL SOP AIG034B Version #5 (based on EPA method 365.4).

Samples for work order 1805005 were initial diluted 2-fold prior to digestion. This was needed to avoid exceeding the digestion reagent capacity and determination limits. Exceptions of field blanks and samples 1805005-53 and -54. The Gallery instrument software was inadvertently set to automatically apply 5-fold calculation instead of 2 to account for the initial dilution. This was resolved by reporting the sample result with the correct dilution factor applied by manual calculation.

#### Quality Control

All quality control audits were within the CRL's limits except for some sample duplicate and matrix spike.

Results for Samples 1805005-21(C1b), and -41(C11a) were flagged as estimated, due sample matrix interferences. These samples were qualified "J" (The identification of the analyte is acceptable; the reported value is an estimate). Sample 1805005-31(C7b) matrix spike recovery is invalid due to concentration been diluted out.

Samples 1805007-08 (D7a), -11(D8b), -21 (E1b), -27(E3b) and -37(E8b) had been flagged as estimated, due sample matrix interferences. These samples were qualified "J" (The identification of the analyte is acceptable; the reported value is an estimate).





## Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
Jun-12-18 11:04

### Analysis Case Narrative

#### General Information

A total of 98 water samples, to be analyzed for Total Kjeldahl Nitrogen (TKN), were received at the Chicago Regional Laboratory on May 2 and 4, 2018, with work order 1805005 and 1805007 respectively. The samples were digested and analyzed using CRL SOP AIG035B, Version #7 (based on EPA method 351.2). All holding times were met. The designated analyst for these samples is Nidia Fuentes. Nidia can be reached at 312-353-9079.

#### Sample Analysis and Results

The data reported herein meets any laboratory specifications referenced in the sampling Quality Assurance Project Plan (QAPP) *FINAL\_2018 GW Sampling Plan4\_27\_2018*, and the limits referenced in CRL SOP AIG035B Version #7 (based on EPA method 351.2).

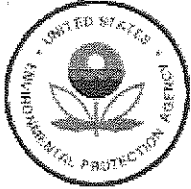
Samples for work order 1805005 were initial diluted 2-fold prior to digestion. This was needed to avoid exceeding the digestion reagent capacity and determination limits. Exceptions of field blanks and samples 1805005-53 and -54. The Gallery instrument software was inadvertently set to automatically apply 5-fold calculation instead of 2 to account for the initial dilution. This was resolved by reporting the sample result with the correct dilution factor applied by manual calculation.

#### Quality Control

All quality control audits were within the CRL limits, with the exceptions of some sample duplicate or matrix spikes.

Sample results for 1805005-14 (B2a), -21(C1b), -31(C7b) and -41(C11a) were flagged as estimated due sample matrix interferences. These results were qualified "J" (The identification of the analyte is acceptable; the reported value is an estimate).

Sample results for 1805007-08 (D7a Dup) and -11(D8b) were flagged as estimated due sample matrix interferences. These results were flagged "J" (The identification of the analyte is acceptable; the reported value is an estimate).



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

**WORK ORDER**

Printed: 5/3/2018 3:33:25PM

**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

<b>Report To:</b> Cheryl Burdett Water Division, WECA Region 5	77 West Jackson Boulevard Chicago, IL 60604	Phone: (312) 886-1463 Fax: (312) 886-2001
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Date Due:	Jun-04-18 15:00 (32 day TAT)	Date Received:	May-02-18 09:55
Received By:	Colin Breslin	Date Logged In:	May-03-18 09:30
Logged In By:	Robert Snyder		

<b>Samples Received at:</b>	<b>Work Order Comments:</b>
Sample tags/labels <b>Yes</b>	Anions: Chloride and nitrate as NO3
Seals Intact <b>Yes</b>	Full List metals
Received on ice <b>Yes</b>	
Paperwork Included <b>Yes</b>	

**Sample ID:** 1805005-01      **Sampled:** Apr-30-18 07:19      **Matrix:** Water  
**Sample Name:** A1a      **Sample Location/Comments:** 1st Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 07:19	pH = 2
Anions by IC	28	May-28-18 07:19	pH = 7
Metals ICP-AES (w)	180	Oct-27-18 07:19	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 07:19	pH = 2
Solids, TDS	7	May-07-18 07:19	pH = 7
TKN DA	28	May-28-18 07:19	pH = 2
TOC	28	May-28-18 07:19	pH = 2
Total Phosphorus DA	28	May-28-18 07:19	pH = 2

**Sample ID:** 1805005-02      **Sampled:** Apr-30-18 07:32      **Matrix:** Water  
**Sample Name:** A1b      **Sample Location/Comments:** 1st Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 07:32	pH = 2
Anions by IC	28	May-28-18 07:32	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 07:32	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 07:32	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-02      Sampled: Apr-30-18 07:32      Matrix: Water

Sample Name: A1b

Sample Location/Comments: 1st Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-07-18 07:32	pH = 5
TKN DA	28	May-28-18 07:32	pH = 2
TOC	28	May-28-18 07:32	pH = 2
Total Phosphorus DA	28	May-28-18 07:32	pH = 2

Sample ID: 1805005-03      Sampled: Apr-30-18 08:15      Matrix: Water

Sample Name: A2a

Sample Location/Comments: 22nd Avenue North

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 08:15	pH = 2
Anions by IC	28	May-28-18 08:15	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 08:15	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 08:15	pH = 2
Solids, TDS	7	May-07-18 08:15	pH = 6
TKN DA	28	May-28-18 08:15	pH = 2
TOC	28	May-28-18 08:15	pH = 2
Total Phosphorus DA	28	May-28-18 08:15	pH = 2

Sample ID: 1805005-04      Sampled: Apr-30-18 08:24      Matrix: Water

Sample Name: A2b

Sample Location/Comments: 22nd Avenue North

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 08:24	pH = 2
Anions by IC	28	May-28-18 08:24	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 08:24	pH = 5
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 08:24	pH = 2
Solids, TDS	7	May-07-18 08:24	pH = 6
TKN DA	28	May-28-18 08:24	pH = 2
TOC	28	May-28-18 08:24	pH = 2
Total Phosphorus DA	28	May-28-18 08:24	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-05    Sampled: Apr-30-18 09:06    Matrix: Water    *OC Source Sample MS/MSD*

Sample Name: A3a    Sample Location/Comments: 2nd Street

Sample Comments: MS/MSD

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:06	pH = 2
Anions by IC	28	May-28-18 09:06	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:06	pH = 2
Solids, TDS	7	May-07-18 09:06	pH = 6
TKN DA	28	May-28-18 09:06	pH = 2
TOC	28	May-28-18 09:06	pH = 2
Total Phosphorus DA	28	May-28-18 09:06	pH = 2

Sample ID: 1805005-06    Sampled: Apr-30-18 09:14    Matrix: Water

Sample Name: A3b    Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:14	pH = 2
Anions by IC	28	May-28-18 09:14	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:14	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:14	pH = 2
Solids, TDS	7	May-07-18 09:14	pH = 6
TKN DA	28	May-28-18 09:14	pH = 2
TOC	28	May-28-18 09:14	pH = 2
Total Phosphorus DA	28	May-28-18 09:14	pH = 2

Sample ID: 1805005-07    Sampled: Apr-30-18 09:38    Matrix: Water

Sample Name: A4 Equip    Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:38	pH = 2
Anions by IC	28	May-28-18 09:38	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 09:38	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:38	pH = 2
Solids, TDS	7	May-07-18 09:38	pH = 5
TKN DA	28	May-28-18 09:38	pH = 2
TOC	28	May-28-18 09:38	pH = 2

**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-07      **Sampled:** Apr-30-18 09:38      **Matrix:** Water

**Sample Name:** A4 Equip      **Sample Location/Comments:** Cranberry Rock Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 09:38	pH = 2

**Sample ID:** 1805005-08      **Sampled:** Apr-30-18 09:06      **Matrix:** Water

**Sample Name:** A3a (Dup)      **Sample Location/Comments:** 2nd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:06	pH = 2
Anions by IC	28	May-28-18 09:06	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:06	pH = 2
Solids, TDS	7	May-07-18 09:06	pH = 6
TKN DA	28	May-28-18 09:06	pH = 2
TOC	28	May-28-18 09:06	pH = 2
Total Phosphorus DA	28	May-28-18 09:06	pH = 2

**Sample ID:** 1805005-09      **Sampled:** Apr-30-18 09:49      **Matrix:** Water

**Sample Name:** FBI      **Sample Location/Comments:** Cranberry Rock Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:49	pH = 2
Anions by IC	28	May-28-18 09:49	pH = 4
Metals ICP-AES (w)	180	Oct-27-18 09:49	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:49	pH = 2
Solids, TDS	7	May-07-18 09:49	pH = 4
TKN DA	28	May-28-18 09:49	pH = 2
TOC	28	May-28-18 09:49	pH = 2
Total Phosphorus DA	28	May-28-18 09:49	pH = 2

**Sample ID:** 1805005-10      **Sampled:** Apr-30-18 09:58      **Matrix:** Water

**Sample Name:** A4a      **Sample Location/Comments:** Cranberry Rock Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:58	pH = 2
Anions by IC	28	May-28-18 09:58	pH = 6



1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-10      Sampled: Apr-30-18 09:58      Matrix: Water

Sample Name: A4a      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-27-18 09:58	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:58	pH = 2
Solids, TDS	7	May-07-18 09:58	pH = 6
TKN DA	28	May-28-18 09:58	pH = 2
TOC	28	May-28-18 09:58	pH = 2
Total Phosphorus DA	28	May-28-18 09:58	pH = 2

Sample ID: 1805005-11      Sampled: Apr-30-18 10:09      Matrix: Water

Sample Name: A4b      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:09	pH = 2
Anions by IC	28	May-28-18 10:09	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:09	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:09	pH = 2
Solids, TDS	7	May-07-18 10:09	pH = 5
TKN DA	28	May-28-18 10:09	pH = 2
TOC	28	May-28-18 10:09	pH = 2
Total Phosphorus DA	28	May-28-18 10:09	pH = 2

Sample ID: 1805005-12      Sampled: Apr-30-18 10:51      Matrix: Water

Sample Name: B1a      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:51	pH = 3
Anions by IC	28	May-28-18 10:51	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:51	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:51	pH = 3
Solids, TDS	7	May-07-18 10:51	pH = 5
TKN DA	28	May-28-18 10:51	pH = 3
TOC	28	May-28-18 10:51	pH = 3
Total Phosphorus DA	28	May-28-18 10:51	pH = 3

1805005

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> [none]
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**Sample ID:** 1805005-13      **Sampled:** Apr-30-18 10:58      **Matrix:** Water

**Sample Name:** B1b      **Sample Location/Comments:** 20th Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:58	pH = 2
Anions by IC	28	May-28-18 10:58	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:58	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:58	pH = 2
Solids, TDS	7	May-07-18 10:58	pH = 5
TKN DA	28	May-28-18 10:58	pH = 2
TOC	28	May-28-18 10:58	pH = 2
Total Phosphorus DA	28	May-28-18 10:58	pH = 2

**Sample ID:** 1805005-14      **Sampled:** Apr-30-18 11:40      **Matrix:** Water

**Sample Name:** B2a      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 11:40	pH = 2
Anions by IC	28	May-28-18 11:40	pH = 7
Metals ICP-AES (w)	180	Oct-27-18 11:40	pH = 4
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 11:40	pH = 2
Solids, TDS	7	May-07-18 11:40	pH = 7
TKN DA	28	May-28-18 11:40	pH = 2
TOC	28	May-28-18 11:40	pH = 2
Total Phosphorus DA	28	May-28-18 11:40	pH = 2

**Sample ID:** 1805005-15      **Sampled:** Apr-30-18 11:48      **Matrix:** Water

**Sample Name:** B2b      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 11:48	pH = 2
Anions by IC	28	May-28-18 11:48	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 11:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 11:48	pH = 2
Solids, TDS	7	May-07-18 11:48	pH = 5
TKN DA	28	May-28-18 11:48	pH = 2
TOC	28	May-28-18 11:48	pH = 2

1805005

**US EPA Region 5 Chicago Regional Laboratory**

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockcrassa Davis Project Number: [none]
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Sample ID: 1805005-15      Sampled: Apr-30-18 11:48      Matrix: Water

Sample Name: B2b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 11:48	pH = 2

Sample ID: 1805005-16      Sampled: Apr-30-18 12:29      Matrix: Water

Sample Name: B3a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 12:29	pH = 2
Anions by IC	28	May-28-18 12:29	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 12:29	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 12:29	pH = 2
Solids, TDS	7	May-07-18 12:29	pH = 6
TKN DA	28	May-28-18 12:29	pH = 2
TOC	28	May-28-18 12:29	pH = 2
Total Phosphorus DA	28	May-28-18 12:29	pH = 2

Sample ID: 1805005-17      Sampled: Apr-30-18 12:36      Matrix: Water

Sample Name: B3b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 12:36	pH = 2
Anions by IC	28	May-28-18 12:36	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 12:36	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 12:36	pH = 2
Solids, TDS	7	May-07-18 12:36	pH = 5
TKN DA	28	May-28-18 12:36	pH = 2
TOC	28	May-28-18 12:36	pH = 2
Total Phosphorus DA	28	May-28-18 12:36	pH = 2

Sample ID: 1805005-18      Sampled: Apr-30-18 13:10      Matrix: Water

Sample Name: B4a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 13:10	pH = 2
Anions by IC	28	May-28-18 13:10	pH = 5

1805005

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> [none]
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**Sample ID:** 1805005-18      **Sampled:** Apr-30-18 13:10      **Matrix:** Water

**Sample Name:** B4a      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-27-18 13:10	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 13:10	pH = 2
Solids, TDS	7	May-07-18 13:10	pH = 5
TKN DA	28	May-28-18 13:10	pH = 2
TOC	28	May-28-18 13:10	pH = 2
Total Phosphorus DA	28	May-28-18 13:10	pH = 2

**Sample ID:** 1805005-19      **Sampled:** Apr-30-18 13:41      **Matrix:** Water

**Sample Name:** B4b      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 13:41	pH = 2
Anions by IC	28	May-28-18 13:41	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 13:41	pH = 4
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 13:41	pH = 2
Solids, TDS	7	May-07-18 13:41	pH = 5
TKN DA	28	May-28-18 13:41	pH = 2
TOC	28	May-28-18 13:41	pH = 2
Total Phosphorus DA	28	May-28-18 13:41	pH = 2

**Sample ID:** 1805005-20      **Sampled:** Apr-30-18 15:02      **Matrix:** Water

**Sample Name:** C1a      **Sample Location/Comments:** 2nd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 15:02	pH = 2
Anions by IC	28	May-28-18 15:02	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 15:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 15:02	pH = 2
Solids, TDS	7	May-07-18 15:02	pH = 5
TKN DA	28	May-28-18 15:02	pH = 2
TOC	28	May-28-18 15:02	pH = 2
Total Phosphorus DA	28	May-28-18 15:02	pH = 2

WORK ORDER

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockcrassa Davis Project Number: [none]
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Sample ID: 1805005-21      Sampled: Apr-30-18 15:27      Matrix: Water

Sample Name: C1b      Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 15:27	pH = 2
Anions by IC	28	May-28-18 15:27	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 15:27	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 15:27	pH = 2
Solids, TDS	7	May-07-18 15:27	pH = 5
TKN DA	28	May-28-18 15:27	pH = 2
TOC	28	May-28-18 15:27	pH = 2
Total Phosphorus DA	28	May-28-18 15:27	pH = 2

Sample ID: 1805005-22      Sampled: Apr-30-18 16:06      Matrix: Water

Sample Name: C2a      Sample Location/Comments: Nelson Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 16:06	pH = 2
Anions by IC	28	May-28-18 16:06	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 16:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 16:06	pH = 2
Solids, TDS	7	May-07-18 16:06	pH = 5
TKN DA	28	May-28-18 16:06	pH = 2
TOC	28	May-28-18 16:06	pH = 2
Total Phosphorus DA	28	May-28-18 16:06	pH = 2

Sample ID: 1805005-23      Sampled: Apr-30-18 16:14      Matrix: Water

Sample Name: C2b      Sample Location/Comments: Nelson Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 16:14	pH = 2
Anions by IC	28	May-28-18 16:14	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 16:14	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 16:14	pH = 2
Solids, TDS	7	May-07-18 16:14	pH = 5
TKN DA	28	May-28-18 16:14	pH = 2
TOC	28	May-28-18 16:14	pH = 2



WORK ORDER

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b> Project: <b>Central Sands</b>	Project Manager: <b>Angela Ockrassa Davis</b> Project Number: <b>[none]</b>
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Sample ID: 1805005-23      Sampled: Apr-30-18 16:14      Matrix: Water

Sample Name: C2b      Sample Location/Comments: Nelson Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 16:14	pH = 2

Sample ID: 1805005-24      Sampled: Apr-30-18 14:16      Matrix: Water

Sample Name: C3a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 14:16	pH = 2
Anions by IC	28	May-28-18 14:16	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 14:16	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 14:16	pH = 2
Solids, TDS	7	May-07-18 14:16	pH = 5
TKN DA	28	May-28-18 14:16	pH = 2
TOC	28	May-28-18 14:16	pH = 2
Total Phosphorus DA	28	May-28-18 14:16	pH = 2

Sample ID: 1805005-25      Sampled: Apr-30-18 14:26      Matrix: Water

Sample Name: C3b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 14:26	pH = 2
Anions by IC	28	May-28-18 14:26	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 14:26	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 14:26	pH = 2
Solids, TDS	7	May-07-18 14:26	pH = 5
TKN DA	28	May-28-18 14:26	pH = 2
TOC	28	May-28-18 14:26	pH = 2
Total Phosphorus DA	28	May-28-18 14:26	pH = 2

Sample ID: 1805005-26      Sampled: May-01-18 06:29      Matrix: Water

Sample Name: C5Aa      Sample Location/Comments: CR G (Nelson Road)

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 06:29	pH = 2
Anions by IC	28	May-29-18 06:29	pH = 5

1805005

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> [none]
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**Sample ID:** 1805005-26      **Sampled:** May-01-18 06:29      **Matrix:** Water

**Sample Name:** C5Aa      **Sample Location/Comments:** CR G (Nelson Road)

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 06:29	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 06:29	pH = 2
Solids, TDS	7	May-08-18 06:29	pH = 5
TKN DA	28	May-29-18 06:29	pH = 2
TOC	28	May-29-18 06:29	pH = 2
Total Phosphorus DA	28	May-29-18 06:29	pH = 2

**Sample ID:** 1805005-27      **Sampled:** May-01-18 06:43      **Matrix:** Water

**Sample Name:** C5Ab      **Sample Location/Comments:** CR G (Nelson Road)

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 06:43	pH = 2
Anions by IC	28	May-29-18 06:43	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 06:43	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 06:43	pH = 2
Solids, TDS	7	May-08-18 06:43	pH = 5
TKN DA	28	May-29-18 06:43	pH = 2
TOC	28	May-29-18 06:43	pH = 2
Total Phosphorus DA	28	May-29-18 06:43	pH = 2

**Sample ID:** 1805005-28      **Sampled:** May-01-18 07:06      **Matrix:** Water

**Sample Name:** C6a      **Sample Location/Comments:** CR G (Nelson Road)

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:06	pH = 2
Anions by IC	28	May-29-18 07:06	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 07:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:06	pH = 2
Solids, TDS	7	May-08-18 07:06	pH = 6
TKN DA	28	May-29-18 07:06	pH = 2
TOC	28	May-29-18 07:06	pH = 2
Total Phosphorus DA	28	May-29-18 07:06	pH = 2

WORK ORDER

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1805005

US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> [none]
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**Sample ID:** 1805005-29      **Sampled:** May-01-18 07:15      **Matrix:** Water

**Sample Name:** C6b      **Sample Location/Comments:** CR G (Nelson Road)

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:15	pH = 3
Anions by IC	28	May-29-18 07:15	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 07:15	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:15	pH = 3
Solids, TDS	7	May-08-18 07:15	pH = 5
TKN DA	28	May-29-18 07:15	pH = 3
TOC	28	May-29-18 07:15	pH = 3
Total Phosphorus DA	28	May-29-18 07:15	pH = 3

**Sample ID:** 1805005-30      **Sampled:** May-01-18 07:48      **Matrix:** Water

**Sample Name:** C7a      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:48	pH = 2
Anions by IC	28	May-29-18 07:48	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 07:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:48	pH = 2
Solids, TDS	7	May-08-18 07:48	pH = 6
TKN DA	28	May-29-18 07:48	pH = 2
TOC	28	May-29-18 07:48	pH = 2
Total Phosphorus DA	28	May-29-18 07:48	pH = 2

**Sample ID:** 1805005-31      **Sampled:** May-01-18 08:02      **Matrix:** Water

**Sample Name:** C7b      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:02	pH = 2
Anions by IC	28	May-29-18 08:02	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:02	pH = 2
Solids, TDS	7	May-08-18 08:02	pH = 5
TKN DA	28	May-29-18 08:02	pH = 2
TOC	28	May-29-18 08:02	pH = 2

WORK ORDER

Printed: 5/3/2018 3:33:25PM

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-31      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 08:02	pH = 2

Sample ID: 1805005-32      Sampled: May-01-18 07:39      Matrix: Water

Sample Name: FB2      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:39	pH = 2
Anions by IC	28	May-29-18 07:39	pH = 4
Metals ICP-AES (w)	180	Oct-28-18 07:39	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:39	pH = 2
Solids, TDS	7	May-08-18 07:39	pH = 4
TKN DA	28	May-29-18 07:39	pH = 2
TOC	28	May-29-18 07:39	pH = 2
Total Phosphorus DA	28	May-29-18 07:39	pH = 2

Sample ID: 1805005-33      Sampled: May-01-18 07:38      Matrix: Water

Sample Name: C7 equip      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:38	pH = 2
Anions by IC	28	May-29-18 07:38	pH = 4
Metals ICP-AES (w)	180	Oct-28-18 07:38	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:38	pH = 2
Solids, TDS	7	May-08-18 07:38	pH = 4
TKN DA	28	May-29-18 07:38	pH = 2
TOC	28	May-29-18 07:38	pH = 2
Total Phosphorus DA	28	May-29-18 07:38	pH = 2

Sample ID: 1805005-34      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7 Dup      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:02	pH = 2
Anions by IC	28	May-29-18 08:02	pH = 5

1805005

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-34      **Sampled:** May-01-18 08:02      **Matrix:** Water

**Sample Name:** C7 Dup      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 08:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:02	pH = 2
Solids, TDS	7	May-08-18 08:02	pH = 5
TKN DA	28	May-29-18 08:02	pH = 2
TOC	28	May-29-18 08:02	pH = 2
Total Phosphorus DA	28	May-29-18 08:02	pH = 2

**Sample ID:** 1805005-35      **Sampled:** May-01-18 08:35      **Matrix:** Water

**Sample Name:** C8a      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:35	pH = 2
Anions by IC	28	May-29-18 08:35	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:35	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:35	pH = 2
Solids, TDS	7	May-08-18 08:35	pH = 5
TKN DA	28	May-29-18 08:35	pH = 2
TOC	28	May-29-18 08:35	pH = 2
Total Phosphorus DA	28	May-29-18 08:35	pH = 2

**Sample ID:** 1805005-36      **Sampled:** May-01-18 08:42      **Matrix:** Water

**Sample Name:** C8b      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:42	pH = 2
Anions by IC	28	May-29-18 08:42	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:42	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:42	pH = 2
Solids, TDS	7	May-08-18 08:42	pH = 5
TKN DA	28	May-29-18 08:42	pH = 2
TOC	28	May-29-18 08:42	pH = 2
Total Phosphorus DA	28	May-29-18 08:42	pH = 2



1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-37      Sampled: May-01-18 10:00      Matrix: Water

Sample Name: C9a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 10:00	pH = 2
Anions by IC	28	May-29-18 10:00	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 10:00	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 10:00	pH = 2
Solids, TDS	7	May-08-18 10:00	pH = 5
TKN DA	28	May-29-18 10:00	pH = 2
TOC	28	May-29-18 10:00	pH = 2
Total Phosphorus DA	28	May-29-18 10:00	pH = 2

Sample ID: 1805005-38      Sampled: May-01-18 10:21      Matrix: Water

Sample Name: C9b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 10:21	pH = 2
Anions by IC	28	May-29-18 10:21	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 10:21	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 10:21	pH = 2
Solids, TDS	7	May-08-18 10:21	pH = 5
TKN DA	28	May-29-18 10:21	pH = 2
TOC	28	May-29-18 10:21	pH = 2
Total Phosphorus DA	28	May-29-18 10:21	pH = 2

Sample ID: 1805005-39      Sampled: May-01-18 11:05      Matrix: Water

Sample Name: C10a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:05	pH = 2
Anions by IC	28	May-29-18 11:05	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 11:05	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:05	pH = 2
Solids, TDS	7	May-08-18 11:05	pH = 6
TKN DA	28	May-29-18 11:05	pH = 2
TOC	28	May-29-18 11:05	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-39      Sampled: May-01-18 11:05      Matrix: Water

Sample Name: C10a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 11:05	pH = 2

Sample ID: 1805005-40      Sampled: May-01-18 11:12      Matrix: Water

Sample Name: C10b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:12	pH = 2
Anions by IC	28	May-29-18 11:12	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 11:12	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:12	pH = 2
Solids, TDS	7	May-08-18 11:12	pH = 5
TKN DA	28	May-29-18 11:12	pH = 2
TOC	28	May-29-18 11:12	pH = 2
Total Phosphorus DA	28	May-29-18 11:12	pH = 2

Sample ID: 1805005-41      Sampled: May-01-18 11:46      Matrix: Water

Sample Name: C11a      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:46	pH = 3
Anions by IC	28	May-29-18 11:46	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 11:46	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:46	pH = 3
Solids, TDS	7	May-08-18 11:46	pH = 6
TKN DA	28	May-29-18 11:46	pH = 3
TOC	28	May-29-18 11:46	pH = 3
Total Phosphorus DA	28	May-29-18 11:46	pH = 3

Sample ID: 1805005-42      Sampled: May-01-18 11:52      Matrix: Water

Sample Name: C11b      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:52	pH = 2
Anions by IC	28	May-29-18 11:52	pH = 5

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-42      Sampled: May-01-18 11:52      Matrix: Water

Sample Name: C11b      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 11:52	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:52	pH = 2
Solids, TDS	7	May-08-18 11:52	pH = 5
TKN DA	28	May-29-18 11:52	pH = 2
TOC	28	May-29-18 11:52	pH = 2
Total Phosphorus DA	28	May-29-18 11:52	pH = 2

Sample ID: 1805005-43      Sampled: May-01-18 12:41      Matrix: Water

Sample Name: C12a      Sample Location/Comments: 19th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 12:41	pH = 2
Anions by IC	28	May-29-18 12:41	pH = 7
Metals ICP-AES (w)	180	Oct-28-18 12:41	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 12:41	pH = 2
Solids, TDS	7	May-08-18 12:41	pH = 7
TKN DA	28	May-29-18 12:41	pH = 2
TOC	28	May-29-18 12:41	pH = 2
Total Phosphorus DA	28	May-29-18 12:41	pH = 2

Sample ID: 1805005-44      Sampled: May-01-18 12:47      Matrix: Water

Sample Name: C12b      Sample Location/Comments: 19th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 12:47	pH = 2
Anions by IC	28	May-29-18 12:47	pH = 7
Metals ICP-AES (w)	180	Oct-28-18 12:47	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 12:47	pH = 2
Solids, TDS	7	May-08-18 12:47	pH = 7
TKN DA	28	May-29-18 12:47	pH = 2
TOC	28	May-29-18 12:47	pH = 2
Total Phosphorus DA	28	May-29-18 12:47	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b>	Project Manager: <b>Angela Ockrassa Davis</b>
Project: <b>Central Sands</b>	Project Number: <b>[none]</b>

Sample ID: 1805005-45      Sampled: May-01-18 13:30      Matrix: Water

Sample Name: C13a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 13:30	pH = 3
Anions by IC	28	May-29-18 13:30	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 13:30	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 13:30	pH = 3
Solids, TDS	7	May-08-18 13:30	pH = 6
TKN DA	28	May-29-18 13:30	pH = 3
TOC	28	May-29-18 13:30	pH = 3
Total Phosphorus DA	28	May-29-18 13:30	pH = 3

Sample ID: 1805005-46      Sampled: May-01-18 13:39      Matrix: Water

Sample Name: C13b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 13:39	pH = 2
Anions by IC	28	May-29-18 13:39	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 13:39	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 13:39	pH = 2
Solids, TDS	7	May-08-18 13:39	pH = 5
TKN DA	28	May-29-18 13:39	pH = 2
TOC	28	May-29-18 13:39	pH = 2
Total Phosphorus DA	28	May-29-18 13:39	pH = 2

Sample ID: 1805005-47      Sampled: May-01-18 14:19      Matrix: Water

Sample Name: D1a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 14:19	pH = 2
Anions by IC	28	May-29-18 14:19	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 14:19	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 14:19	pH = 2
Solids, TDS	7	May-08-18 14:19	pH = 6
TKN DA	28	May-29-18 14:19	pH = 2
TOC	28	May-29-18 14:19	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-47      Sampled: May-01-18 14:19      Matrix: Water

Sample Name: D1a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 14:19	pH = 2

Sample ID: 1805005-48      Sampled: May-01-18 14:26      Matrix: Water

Sample Name: D1b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 14:26	pH = 3
Anions by IC	28	May-29-18 14:26	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 14:26	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 14:26	pH = 3
Solids, TDS	7	May-08-18 14:26	pH = 5
TKN DA	28	May-29-18 14:26	pH = 3
TOC	28	May-29-18 14:26	pH = 3
Total Phosphorus DA	28	May-29-18 14:26	pH = 3

Sample ID: 1805005-49      Sampled: May-01-18 15:00      Matrix: Water

Sample Name: D2a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:00	pH = 3
Anions by IC	28	May-29-18 15:00	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:00	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:00	pH = 3
Solids, TDS	7	May-08-18 15:00	pH = 6
TKN DA	28	May-29-18 15:00	pH = 3
TOC	28	May-29-18 15:00	pH = 3
Total Phosphorus DA	28	May-29-18 15:00	pH = 3

Sample ID: 1805005-50      Sampled: May-01-18 15:06      Matrix: Water

Sample Name: D2b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:06	pH = 2
Anions by IC	28	May-29-18 15:06	pH = 6



**WORK ORDER**

Printed: 5/3/2018 3:33:25PM

**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-50      **Sampled:** May-01-18 15:06      **Matrix:** Water

**Sample Name:** D2b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 15:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:06	pH = 2
Solids, TDS	7	May-08-18 15:06	pH = 6
TKN DA	28	May-29-18 15:06	pH = 2
TOC	28	May-29-18 15:06	pH = 2
Total Phosphorus DA	28	May-29-18 15:06	pH = 2

**Sample ID:** 1805005-51      **Sampled:** May-01-18 15:41      **Matrix:** Water

**Sample Name:** D3a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:41	pH = 2
Anions by IC	28	May-29-18 15:41	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:41	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:41	pH = 2
Solids, TDS	7	May-08-18 15:41	pH = 6
TKN DA	28	May-29-18 15:41	pH = 2
TOC	28	May-29-18 15:41	pH = 2
Total Phosphorus DA	28	May-29-18 15:41	pH = 2

**Sample ID:** 1805005-52      **Sampled:** May-01-18 15:48      **Matrix:** Water

**Sample Name:** D3b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:48	pH = 2
Anions by IC	28	May-29-18 15:48	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 15:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:48	pH = 2
Solids, TDS	7	May-08-18 15:48	pH = 5
TKN DA	28	May-29-18 15:48	pH = 2
TOC	28	May-29-18 15:48	pH = 2
Total Phosphorus DA	28	May-29-18 15:48	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-53      Sampled: May-01-18 16:19      Matrix: Water

Sample Name: D4a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 16:19	pH = 2
Anions by IC	28	May-29-18 16:19	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 16:19	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 16:19	pH = 2
Solids, TDS	7	May-08-18 16:19	pH = 6
TKN DA	28	May-29-18 16:19	pH = 2
TOC	28	May-29-18 16:19	pH = 2
Total Phosphorus DA	28	May-29-18 16:19	pH = 2

Sample ID: 1805005-54      Sampled: May-01-18 16:26      Matrix: Water

Sample Name: D4b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 16:26	pH = 2
Anions by IC	28	May-29-18 16:26	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 16:26	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 16:26	pH = 2
Solids, TDS	7	May-08-18 16:26	pH = 5
TKN DA	28	May-29-18 16:26	pH = 2
TOC	28	May-29-18 16:26	pH = 2
Total Phosphorus DA	28	May-29-18 16:26	pH = 2

WORK ORDER MEMO: NCR 14118

PROJECT COMMENTS: Anions: Chloride, fluoride, bromide, sulfate.  
Full List metals

**REVIEWED**  
By Amanda Wroble at 3:35 pm, May 03, 2018

Reviewed By \_\_\_\_\_ Date \_\_\_\_\_



## Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-12-18 11:04
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### Phosphorus, Colorimetric, EPA 365.4 (modified) US EPA Region 5 Chicago Regional Laboratory

<b>A1a (1805005-01)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 07:19</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	4.52		0.08	0.30	mg/L	2	B18E028	May-10-18	May-11-18

<b>A1b (1805005-02)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 07:32</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	3.22		0.08	0.30	mg/L	2	B18E028	May-10-18	May-11-18

<b>A2a (1805005-03)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 08:15</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	3.37		0.08	0.30	mg/L	2	B18E028	May-10-18	May-11-18

<b>A2b (1805005-04)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 08:24</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	7.94		0.80	3.00	mg/L	20	B18E028	May-10-18	May-11-18

<b>A3a (1805005-05)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 09:06</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	3.68		0.08	0.30	mg/L	2	B18E028	May-10-18	May-11-18

<b>A3b (1805005-06)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 09:14</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	4.59		0.08	0.30	mg/L	2	B18E028	May-10-18	May-11-18

<b>A4 Equip (1805005-07)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 09:38</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	U		0.04	0.15	mg/L	1	B18E028	May-10-18	May-11-18

<b>A3a (Dup) (1805005-08)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 09:06</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	1.62		0.08	0.30	mg/L	2	B18E028	May-10-18	May-11-18



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-12-18 11:04
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**Phosphorus, Colorimetric, EPA 365.4 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**FB1 (1805005-09) Matrix: Water Sampled: Apr-30-18 09:49 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	U		0.04	0.15	mg/L	1	B18E028	May-10-18	May-11-18

**A4a (1805005-10) Matrix: Water Sampled: Apr-30-18 09:58 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	2.21		0.08	0.30	mg/L	2	B18E028	May-10-18	May-11-18

**A4b (1805005-11) Matrix: Water Sampled: Apr-30-18 10:09 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	2.37		0.08	0.30	mg/L	2	B18E028	May-10-18	May-11-18

**B1a (1805005-12) Matrix: Water Sampled: Apr-30-18 10:51 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	4.28		0.08	0.30	mg/L	2	B18E028	May-10-18	May-11-18

**B1b (1805005-13) Matrix: Water Sampled: Apr-30-18 10:58 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	6.53		0.80	3.00	mg/L	20	B18E028	May-10-18	May-11-18

**B2a (1805005-14) Matrix: Water Sampled: Apr-30-18 11:40 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	2.93		0.08	0.30	mg/L	2	B18E031	May-11-18	May-23-18

**B2b (1805005-15) Matrix: Water Sampled: Apr-30-18 11:48 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	2.57		0.08	0.30	mg/L	2	B18E031	May-11-18	May-23-18

**B3a (1805005-16) Matrix: Water Sampled: Apr-30-18 12:29 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	4.54		0.08	0.30	mg/L	2	B18E031	May-11-18	May-23-18



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-12-18 11:04
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## Phosphorus, Colorimetric, EPA 365.4 (modified) US EPA Region 5 Chicago Regional Laboratory

<b>B3b (1805005-17)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 12:36</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	5.29		0.08	0.30	mg/L	2	B18E031	May-11-18	May-23-18

<b>B4a (1805005-18)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 13:10</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	2.63		0.08	0.30	mg/L	2	B18E031	May-11-18	May-23-18

<b>B4b (1805005-19)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 13:41</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	5.11		0.08	0.30	mg/L	2	B18E031	May-11-18	May-23-18

<b>C1a (1805005-20)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 15:02</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	5.57		0.08	0.30	mg/L	2	B18E031	May-11-18	May-23-18

<b>C1b (1805005-21)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 15:27</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	9.13	J	0.08	0.30	mg/L	2	B18E031	May-11-18	May-23-18

<b>C2a (1805005-22)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 16:06</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	2.60		0.08	0.30	mg/L	2	B18E031	May-11-18	May-23-18

<b>C2b (1805005-23)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 16:14</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	4.87		0.08	0.30	mg/L	2	B18E031	May-11-18	May-23-18

<b>C3a (1805005-24)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 14:16</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	2.88		0.08	0.30	mg/L	2	B18E031	May-11-18	May-23-18





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## Phosphorus, Colorimetric, EPA 365.4 (modified) US EPA Region 5 Chicago Regional Laboratory

C3b (1805005-25)	Matrix: Water	Sampled: Apr-30-18 14:26	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	2.72		0.08	0.30	mg/L	2	B18E031	May-11-18	May-23-18

C5Aa (1805005-26)	Matrix: Water	Sampled: May-01-18 06:29	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	3.85		0.08	0.30	mg/L	2	B18E031	May-11-18	May-23-18

C5Ab (1805005-27)	Matrix: Water	Sampled: May-01-18 06:43	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	3.52		0.08	0.30	mg/L	2	B18E031	May-11-18	May-23-18

C6a (1805005-28)	Matrix: Water	Sampled: May-01-18 07:06	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	1.97		0.08	0.30	mg/L	2	B18E031	May-11-18	May-23-18

C6b (1805005-29)	Matrix: Water	Sampled: May-01-18 07:15	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	U		0.80	3.00	mg/L	20	B18E031	May-11-18	May-23-18

C7a (1805005-30)	Matrix: Water	Sampled: May-01-18 07:48	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	U		0.08	0.30	mg/L	2	B18E031	May-11-18	May-23-18

C7b (1805005-31)	Matrix: Water	Sampled: May-01-18 08:02	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	1.47	J	0.08	0.30	mg/L	2	B18E036	May-14-18	May-23-18

FB2 (1805005-32)	Matrix: Water	Sampled: May-01-18 07:39	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	U		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18



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## Phosphorus, Colorimetric, EPA 365.4 (modified) US EPA Region 5 Chicago Regional Laboratory

**C7 equip (1805005-33) Matrix: Water Sampled: May-01-18 07:38 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	U		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18

**C7b Dup (1805005-34) Matrix: Water Sampled: May-01-18 08:02 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	1.40		0.08	0.30	mg/L	2	B18E036	May-14-18	May-23-18

**C8a (1805005-35) Matrix: Water Sampled: May-01-18 08:35 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	8.84		0.08	0.30	mg/L	2	B18E036	May-14-18	May-23-18

**C8b (1805005-36) Matrix: Water Sampled: May-01-18 08:42 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	2.50		0.08	0.30	mg/L	2	B18E036	May-14-18	May-23-18

**C9a (1805005-37) Matrix: Water Sampled: May-01-18 10:00 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	1.16		0.08	0.30	mg/L	2	B18E036	May-14-18	May-23-18

**C9b (1805005-38) Matrix: Water Sampled: May-01-18 10:21 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	2.16		0.08	0.30	mg/L	2	B18E036	May-14-18	May-23-18

**C10a (1805005-39) Matrix: Water Sampled: May-01-18 11:05 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	4.76		0.08	0.30	mg/L	2	B18E036	May-14-18	May-23-18

**C10b (1805005-40) Matrix: Water Sampled: May-01-18 11:12 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	4.12		0.08	0.30	mg/L	2	B18E036	May-14-18	May-23-18



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### Phosphorus, Colorimetric, EPA 365.4 (modified) US EPA Region 5 Chicago Regional Laboratory

<b>C11a (1805005-41)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 11:46</b>	<b>Received: May-02-18 09:55</b>							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	
<b>Total Phosphorus</b>	2.64	J	0.08	0.30	mg/L	2	B18E036	May-14-18	May-23-18	

<b>C11b (1805005-42)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 11:52</b>	<b>Received: May-02-18 09:55</b>							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	
<b>Total Phosphorus</b>	3.90		0.08	0.30	mg/L	2	B18E036	May-14-18	May-23-18	

<b>C12a (1805005-43)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 12:41</b>	<b>Received: May-02-18 09:55</b>							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	
<b>Total Phosphorus</b>	2.50		0.08	0.30	mg/L	2	B18E036	May-14-18	May-23-18	

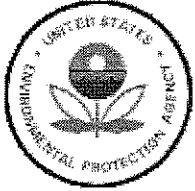
<b>C12b (1805005-44)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 12:47</b>	<b>Received: May-02-18 09:55</b>							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	
<b>Total Phosphorus</b>	5.67		0.08	0.30	mg/L	2	B18E036	May-14-18	May-23-18	

<b>C13a (1805005-45)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 13:30</b>	<b>Received: May-02-18 09:55</b>							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	
<b>Total Phosphorus</b>	1.69		0.08	0.30	mg/L	2	B18E036	May-14-18	May-23-18	

<b>C13b (1805005-46)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 13:39</b>	<b>Received: May-02-18 09:55</b>							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	
<b>Total Phosphorus</b>	6.97		0.80	3.00	mg/L	20	B18E036	May-14-18	May-23-18	

<b>D1a (1805005-47)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 14:19</b>	<b>Received: May-02-18 09:55</b>							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	
<b>Total Phosphorus</b>	3.19		0.08	0.30	mg/L	2	B18E036	May-14-18	May-23-18	

<b>D1b (1805005-48)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 14:26</b>	<b>Received: May-02-18 09:55</b>							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	
<b>Total Phosphorus</b>	7.13		0.80	3.00	mg/L	20	B18E036	May-14-18	May-23-18	



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**Phosphorus, Colorimetric, EPA 365.4 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**D2a (1805005-49) Matrix: Water Sampled: May-01-18 15:00 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>1.07</b>		0.08	0.30	mg/L	2	B18E036	May-14-18	May-23-18

**D2b (1805005-50) Matrix: Water Sampled: May-01-18 15:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>3.03</b>		0.08	0.30	mg/L	2	B18E036	May-14-18	May-23-18

**D3a (1805005-51) Matrix: Water Sampled: May-01-18 15:41 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>3.73</b>		0.08	0.30	mg/L	2	B18E036	May-14-18	May-23-18

**D3b (1805005-52) Matrix: Water Sampled: May-01-18 15:48 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>10.0</b>		0.80	3.00	mg/L	20	B18E036	May-14-18	May-23-18

**D4a (1805005-53) Matrix: Water Sampled: May-01-18 16:19 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>1.77</b>		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18

**D4b (1805005-54) Matrix: Water Sampled: May-01-18 16:26 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>2.76</b>		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18



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### Total Kjeldahl Nitrogen, EPA 351.2 (modified) US EPA Region 5 Chicago Regional Laboratory

A1a (1805005-01)	Matrix: Water	Sampled: Apr-30-18 07:19	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.50		0.40	1.00	mg/L	2	B18E029	May-10-18	May-11-18

A1b (1805005-02)	Matrix: Water	Sampled: Apr-30-18 07:32	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.41		0.40	1.00	mg/L	2	B18E029	May-10-18	May-11-18

A2a (1805005-03)	Matrix: Water	Sampled: Apr-30-18 08:15	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.72		0.40	1.00	mg/L	2	B18E029	May-10-18	May-11-18

A2b (1805005-04)	Matrix: Water	Sampled: Apr-30-18 08:24	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.82		0.40	1.00	mg/L	2	B18E029	May-10-18	May-11-18

A3a (1805005-05)	Matrix: Water	Sampled: Apr-30-18 09:06	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.25		0.40	1.00	mg/L	2	B18E029	May-10-18	May-11-18

A3b (1805005-06)	Matrix: Water	Sampled: Apr-30-18 09:14	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.69		0.40	1.00	mg/L	2	B18E029	May-10-18	May-11-18

A4 Equip (1805005-07)	Matrix: Water	Sampled: Apr-30-18 09:38	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.20	0.50	mg/L	1	B18E029	May-10-18	May-11-18

A3a (Dup) (1805005-08)	Matrix: Water	Sampled: Apr-30-18 09:06	Received: May-02-18 09:55						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.40	1.00	mg/L	2	B18E029	May-10-18	May-11-18





# Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-12-18 11:04
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## Total Kjeldahl Nitrogen, EPA 351.2 (modified) US EPA Region 5 Chicago Regional Laboratory

<b>FB1 (1805005-09)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 09:49</b>							
		<b>Received: May-02-18 09:55</b>							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Kjeldahl Nitrogen</b>	U		0.20	0.50	mg/L	1	B18E029	May-10-18	May-11-18

<b>A4a (1805005-10)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 09:58</b>							
		<b>Received: May-02-18 09:55</b>							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Kjeldahl Nitrogen</b>	1.05		0.40	1.00	mg/L	2	B18E029	May-10-18	May-11-18

<b>A4b (1805005-11)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 10:09</b>							
		<b>Received: May-02-18 09:55</b>							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Kjeldahl Nitrogen</b>	1.44		0.40	1.00	mg/L	2	B18E029	May-10-18	May-11-18

<b>B1a (1805005-12)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 10:51</b>							
		<b>Received: May-02-18 09:55</b>							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Kjeldahl Nitrogen</b>	1.59		0.40	1.00	mg/L	2	B18E029	May-10-18	May-11-18

<b>B1b (1805005-13)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 10:58</b>							
		<b>Received: May-02-18 09:55</b>							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Kjeldahl Nitrogen</b>	2.79		0.40	1.00	mg/L	2	B18E029	May-10-18	May-11-18

<b>B2a (1805005-14)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 11:40</b>							
		<b>Received: May-02-18 09:55</b>							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Kjeldahl Nitrogen</b>	U	J	0.40	1.00	mg/L	2	B18E032	May-11-18	May-23-18

<b>B2b (1805005-15)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 11:48</b>							
		<b>Received: May-02-18 09:55</b>							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Kjeldahl Nitrogen</b>	U		0.40	1.00	mg/L	2	B18E032	May-11-18	May-23-18

<b>B3a (1805005-16)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 12:29</b>							
		<b>Received: May-02-18 09:55</b>							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Kjeldahl Nitrogen</b>	1.52		0.40	1.00	mg/L	2	B18E032	May-11-18	May-23-18



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-12-18 11:04
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### Total Kjeldahl Nitrogen, EPA 351.2 (modified) US EPA Region 5 Chicago Regional Laboratory

<b>B3b (1805005-17)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 12:36</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.50		0.40	1.00	mg/L	2	B18E032	May-11-18	May-23-18

<b>B4a (1805005-18)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 13:10</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.29		0.40	1.00	mg/L	2	B18E032	May-11-18	May-23-18

<b>B4b (1805005-19)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 13:41</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	5.34		0.40	1.00	mg/L	2	B18E032	May-11-18	May-23-18

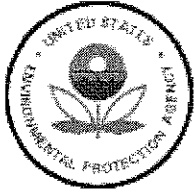
<b>C1a (1805005-20)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 15:02</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.40	1.00	mg/L	2	B18E032	May-11-18	May-23-18

<b>C1b (1805005-21)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 15:27</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.00	J	0.40	1.00	mg/L	2	B18E032	May-11-18	May-23-18

<b>C2a (1805005-22)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 16:06</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.40	1.00	mg/L	2	B18E032	May-11-18	May-23-18

<b>C2b (1805005-23)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 16:14</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.23		0.40	1.00	mg/L	2	B18E032	May-11-18	May-23-18

<b>C3a (1805005-24)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 14:16</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	2.11		0.40	1.00	mg/L	2	B18E032	May-11-18	May-23-18



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### Total Kjeldahl Nitrogen, EPA 351.2 (modified) US EPA Region 5 Chicago Regional Laboratory

<b>C3b (1805005-25)</b>		<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 14:26</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.06		0.40	1.00	mg/L	2	B18E032	May-11-18	May-23-18

<b>C5Aa (1805005-26)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 06:29</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.12		0.40	1.00	mg/L	2	B18E032	May-11-18	May-23-18

<b>C5Ab (1805005-27)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 06:43</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	2.64		0.40	1.00	mg/L	2	B18E032	May-11-18	May-23-18

<b>C6a (1805005-28)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 07:06</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.35		0.40	1.00	mg/L	2	B18E032	May-11-18	May-23-18

<b>C6b (1805005-29)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 07:15</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.18		0.40	1.00	mg/L	2	B18E032	May-11-18	May-23-18

<b>C7a (1805005-30)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 07:48</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.40	1.00	mg/L	2	B18E032	May-11-18	May-23-18

<b>C7b (1805005-31)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 08:02</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U	J	0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18

<b>FB2 (1805005-32)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 07:39</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18



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**Total Kjeldahl Nitrogen, EPA 351.2 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**C7 equip (1805005-33) Matrix: Water Sampled: May-01-18 07:38 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18

**C7b Dup (1805005-34) Matrix: Water Sampled: May-01-18 08:02 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.37		0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18

**C8a (1805005-35) Matrix: Water Sampled: May-01-18 08:35 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.22		0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18

**C8b (1805005-36) Matrix: Water Sampled: May-01-18 08:42 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.30		0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18

**C9a (1805005-37) Matrix: Water Sampled: May-01-18 10:00 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.23		0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18

**C9b (1805005-38) Matrix: Water Sampled: May-01-18 10:21 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.34		0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18

**C10a (1805005-39) Matrix: Water Sampled: May-01-18 11:05 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.50		0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18

**C10b (1805005-40) Matrix: Water Sampled: May-01-18 11:12 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	5.23		0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18



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## Total Kjeldahl Nitrogen, EPA 351.2 (modified) US EPA Region 5 Chicago Regional Laboratory

**C11a (1805005-41) Matrix: Water Sampled: May-01-18 11:46 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.54	J	0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18

**C11b (1805005-42) Matrix: Water Sampled: May-01-18 11:52 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	2.00		0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18

**C12a (1805005-43) Matrix: Water Sampled: May-01-18 12:41 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	6.77		0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18

**C12b (1805005-44) Matrix: Water Sampled: May-01-18 12:47 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	6.75		0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18

**C13a (1805005-45) Matrix: Water Sampled: May-01-18 13:30 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.12		0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18

**C13b (1805005-46) Matrix: Water Sampled: May-01-18 13:39 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	4.52		0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18

**D1a (1805005-47) Matrix: Water Sampled: May-01-18 14:19 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.73		0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18

**D1b (1805005-48) Matrix: Water Sampled: May-01-18 14:26 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	3.47		0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18





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**Total Kjeldahl Nitrogen, EPA 351.2 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**D2a (1805005-49) Matrix: Water Sampled: May-01-18 15:00 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.01		0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18

**D2b (1805005-50) Matrix: Water Sampled: May-01-18 15:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	2.60		0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18

**D3a (1805005-51) Matrix: Water Sampled: May-01-18 15:41 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.86		0.40	1.00	mg/L	2	B18E060	May-23-18	May-29-18

**D3b (1805005-52) Matrix: Water Sampled: May-01-18 15:48 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	4.51		0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18

**D4a (1805005-53) Matrix: Water Sampled: May-01-18 16:19 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.49		0.40	1.00	mg/L	2	B18E060	May-23-18	May-23-18

**D4b (1805005-54) Matrix: Water Sampled: May-01-18 16:26 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.62		0.20	0.50	mg/L	1	B18E060	May-23-18	May-23-18



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## Phosphorus, Colorimetric, EPA 365.4 (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

### Batch B18E028 - EPA 365.4 (TP)

Blank (B18E028-BLK1)

Prepared: May-10-18 Analyzed: May-11-18

Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	U		0.04	0.15	mg/L						

LCS (B18E028-BS1)

Prepared: May-10-18 Analyzed: May-11-18

Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	0.95		0.04	0.15	mg/L	1.000		95%	89-111		

Duplicate (B18E028-DUP1)

Source: 1805005-05

Prepared: May-10-18 Analyzed: May-11-18

Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	3.90		0.08	0.30	mg/L		3.68			6	10

Duplicate (B18E028-DUP2)

Source: 1805005-11

Prepared: May-10-18 Analyzed: May-11-18

Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	2.40		0.08	0.30	mg/L		2.37			1	10

MRL Check (B18E028-MRL1)

Prepared: May-10-18 Analyzed: May-11-18

Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	0.13				mg/L	0.1500		89%	68-132		

Matrix Spike (B18E028-MS1)

Source: 1805005-05

Prepared: May-10-18 Analyzed: May-11-18

Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	5.59		0.08	0.30	mg/L	2.000	3.68	95%	79-124		

Matrix Spike (B18E028-MS2)

Source: 1805005-11

Prepared: May-10-18 Analyzed: May-11-18

Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	4.37		0.08	0.30	mg/L	2.000	2.37	100%	79-124		

### Batch B18E031 - EPA 365.4 (TP)



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312)353-8370 Fax: (312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-12-18 11:04
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## Phosphorus, Colorimetric, EPA 365.4 (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

### Batch B18E031 - EPA 365.4 (TP)

Blank (B18E031-BLK1)				Prepared: May-11-18 Analyzed: May-23-18							
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	U		0.04	0.15	mg/L						

LCS (B18E031-BS1)				Prepared: May-11-18 Analyzed: May-23-18							
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	1.04		0.04	0.15	mg/L	1.000		104%	89-111		

Duplicate (B18E031-DUP1)				Source: 1805005-14		Prepared: May-11-18 Analyzed: May-23-18					
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	2.90		0.08	0.30	mg/L		2.93			1	10

Duplicate (B18E031-DUP2)				Source: 1805005-21		Prepared: May-11-18 Analyzed: May-23-18					
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	8.66		0.08	0.30	mg/L		9.13			5	10

MRL Check (B18E031-MRL1)				Prepared: May-11-18 Analyzed: May-23-18							
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	0.16				mg/L	0.1500		106%	68-132		

Matrix Spike (B18E031-MS1)				Source: 1805005-14		Prepared: May-11-18 Analyzed: May-23-18					
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	4.83		0.08	0.30	mg/L	2.000	2.93	95%	79-124		

Matrix Spike (B18E031-MS2)				Source: 1805005-21		Prepared: May-11-18 Analyzed: May-23-18					
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	13.3	Q	0.08	0.30	mg/L	2.000	9.13	210%	79-124		

### Batch B18E036 - EPA 365.4 (TP)



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-12-18 11:04
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**Phosphorus, Colorimetric, EPA 365.4 (modified) - Quality Control  
US EPA Region 5 Chicago Regional Laboratory**

**Batch B18E036 - EPA 365.4 (TP)**

Blank (B18E036-BLK1)		Prepared: May-14-18 Analyzed: Jun-06-18									
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	U		0.04	0.15	mg/L						

LCS (B18E036-BS1)		Prepared: May-14-18 Analyzed: Jun-06-18									
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	1.04		0.04	0.15	mg/L	1.000		104%	89-111		

Duplicate (B18E036-DUP1)		Source: 1805005-31 Prepared: May-14-18 Analyzed: May-29-18									
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	1.71	Q	0.08	0.30	mg/L		1.47			15	10

Duplicate (B18E036-DUP2)		Source: 1805005-41 Prepared: May-14-18 Analyzed: May-23-18									
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	2.45		0.08	0.30	mg/L		2.64			7	10

Duplicate (B18E036-DUP3)		Source: 1805005-51 Prepared: May-14-18 Analyzed: May-23-18									
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	3.40		0.08	0.30	mg/L		3.73			9	10

Duplicate (B18E036-DUP4)		Source: 1805007-08 Prepared: May-14-18 Analyzed: May-23-18									
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	0.54		0.04	0.15	mg/L		0.55			2	10

Duplicate (B18E036-DUP5)		Source: 1805007-11 Prepared: May-14-18 Analyzed: May-23-18									
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	2.20		0.04	0.15	mg/L		2.17			1	10

MRL Check (B18E036-MRL1)		Prepared: May-14-18 Analyzed: Jun-06-18									
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-12-18 11:04
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**Phosphorus, Colorimetric, EPA 365.4 (modified) - Quality Control  
US EPA Region 5 Chicago Regional Laboratory**

**Batch B18E036 - EPA 365.4 (TP)**

**MRL Check (B18E036-MRL1)**

Prepared: May-14-18 Analyzed: Jun-06-18

Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	0.16				mg/L	0.1500		104%	68-132		

**Matrix Spike (B18E036-MS1)**

Source: 1805005-31

Prepared: May-14-18 Analyzed: May-29-18

Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	10.2	Q	0.80	3.00	mg/L	2.000	1.47	436%	79-124		

**Matrix Spike (B18E036-MS2)**

Source: 1805005-41

Prepared: May-14-18 Analyzed: May-23-18

Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	3.84	Q	0.08	0.30	mg/L	2.000	2.64	60%	79-124		

**Matrix Spike (B18E036-MS3)**

Source: 1805005-51

Prepared: May-14-18 Analyzed: May-23-18

Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	5.32		0.08	0.30	mg/L	2.000	3.73	80%	79-124		

**Matrix Spike (B18E036-MS4)**

Source: 1805007-08

Prepared: May-14-18 Analyzed: May-23-18

Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	1.46		0.04	0.15	mg/L	1.000	0.55	91%	79-124		

**Matrix Spike (B18E036-MS5)**

Source: 1805007-11

Prepared: May-14-18 Analyzed: May-23-18

Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Phosphorus	3.11		0.40	1.50	mg/L	1.000	2.17	94%	79-124		





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-12-18 11:04
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## Total Kjeldahl Nitrogen, EPA 351.2 (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

### Batch B18E029 - EPA 365.4 (TP)

Blank (B18E029-BLK1)		Prepared: May-10-18 Analyzed: May-11-18									
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	U		0.20	0.50	mg/L						

LCS (B18E029-BS1)		Prepared: May-10-18 Analyzed: May-11-18									
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	2.15		0.20	0.50	mg/L	2.000		107%	90-110		

Duplicate (B18E029-DUP1)		Source: 1805005-05 Prepared: May-10-18 Analyzed: May-11-18									
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	1.17		0.40	1.00	mg/L		1.25			6	24

Duplicate (B18E029-DUP2)		Source: 1805005-11 Prepared: May-10-18 Analyzed: May-11-18									
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	1.16		0.40	1.00	mg/L		1.44			22	24

MRL Check (B18E029-MRL1)		Prepared: May-10-18 Analyzed: May-11-18									
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	0.39				mg/L	0.5000		78%	74-153		

Matrix Spike (B18E029-MS1)		Source: 1805005-05 Prepared: May-10-18 Analyzed: May-11-18									
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	5.34		0.40	1.00	mg/L	4.000	1.25	102%	90-110		

Matrix Spike (B18E029-MS2)		Source: 1805005-11 Prepared: May-10-18 Analyzed: May-11-18									
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	5.17		0.40	1.00	mg/L	4.000	1.44	93%	90-110		

### Batch B18E032 - EPA 365.4 (TP)



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-12-18 11:04
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## Total Kjeldahl Nitrogen, EPA 351.2 (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

### Batch B18E032 - EPA 365.4 (TP)

<b>Blank (B18E032-BLK1)</b>				<b>Prepared: May-11-18 Analyzed: May-23-18</b>							
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	U		0.20	0.50	mg/L						

<b>LCS (B18E032-BS1)</b>				<b>Prepared: May-11-18 Analyzed: May-23-18</b>							
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	1.83		0.20	0.50	mg/L	2.000		91%	90-110		

<b>Duplicate (B18E032-DUP1)</b>				<b>Source: 1805005-14</b>		<b>Prepared: May-11-18 Analyzed: May-23-18</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	U		0.40	1.00	mg/L		0.80				24

<b>Duplicate (B18E032-DUP2)</b>				<b>Source: 1805005-21</b>		<b>Prepared: May-11-18 Analyzed: May-23-18</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	U		0.40	1.00	mg/L		1.00				24

<b>MRL Check (B18E032-MRL1)</b>				<b>Prepared: May-11-18 Analyzed: May-23-18</b>							
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	0.46				mg/L	0.5000		92%	74-153		

<b>Matrix Spike (B18E032-MS1)</b>				<b>Source: 1805005-14</b>		<b>Prepared: May-11-18 Analyzed: May-23-18</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	0.90	J, Q	0.40	1.00	mg/L	4.000	0.80	2%	90-110		

<b>Matrix Spike (B18E032-MS2)</b>				<b>Source: 1805005-21</b>		<b>Prepared: May-11-18 Analyzed: May-23-18</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	1.03	Q	0.40	1.00	mg/L	4.000	1.00	0.8%	90-110		

### Batch B18E060 - EPA 365.4 (TP)



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-12-18 11:04
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## Total Kjeldahl Nitrogen, EPA 351.2 (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

### Batch B18E060 - EPA 365.4 (TP)

Blank (B18E060-BLK1)				Prepared & Analyzed: May-23-18							
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	U		0.20	0.50	mg/L						

Blank (B18E060-BLK2)				Prepared & Analyzed: May-23-18							
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	U		0.20	0.50	mg/L						

LCS (B18E060-BS1)				Prepared & Analyzed: May-23-18							
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	1.96		0.20	0.50	mg/L	2.000		98%	90-110		

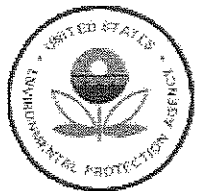
Duplicate (B18E060-DUP1)				Source: 1805005-31 Prepared: May-23-18 Analyzed: May-29-18							
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	0.96	J	0.40	1.00	mg/L		0.82			16	24

Duplicate (B18E060-DUP2)				Source: 1805005-41 Prepared & Analyzed: May-23-18							
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	0.35	J, Q	0.20	0.50	mg/L		1.54			126	24

Duplicate (B18E060-DUP3)				Source: 1805005-51 Prepared: May-23-18 Analyzed: May-29-18							
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	1.50		0.40	1.00	mg/L		1.86			21	24

Duplicate (B18E060-DUP4)				Source: 1805007-08 Prepared & Analyzed: May-23-18							
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	0.20	J	0.20	0.50	mg/L		U				24

Duplicate (B18E060-DUP5)				Source: 1805007-11 Prepared & Analyzed: May-23-18							
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen											



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-12-18 11:04
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**Total Kjeldahl Nitrogen, EPA 351.2 (modified) - Quality Control  
US EPA Region 5 Chicago Regional Laboratory**

**Batch B18E060 - EPA 365.4 (TP)**

<b>Duplicate (B18E060-DUP5)</b>		<b>Source: 1805007-11</b>			<b>Prepared &amp; Analyzed: May-23-18</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	1.06		0.20	0.50	mg/L		1.18			10	24

<b>MRL Check (B18E060-MRL1)</b>		<b>Prepared &amp; Analyzed: May-23-18</b>									
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	0.41				mg/L	0.5000		82%	74-153		

<b>Matrix Spike (B18E060-MS1)</b>		<b>Source: 1805005-31</b>			<b>Prepared: May-23-18 Analyzed: May-29-18</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	4.88		0.40	1.00	mg/L	4.000	0.82	101%	90-110		

<b>Matrix Spike (B18E060-MS2)</b>		<b>Source: 1805005-41</b>			<b>Prepared &amp; Analyzed: May-23-18</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	0.91	Q	0.20	0.50	mg/L	4.000	1.54	NR	90-110		

<b>Matrix Spike (B18E060-MS3)</b>		<b>Source: 1805005-51</b>			<b>Prepared: May-23-18 Analyzed: May-29-18</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	5.98		0.40	1.00	mg/L	4.000	1.86	103%	90-110		

<b>Matrix Spike (B18E060-MS4)</b>		<b>Source: 1805007-08</b>			<b>Prepared &amp; Analyzed: May-23-18</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	2.28	Q	0.20	0.50	mg/L	2.000	U	114%	90-110		

<b>Matrix Spike (B18E060-MS5)</b>		<b>Source: 1805007-11</b>			<b>Prepared &amp; Analyzed: May-23-18</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reportin Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	3.03		0.20	0.50	mg/L	2.000	1.18	93%	90-110		



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

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Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

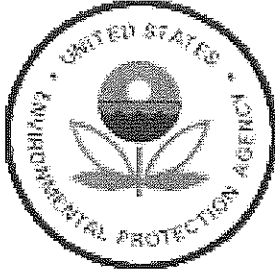
Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
Jun-12-18 11:04

**Notes and Definitions**

- J The identification of the analyte is acceptable; the reported value is an estimate.
- U Not Detected
- NR Not Reported
- Q QC limit Exceeded





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5 CHICAGO REGIONAL LABORATORY  
536 SOUTH CLARK STREET  
CHICAGO, ILLINOIS 60605

**Date:** 6/12/2018  
**Subject:** Review of Region 5 Data for Central Sands  
**To:** Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604  
**From:** Nidia Fuentes, Chemist  
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with the EPA QA/G-8 *Guidance on Environmental Data Verification and Data Validation* and the U.S. EPA Region 5 RMD QMP, CRL performs data verification on all the data generated internally. CRL does not perform data validation or quality assessment procedures.

This report was reviewed and the information provided herein accurately represents the analysis performed.

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*Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.*

**Attached are Results for: Central Sands**

**Analyses included in this report:**

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TKN DA

Total Phosphorus DA

Report Name: 1805007 TKN DA Total Phosphorus DA FINAL Jun 12 18 1048



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
Jun-12-18 10:48

## Accredited Analyses included in this Report



*Method: EPA 351.2 in Water*

*Analysis: TKN DA*

**Analyte**

**Certifications**

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Total Kjeldahl Nitrogen

ISO/IEC 17025:2005

*Method: EPA 365.4 in Water*

*Analysis: Total Phosphorus DA*

**Analyte**

**Certifications**

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Total Phosphorus

ISO/IEC 17025:2005

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Analytes not listed above are not accredited by ANAB.



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

**WORK ORDER**

Printed: 5/7/2018 9:53:28AM

**1805007**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

<b>Report To:</b> Cheryl Burdett Water Division, WECA Region 5	77 West Jackson Boulevard Chicago, IL 60604	Phone: (312) 886-1463 Fax: (312) 886-2001
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<b>Date Due:</b> Jun-04-18 15:00 (30 day TAT)	<b>Date Received:</b> May-04-18 10:00
<b>Received By:</b> Robert Snyder	<b>Date Logged In:</b> May-07-18 07:38
<b>Logged In By:</b> Robert Snyder	

<b>Samples Received at:</b>	<b>Work Order Comments:</b>
Sample tags/labels <b>Yes</b>	Copy/Relog from 1805005. Anions: Chloride and nitrate as NO3
Seals intact <b>Yes</b>	Full List metals
Received on ice <b>Yes</b>	pH paper used in SC 16H2601
Paperwork Included <b>Yes</b>	

**Sample ID:** 1805007-01      **Sampled:** May-02-18 06:38      **Matrix:** Water

**Sample Name:** D5a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 06:38	pH = 1
Anions by IC	28	May-30-18 06:38	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 06:38	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 06:38	pH = 1
Solids, TDS	7	May-09-18 06:38	pH = 6
TKN DA	28	May-30-18 06:38	pH = 1
TOC	28	May-30-18 06:38	pH = 1
Total Phosphorus DA	28	May-30-18 06:38	pH = 1

**Sample ID:** 1805007-02      **Sampled:** May-02-18 06:46      **Matrix:** Water

**Sample Name:** D5b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 06:46	pH = 1
Anions by IC	28	May-30-18 06:46	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 06:46	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 06:46	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-02      Sampled: May-02-18 06:46      Matrix: Water

Sample Name: D5b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-09-18 06:46	pH = 5
TKN DA	28	May-30-18 06:46	pH = 1
TOC	28	May-30-18 06:46	pH = 1
Total Phosphorus DA	28	May-30-18 06:46	pH = 1

Sample ID: 1805007-03      Sampled: May-02-18 07:17      Matrix: Water

Sample Name: D6a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 07:17	pH = 1
Anions by IC	28	May-30-18 07:17	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 07:17	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 07:17	pH = 1
Solids, TDS	7	May-09-18 07:17	pH = 6
TKN DA	28	May-30-18 07:17	pH = 1
TOC	28	May-30-18 07:17	pH = 1
Total Phosphorus DA	28	May-30-18 07:17	pH = 1

Sample ID: 1805007-04      Sampled: May-02-18 07:29      Matrix: Water

Sample Name: D6b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 07:29	pH = 1
Anions by IC	28	May-30-18 07:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 07:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 07:29	pH = 1
Solids, TDS	7	May-09-18 07:29	pH = 6
TKN DA	28	May-30-18 07:29	pH = 1
TOC	28	May-30-18 07:29	pH = 1
Total Phosphorus DA	28	May-30-18 07:29	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-05      Sampled: May-02-18 08:01      Matrix: Water

Sample Name: D7 equip      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:01	pH = 1
Anions by IC	28	May-30-18 08:01	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 08:01	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:01	pH = 1
Solids, TDS	7	May-09-18 08:01	pH = 5
TKN DA	28	May-30-18 08:01	pH = 1
TOC	28	May-30-18 08:01	pH = 1
Total Phosphorus DA	28	May-30-18 08:01	pH = 1

Sample ID: 1805007-06      Sampled: May-02-18 08:03      Matrix: Water

Sample Name: FB3      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:03	pH = 1
Anions by IC	28	May-30-18 08:03	pH = 4
Metals ICP-AES (w)	180	Oct-29-18 08:03	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:03	pH = 1
Solids, TDS	7	May-09-18 08:03	pH = 4
TKN DA	28	May-30-18 08:03	pH = 1
TOC	28	May-30-18 08:03	pH = 1
Total Phosphorus DA	28	May-30-18 08:03	pH = 1

Sample ID: 1805007-07      Sampled: May-02-18 08:12      Matrix: Water

Sample Name: D7a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:12	pH = 1
Anions by IC	28	May-30-18 08:12	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:12	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:12	pH = 1
Solids, TDS	7	May-09-18 08:12	pH = 6
TKN DA	28	May-30-18 08:12	pH = 1
TOC	28	May-30-18 08:12	pH = 1



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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-07      Sampled: May-02-18 08:12      Matrix: Water

Sample Name: D7a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 08:12	pH = 1

Sample ID: 1805007-08      Sampled: May-02-18 08:12      Matrix: Water      QC Source Sample MS/MSD

Sample Name: D7a      Sample Location/Comments: 23rd Avenue

Sample Comments: MS/MSD

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:12	pH = 1
Anions by IC	28	May-30-18 08:12	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:12	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:12	pH = 1
Solids, TDS	7	May-09-18 08:12	pH = 6
TKN DA	28	May-30-18 08:12	pH = 1
TOC	28	May-30-18 08:12	pH = 1
Total Phosphorus DA	28	May-30-18 08:12	pH = 1

Sample ID: 1805007-09      Sampled: May-02-18 08:19      Matrix: Water

Sample Name: D7b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:19	pH = 1
Anions by IC	28	May-30-18 08:19	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 08:19	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:19	pH = 1
Solids, TDS	7	May-09-18 08:19	pH = 5
TKN DA	28	May-30-18 08:19	pH = 1
TOC	28	May-30-18 08:19	pH = 1
Total Phosphorus DA	28	May-30-18 08:19	pH = 1

Sample ID: 1805007-10      Sampled: May-02-18 08:55      Matrix: Water

Sample Name: D8a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:55	pH = 1
Anions by IC	28	May-30-18 08:55	pH = 6

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-10      Sampled: May-02-18 08:55      Matrix: Water

Sample Name: D8a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 08:55	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:55	pH = 1
Solids, TDS	7	May-09-18 08:55	pH = 6
TKN DA	28	May-30-18 08:55	pH = 1
TOC	28	May-30-18 08:55	pH = 1
Total Phosphorus DA	28	May-30-18 08:55	pH = 1

Sample ID: 1805007-11      Sampled: May-02-18 09:11      Matrix: Water

Sample Name: D8b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:11	pH = 1
Anions by IC	28	May-30-18 09:11	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:11	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:11	pH = 1
Solids, TDS	7	May-09-18 09:11	pH = 6
TKN DA	28	May-30-18 09:11	pH = 1
TOC	28	May-30-18 09:11	pH = 1
Total Phosphorus DA	28	May-30-18 09:11	pH = 1

Sample ID: 1805007-12      Sampled: May-02-18 09:45      Matrix: Water

Sample Name: D9a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:45	pH = 1
Anions by IC	28	May-30-18 09:45	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:45	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:45	pH = 1
Solids, TDS	7	May-09-18 09:45	pH = 6
TKN DA	28	May-30-18 09:45	pH = 1
TOC	28	May-30-18 09:45	pH = 1
Total Phosphorus DA	28	May-30-18 09:45	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-13      Sampled: May-02-18 09:54      Matrix: Water

Sample Name: D9b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:54	pH = 1
Anions by IC	28	May-30-18 09:54	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:54	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:54	pH = 1
Solids, TDS	7	May-09-18 09:54	pH = 6
TKN DA	28	May-30-18 09:54	pH = 1
TOC	28	May-30-18 09:54	pH = 1
Total Phosphorus DA	28	May-30-18 09:54	pH = 1

Sample ID: 1805007-14      Sampled: May-02-18 10:29      Matrix: Water

Sample Name: D10a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:29	pH = 1
Anions by IC	28	May-30-18 10:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 10:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:29	pH = 1
Solids, TDS	7	May-09-18 10:29	pH = 6
TKN DA	28	May-30-18 10:29	pH = 1
TOC	28	May-30-18 10:29	pH = 1
Total Phosphorus DA	28	May-30-18 10:29	pH = 1

Sample ID: 1805007-15      Sampled: May-02-18 10:29      Matrix: Water

Sample Name: D10a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:29	pH = 1
Anions by IC	28	May-30-18 10:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 10:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:29	pH = 1
Solids, TDS	7	May-09-18 10:29	pH = 6
TKN DA	28	May-30-18 10:29	pH = 1
TOC	28	May-30-18 10:29	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> CB022018
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**Sample ID:** 1805007-15      **Sampled:** May-02-18 10:29      **Matrix:** Water  
**Sample Name:** D10a Dup      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 10:29	pH = 1

**Sample ID:** 1805007-16      **Sampled:** May-02-18 10:41      **Matrix:** Water  
**Sample Name:** D10b      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:41	pH = 1
Anions by IC	28	May-30-18 10:41	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 10:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:41	pH = 1
Solids, TDS	7	May-09-18 10:41	pH = 5
TKN DA	28	May-30-18 10:41	pH = 1
TOC	28	May-30-18 10:41	pH = 1
Total Phosphorus DA	28	May-30-18 10:41	pH = 1

**Sample ID:** 1805007-17      **Sampled:** May-02-18 10:41      **Matrix:** Water  
**Sample Name:** D10b Dup      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:41	pH = 1
Anions by IC	28	May-30-18 10:41	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 10:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:41	pH = 1
Solids, TDS	7	May-09-18 10:41	pH = 5
TKN DA	28	May-30-18 10:41	pH = 1
TOC	28	May-30-18 10:41	pH = 1
Total Phosphorus DA	28	May-30-18 10:41	pH = 1

**Sample ID:** 1805007-18      **Sampled:** May-02-18 11:19      **Matrix:** Water  
**Sample Name:** D11a      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 11:19	pH = 1
Anions by IC	28	May-30-18 11:19	pH = 6

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## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-18      Sampled: May-02-18 11:19      Matrix: Water

Sample Name: D11a      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 11:19	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 11:19	pH = 1
Solids, TDS	7	May-09-18 11:19	pH = 6
TKN DA	28	May-30-18 11:19	pH = 1
TOC	28	May-30-18 11:19	pH = 1
Total Phosphorus DA	28	May-30-18 11:19	pH = 1

Sample ID: 1805007-19      Sampled: May-02-18 11:42      Matrix: Water

Sample Name: D11b      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 11:42	pH = 1
Anions by IC	28	May-30-18 11:42	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 11:42	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 11:42	pH = 1
Solids, TDS	7	May-09-18 11:42	pH = 5
TKN DA	28	May-30-18 11:42	pH = 1
TOC	28	May-30-18 11:42	pH = 1
Total Phosphorus DA	28	May-30-18 11:42	pH = 1

Sample ID: 1805007-20      Sampled: May-02-18 12:41      Matrix: Water

Sample Name: E1a      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 12:41	pH = 1
Anions by IC	28	May-30-18 12:41	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 12:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 12:41	pH = 1
Solids, TDS	7	May-09-18 12:41	pH = 6
TKN DA	28	May-30-18 12:41	pH = 1
TOC	28	May-30-18 12:41	pH = 1
Total Phosphorus DA	28	May-30-18 12:41	pH = 1



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## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-21      Sampled: May-02-18 12:58      Matrix: Water

Sample Name: E1b      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 12:58	pH = 1
Anions by IC	28	May-30-18 12:58	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 12:58	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 12:58	pH = 1
Solids, TDS	7	May-09-18 12:58	pH = 6
TKN DA	28	May-30-18 12:58	pH = 1
TOC	28	May-30-18 12:58	pH = 1
Total Phosphorus DA	28	May-30-18 12:58	pH = 1

Sample ID: 1805007-22      Sampled: May-02-18 13:28      Matrix: Water

Sample Name: E2a      Sample Location/Comments: Porter Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:28	pH = 1
Anions by IC	28	May-30-18 13:28	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 13:28	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:28	pH = 1
Solids, TDS	7	May-09-18 13:28	pH = 6
TKN DA	28	May-30-18 13:28	pH = 1
TOC	28	May-30-18 13:28	pH = 1
Total Phosphorus DA	28	May-30-18 13:28	pH = 1

Sample ID: 1805007-23      Sampled: May-02-18 13:37      Matrix: Water

Sample Name: E2b      Sample Location/Comments: Porter Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:37	pH = 1
Anions by IC	28	May-30-18 13:37	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 13:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:37	pH = 1
Solids, TDS	7	May-09-18 13:37	pH = 5
TKN DA	28	May-30-18 13:37	pH = 1
TOC	28	May-30-18 13:37	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-23      Sampled: May-02-18 13:37      Matrix: Water

Sample Name: E2b      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 13:37	pH = 1

Sample ID: 1805007-24      Sampled: May-02-18 13:28      Matrix: Water

Sample Name: E2a Dup      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:28	pH = 1
Anions by IC	28	May-30-18 13:28	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 13:28	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:28	pH = 1
Solids, TDS	7	May-09-18 13:28	pH = 6
TKN DA	28	May-30-18 13:28	pH = 1
TOC	28	May-30-18 13:28	pH = 1
Total Phosphorus DA	28	May-30-18 13:28	pH = 1

Sample ID: 1805007-25      Sampled: May-02-18 13:37      Matrix: Water

Sample Name: E2b Dup      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:37	pH = 1
Anions by IC	28	May-30-18 13:37	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 13:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:37	pH = 1
Solids, TDS	7	May-09-18 13:37	pH = 5
TKN DA	28	May-30-18 13:37	pH = 1
TOC	28	May-30-18 13:37	pH = 1
Total Phosphorus DA	28	May-30-18 13:37	pH = 1

Sample ID: 1805007-26      Sampled: May-02-18 14:03      Matrix: Water

Sample Name: E3a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:03	pH = 1
Anions by IC	28	May-30-18 14:03	pH = 6

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US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> CB022018
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**Sample ID:** 1805007-26      **Sampled:** May-02-18 14:03      **Matrix:** Water

**Sample Name:** E3a      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 14:03	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:03	pH = 1
Solids, TDS	7	May-09-18 14:03	pH = 6
TKN DA	28	May-30-18 14:03	pH = 1
TOC	28	May-30-18 14:03	pH = 1
Total Phosphorus DA	28	May-30-18 14:03	pH = 1

**Sample ID:** 1805007-27      **Sampled:** May-02-18 14:09      **Matrix:** Water

**Sample Name:** E3b      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:09	pH = 1
Anions by IC	28	May-30-18 14:09	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:09	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:09	pH = 1
Solids, TDS	7	May-09-18 14:09	pH = 6
TKN DA	28	May-30-18 14:09	pH = 1
TOC	28	May-30-18 14:09	pH = 1
Total Phosphorus DA	28	May-30-18 14:09	pH = 1

**Sample ID:** 1805007-28      **Sampled:** May-02-18 14:37      **Matrix:** Water

**Sample Name:** E4a      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:37	pH = 1
Anions by IC	28	May-30-18 14:37	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:37	pH = 1
Solids, TDS	7	May-09-18 14:37	pH = 6
TKN DA	28	May-30-18 14:37	pH = 1
TOC	28	May-30-18 14:37	pH = 1
Total Phosphorus DA	28	May-30-18 14:37	pH = 1

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-29      Sampled: May-02-18 14:43      Matrix: Water

Sample Name: E4b      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:43	pH = 1
Anions by IC	28	May-30-18 14:43	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:43	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:43	pH = 1
Solids, TDS	7	May-09-18 14:43	pH = 6
TKN DA	28	May-30-18 14:43	pH = 1
TOC	28	May-30-18 14:43	pH = 1
Total Phosphorus DA	28	May-30-18 14:43	pH = 1

Sample ID: 1805007-30      Sampled: May-02-18 15:08      Matrix: Water

Sample Name: E5a      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:08	pH = 1
Anions by IC	28	May-30-18 15:08	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:08	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:08	pH = 1
Solids, TDS	7	May-09-18 15:08	pH = 6
TKN DA	28	May-30-18 15:08	pH = 1
TOC	28	May-30-18 15:08	pH = 1
Total Phosphorus DA	28	May-30-18 15:08	pH = 1

Sample ID: 1805007-31      Sampled: May-02-18 15:13      Matrix: Water

Sample Name: E5b      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:13	pH = 1
Anions by IC	28	May-30-18 15:13	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:13	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:13	pH = 1
Solids, TDS	7	May-09-18 15:13	pH = 6
TKN DA	28	May-30-18 15:13	pH = 1
TOC	28	May-30-18 15:13	pH = 1

WORK ORDER

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1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-31      Sampled: May-02-18 15:13      Matrix: Water

Sample Name: E5b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 15:13	pH = 1

Sample ID: 1805007-32      Sampled: May-02-18 15:38      Matrix: Water

Sample Name: E6a      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:38	pH = 1
Anions by IC	28	May-30-18 15:38	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:38	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:38	pH = 1
Solids, TDS	7	May-09-18 15:38	pH = 6
TKN DA	28	May-30-18 15:38	pH = 1
TOC	28	May-30-18 15:38	pH = 1
Total Phosphorus DA	28	May-30-18 15:38	pH = 1

Sample ID: 1805007-33      Sampled: May-02-18 15:44      Matrix: Water

Sample Name: E6b      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:44	pH = 1
Anions by IC	28	May-30-18 15:44	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:44	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:44	pH = 1
Solids, TDS	7	May-09-18 15:44	pH = 6
TKN DA	28	May-30-18 15:44	pH = 1
TOC	28	May-30-18 15:44	pH = 1
Total Phosphorus DA	28	May-30-18 15:44	pH = 1

Sample ID: 1805007-34      Sampled: May-02-18 16:09      Matrix: Water

Sample Name: E7a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 16:09	pH = 1
Anions by IC	28	May-30-18 16:09	pH = 5



WORK ORDER

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1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
 Project: Central Sands

Project Manager: Angela Ockrassa Davis  
 Project Number: CB022018

Sample ID: 1805007-34      Sampled: May-02-18 16:09      Matrix: Water

Sample Name: E7a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 16:09	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 16:09	pH = 1
Solids, TDS	7	May-09-18 16:09	pH = 5
TKN DA	28	May-30-18 16:09	pH = 1
TOC	28	May-30-18 16:09	pH = 1
Total Phosphorus DA	28	May-30-18 16:09	pH = 1

Sample ID: 1805007-35      Sampled: May-02-18 16:35      Matrix: Water

Sample Name: E7b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 16:35	pH = 1
Anions by IC	28	May-30-18 16:35	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 16:35	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 16:35	pH = 1
Solids, TDS	7	May-09-18 16:35	pH = 5
TKN DA	28	May-30-18 16:35	pH = 1
TOC	28	May-30-18 16:35	pH = 1
Total Phosphorus DA	28	May-30-18 16:35	pH = 1

Sample ID: 1805007-36      Sampled: May-03-18 08:40      Matrix: Water

Sample Name: E8a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 08:40	pH = 1
Anions by IC	28	May-31-18 08:40	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 08:40	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 08:40	pH = 1
Solids, TDS	7	May-10-18 08:40	pH = 5
TKN DA	28	May-31-18 08:40	pH = 1
TOC	28	May-31-18 08:40	pH = 1
Total Phosphorus DA	28	May-31-18 08:40	pH = 1

WORK ORDER

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1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-37      Sampled: May-03-18 08:48      Matrix: Water

Sample Name: E8b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 08:48	pH = 1
Anions by IC	28	May-31-18 08:48	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 08:48	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 08:48	pH = 1
Solids, TDS	7	May-10-18 08:48	pH = 6
TKN DA	28	May-31-18 08:48	pH = 1
TOC	28	May-31-18 08:48	pH = 1
Total Phosphorus DA	28	May-31-18 08:48	pH = 1

Sample ID: 1805007-38      Sampled: May-03-18 07:15      Matrix: Water

Sample Name: E10a      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:15	pH = 1
Anions by IC	28	May-31-18 07:15	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:15	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:15	pH = 1
Solids, TDS	7	May-10-18 07:15	pH = 6
TKN DA	28	May-31-18 07:15	pH = 1
TOC	28	May-31-18 07:15	pH = 1
Total Phosphorus DA	28	May-31-18 07:15	pH = 1

Sample ID: 1805007-39      Sampled: May-03-18 07:15      Matrix: Water

Sample Name: E10a Dup      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:15	pH = 1
Anions by IC	28	May-31-18 07:15	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:15	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:15	pH = 1
Solids, TDS	7	May-10-18 07:15	pH = 6
TKN DA	28	May-31-18 07:15	pH = 1
TOC	28	May-31-18 07:15	pH = 1

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-39      Sampled: May-03-18 07:15      Matrix: Water  
 Sample Name: E10a Dup      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-31-18 07:15	pH = 1

Sample ID: 1805007-40      Sampled: May-03-18 07:27      Matrix: Water  
 Sample Name: E10b      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:27	pH = 1
Anions by IC	28	May-31-18 07:27	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:27	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:27	pH = 1
Solids, TDS	7	May-10-18 07:27	pH = 6
TKN DA	28	May-31-18 07:27	pH = 1
TOC	28	May-31-18 07:27	pH = 1
Total Phosphorus DA	28	May-31-18 07:27	pH = 1

Sample ID: 1805007-41      Sampled: May-03-18 07:36      Matrix: Water  
 Sample Name: FB4      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:36	pH = 1
Anions by IC	28	May-31-18 07:36	pH = 4
Metals ICP-AES (w)	180	Oct-30-18 07:36	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:36	pH = 1
Solids, TDS	7	May-10-18 07:36	pH = 4
TKN DA	28	May-31-18 07:36	pH = 1
TOC	28	May-31-18 07:36	pH = 1
Total Phosphorus DA	28	May-31-18 07:36	pH = 1

Sample ID: 1805007-42      Sampled: May-03-18 07:13      Matrix: Water  
 Sample Name: E10 Equip      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:13	pH = 1
Anions by IC	28	May-31-18 07:13	pH = 4

WORK ORDER

Printed: 5/7/2018 9:53:28AM

1805007

US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> CB022018
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**Sample ID:** 1805007-42      **Sampled:** May-03-18 07:13      **Matrix:** Water

**Sample Name:** E10 Equip      **Sample Location/Comments:** 8th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-30-18 07:13	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:13	pH = 1
Solids, TDS	7	May-10-18 07:13	pH = 4
TKN DA	28	May-31-18 07:13	pH = 1
TOC	28	May-31-18 07:13	pH = 1
Total Phosphorus DA	28	May-31-18 07:13	pH = 1

**Sample ID:** 1805007-43      **Sampled:** May-03-18 09:53      **Matrix:** Water

**Sample Name:** E9a      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 09:53	pH = 1
Anions by IC	28	May-31-18 09:53	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 09:53	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 09:53	pH = 1
Solids, TDS	7	May-10-18 09:53	pH = 5
TKN DA	28	May-31-18 09:53	pH = 1
TOC	28	May-31-18 09:53	pH = 1
Total Phosphorus DA	28	May-31-18 09:53	pH = 1

**Sample ID:** 1805007-44      **Sampled:** May-03-18 10:02      **Matrix:** Water

**Sample Name:** E9b      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 10:02	pH = 1
Anions by IC	28	May-31-18 10:02	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 10:02	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 10:02	pH = 1
Solids, TDS	7	May-10-18 10:02	pH = 5
TKN DA	28	May-31-18 10:02	pH = 1
TOC	28	May-31-18 10:02	pH = 1
Total Phosphorus DA	28	May-31-18 10:02	pH = 1

Reviewed By \_\_\_\_\_

Date \_\_\_\_\_

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

PROJECT COMMENTS: Anions: Chloride, fluoride, bromide, sulfate.  
Full List metals

**REVIEWED**

*By Robert Thompson at 9:54 am, May 07, 2018*

Reviewed By

Date





## Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312)353-8370 Fax: (312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-12-18 10:48
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### Phosphorus, Colorimetric, EPA 365.4 (modified) US EPA Region 5 Chicago Regional Laboratory

**D5a (1805007-01)                      Matrix: Water                      Sampled: May-02-18 06:38                      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>1.80</b>		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18

**D5b (1805007-02)                      Matrix: Water                      Sampled: May-02-18 06:46                      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>2.90</b>		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18

**D6a (1805007-03)                      Matrix: Water                      Sampled: May-02-18 07:17                      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>1.14</b>		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18

**D6b (1805007-04)                      Matrix: Water                      Sampled: May-02-18 07:29                      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>1.59</b>		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18

**D7 equip (1805007-05)                      Matrix: Water                      Sampled: May-02-18 08:01                      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>U</b>		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18

**FB3 (1805007-06)                      Matrix: Water                      Sampled: May-02-18 08:03                      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>U</b>		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18

**D7a Dup (1805007-07)                      Matrix: Water                      Sampled: May-02-18 08:12                      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>0.77</b>		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18

**D7a (1805007-08)                      Matrix: Water                      Sampled: May-02-18 08:12                      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>0.55</b>	<b>J</b>	0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18



## Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312) 353-8370 Fax: (312) 886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
Jun-12-18 10:48

### Phosphorus, Colorimetric, EPA 365.4 (modified) US EPA Region 5 Chicago Regional Laboratory

**D7b (1805007-09) Matrix: Water Sampled: May-02-18 08:19 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>2.27</b>		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18

**D8a (1805007-10) Matrix: Water Sampled: May-02-18 08:55 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>2.01</b>		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18

**D8b (1805007-11) Matrix: Water Sampled: May-02-18 09:11 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>2.17</b>	J	0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18

**D9a (1805007-12) Matrix: Water Sampled: May-02-18 09:45 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>1.15</b>		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18

**D9b (1805007-13) Matrix: Water Sampled: May-02-18 09:54 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>3.48</b>		0.40	1.50	mg/L	10	B18E036	May-14-18	May-23-18

**D10a (1805007-14) Matrix: Water Sampled: May-02-18 10:29 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>0.85</b>		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18

**D10a Dup (1805007-15) Matrix: Water Sampled: May-02-18 10:29 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>0.64</b>		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18

**D10b (1805007-16) Matrix: Water Sampled: May-02-18 10:41 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>1.65</b>		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312)353-8370 Fax: (312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-12-18 10:48
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## Phosphorus, Colorimetric, EPA 365.4 (modified) US EPA Region 5 Chicago Regional Laboratory

**D10b Dup (1805007-17)      Matrix: Water      Sampled: May-02-18 10:41      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	2.42		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18

**D11a (1805007-18)      Matrix: Water      Sampled: May-02-18 11:19      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	1.28		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18

**D11b (1805007-19)      Matrix: Water      Sampled: May-02-18 11:42      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	1.73		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18

**E1a (1805007-20)      Matrix: Water      Sampled: May-02-18 12:41      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	0.95		0.04	0.15	mg/L	1	B18E036	May-14-18	May-23-18

**E1b (1805007-21)      Matrix: Water      Sampled: May-02-18 12:58      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	4.07	J	0.40	1.50	mg/L	10	B18E064	May-25-18	May-29-18

**E2a (1805007-22)      Matrix: Water      Sampled: May-02-18 13:28      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	0.94		0.04	0.15	mg/L	1	B18E064	May-25-18	May-29-18

**E2b (1805007-23)      Matrix: Water      Sampled: May-02-18 13:37      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	3.55		0.40	1.50	mg/L	10	B18E064	May-25-18	May-29-18

**E2a Dup (1805007-24)      Matrix: Water      Sampled: May-02-18 13:28      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	1.23		0.04	0.15	mg/L	1	B18E064	May-25-18	May-29-18



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> Jun-12-18 10:48
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**Phosphorus, Colorimetric, EPA 365.4 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**E2b Dup (1805007-25)      Matrix: Water      Sampled: May-02-18 13:37      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>3.20</b>		0.40	1.50	mg/L	10	B18E064	May-25-18	May-29-18

**E3a (1805007-26)      Matrix: Water      Sampled: May-02-18 14:03      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>1.85</b>		0.04	0.15	mg/L	1	B18E064	May-25-18	May-29-18

**E3b (1805007-27)      Matrix: Water      Sampled: May-02-18 14:09      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>1.79</b>	J	0.04	0.15	mg/L	1	B18E062	May-24-18	May-29-18

**E4a (1805007-28)      Matrix: Water      Sampled: May-02-18 14:37      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>3.57</b>		0.40	1.50	mg/L	10	B18E062	May-24-18	May-29-18

**E4b (1805007-29)      Matrix: Water      Sampled: May-02-18 14:43      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>4.44</b>		0.40	1.50	mg/L	10	B18E062	May-24-18	May-29-18

**E5a (1805007-30)      Matrix: Water      Sampled: May-02-18 15:08      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>0.99</b>		0.04	0.15	mg/L	1	B18E062	May-24-18	May-29-18

**E5b (1805007-31)      Matrix: Water      Sampled: May-02-18 15:13      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>2.80</b>		0.04	0.15	mg/L	1	B18E062	May-24-18	May-29-18

**E6a (1805007-32)      Matrix: Water      Sampled: May-02-18 15:38      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>1.76</b>		0.04	0.15	mg/L	1	B18E062	May-24-18	May-29-18



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-12-18 10:48
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## Phosphorus, Colorimetric, EPA 365.4 (modified) US EPA Region 5 Chicago Regional Laboratory

<b>E6b (1805007-33)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 15:44</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	5.41		0.40	1.50	mg/L	10	B18E062	May-24-18	May-29-18

<b>E7a (1805007-34)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 16:09</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	1.47		0.04	0.15	mg/L	1	B18E062	May-24-18	May-29-18

<b>E7b (1805007-35)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 16:35</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	2.06		0.04	0.15	mg/L	1	B18E062	May-24-18	May-29-18

<b>E8a (1805007-36)</b>		<b>Matrix: Water</b>	<b>Sampled: May-03-18 08:40</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	1.42		0.04	0.15	mg/L	1	B18E062	May-24-18	May-29-18

<b>E8b (1805007-37)</b>		<b>Matrix: Water</b>	<b>Sampled: May-03-18 08:48</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	2.91	J	0.04	0.15	mg/L	1	B18E062	May-24-18	May-29-18

<b>E10a (1805007-38)</b>		<b>Matrix: Water</b>	<b>Sampled: May-03-18 07:15</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	1.09		0.04	0.15	mg/L	1	B18E062	May-24-18	May-29-18

<b>E10a Dup (1805007-39)</b>		<b>Matrix: Water</b>	<b>Sampled: May-03-18 07:15</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	1.12		0.04	0.15	mg/L	1	B18E062	May-24-18	May-29-18

<b>E10b (1805007-40)</b>		<b>Matrix: Water</b>	<b>Sampled: May-03-18 07:27</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	2.96		0.04	0.15	mg/L	1	B18E062	May-24-18	May-29-18





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-12-18 10:48
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### Phosphorus, Colorimetric, EPA 365.4 (modified) US EPA Region 5 Chicago Regional Laboratory

**FB4 (1805007-41)                      Matrix: Water                      Sampled: May-03-18 07:36                      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>U</b>		0.04	0.15	mg/L	1	B18E062	May-24-18	May-29-18

**E10 Equip (1805007-42)                      Matrix: Water                      Sampled: May-03-18 07:13                      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>U</b>		0.04	0.15	mg/L	1	B18E062	May-24-18	May-29-18

**E9a (1805007-43)                      Matrix: Water                      Sampled: May-03-18 09:53                      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>0.92</b>		0.04	0.15	mg/L	1	B18E062	May-24-18	May-29-18

**E9b (1805007-44)                      Matrix: Water                      Sampled: May-03-18 10:02                      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Phosphorus</b>	<b>2.90</b>		0.04	0.15	mg/L	1	B18E062	May-24-18	May-29-18



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-12-18 10:48
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## Total Kjeldahl Nitrogen, EPA 351.2 (modified) US EPA Region 5 Chicago Regional Laboratory

<b>D5a (1805007-01)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 06:38</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	0.68		0.20	0.50	mg/L	1	B18E060	May-23-18	May-23-18

<b>D5b (1805007-02)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 06:46</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.20	0.50	mg/L	1	B18E060	May-23-18	May-23-18

<b>D6a (1805007-03)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 07:17</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	0.68		0.20	0.50	mg/L	1	B18E060	May-23-18	May-23-18

<b>D6b (1805007-04)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 07:29</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	0.79		0.20	0.50	mg/L	1	B18E060	May-23-18	May-23-18

<b>D7 equip (1805007-05)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 08:01</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.20	0.50	mg/L	1	B18E060	May-23-18	May-23-18

<b>FB3 (1805007-06)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 08:03</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.20	0.50	mg/L	1	B18E060	May-23-18	May-23-18

<b>D7a Dup (1805007-07)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 08:12</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.20	0.50	mg/L	1	B18E060	May-23-18	May-23-18

<b>D7a (1805007-08)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 08:12</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U	J	0.20	0.50	mg/L	1	B18E060	May-23-18	May-23-18



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> Jun-12-18 10:48
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## Total Kjeldahl Nitrogen, EPA 351.2 (modified) US EPA Region 5 Chicago Regional Laboratory

**D7b (1805007-09) Matrix: Water Sampled: May-02-18 08:19 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.14		0.20	0.50	mg/L	1	B18E060	May-23-18	May-23-18

**D8a (1805007-10) Matrix: Water Sampled: May-02-18 08:55 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.28		0.20	0.50	mg/L	1	B18E060	May-23-18	May-23-18

**D8b (1805007-11) Matrix: Water Sampled: May-02-18 09:11 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.18	J	0.20	0.50	mg/L	1	B18E060	May-23-18	May-23-18

**D9a (1805007-12) Matrix: Water Sampled: May-02-18 09:45 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	0.50		0.20	0.50	mg/L	1	B18E060	May-23-18	May-23-18

**D9b (1805007-13) Matrix: Water Sampled: May-02-18 09:54 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.10		0.20	0.50	mg/L	1	B18E060	May-23-18	May-23-18

**D10a (1805007-14) Matrix: Water Sampled: May-02-18 10:29 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	0.57		0.20	0.50	mg/L	1	B18E060	May-23-18	May-23-18

**D10a Dup (1805007-15) Matrix: Water Sampled: May-02-18 10:29 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	0.52		0.20	0.50	mg/L	1	B18E060	May-23-18	May-29-18

**D10b (1805007-16) Matrix: Water Sampled: May-02-18 10:41 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.20	0.50	mg/L	1	B18E060	May-23-18	May-29-18



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## Total Kjeldahl Nitrogen, EPA 351.2 (modified) US EPA Region 5 Chicago Regional Laboratory

**D10b Dup (1805007-17)      Matrix: Water      Sampled: May-02-18 10:41      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	0.97		0.20	0.50	mg/L	1	B18E060	May-23-18	May-29-18

**D11a (1805007-18)      Matrix: Water      Sampled: May-02-18 11:19      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	0.51		0.20	0.50	mg/L	1	B18E060	May-23-18	May-29-18

**D11b (1805007-19)      Matrix: Water      Sampled: May-02-18 11:42      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	0.83		0.20	0.50	mg/L	1	B18E060	May-23-18	May-29-18

**E1a (1805007-20)      Matrix: Water      Sampled: May-02-18 12:41      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	0.72		0.20	0.50	mg/L	1	B18E060	May-23-18	May-29-18

**E1b (1805007-21)      Matrix: Water      Sampled: May-02-18 12:58      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.76		0.20	0.50	mg/L	1	B18E065	May-25-18	May-29-18

**E2a (1805007-22)      Matrix: Water      Sampled: May-02-18 13:28      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.20	0.50	mg/L	1	B18E065	May-25-18	May-29-18

**E2b (1805007-23)      Matrix: Water      Sampled: May-02-18 13:37      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.40		0.20	0.50	mg/L	1	B18E065	May-25-18	May-29-18

**E2a Dup (1805007-24)      Matrix: Water      Sampled: May-02-18 13:28      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.20	0.50	mg/L	1	B18E065	May-25-18	May-29-18



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### Total Kjeldahl Nitrogen, EPA 351.2 (modified) US EPA Region 5 Chicago Regional Laboratory

<b>E2b Dup (1805007-25)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 13:37</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.31		0.20	0.50	mg/L	1	B18E065	May-25-18	May-29-18

<b>E3a (1805007-26)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 14:03</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	0.53		0.20	0.50	mg/L	1	B18E065	May-25-18	May-29-18

<b>E3b (1805007-27)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 14:09</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	0.74		0.20	0.50	mg/L	1	B18E063	May-24-18	May-29-18

<b>E4a (1805007-28)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 14:37</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.11		0.20	0.50	mg/L	1	B18E063	May-24-18	May-29-18

<b>E4b (1805007-29)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 14:43</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	2.17		0.20	0.50	mg/L	1	B18E063	May-24-18	May-29-18

<b>E5a (1805007-30)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 15:08</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	0.64		0.20	0.50	mg/L	1	B18E063	May-24-18	May-29-18

<b>E5b (1805007-31)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 15:13</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.42		0.20	0.50	mg/L	1	B18E063	May-24-18	May-29-18

<b>E6a (1805007-32)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 15:38</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	0.52		0.20	0.50	mg/L	1	B18E063	May-24-18	May-29-18





# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312) 353-8370 Fax: (312) 886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> Jun-12-18 10:48
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## Total Kjeldahl Nitrogen, EPA 351.2 (modified) US EPA Region 5 Chicago Regional Laboratory

<b>E6b (1805007-33)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 15:44</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.23		0.20	0.50	mg/L	1	B18E063	May-24-18	May-29-18

<b>E7a (1805007-34)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 16:09</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.20	0.50	mg/L	1	B18E063	May-24-18	May-29-18

<b>E7b (1805007-35)</b>		<b>Matrix: Water</b>	<b>Sampled: May-02-18 16:35</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.20	0.50	mg/L	1	B18E063	May-24-18	May-29-18

<b>E8a (1805007-36)</b>		<b>Matrix: Water</b>	<b>Sampled: May-03-18 08:40</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	0.59		0.20	0.50	mg/L	1	B18E063	May-24-18	May-29-18

<b>E8b (1805007-37)</b>		<b>Matrix: Water</b>	<b>Sampled: May-03-18 08:48</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.64		0.20	0.50	mg/L	1	B18E063	May-24-18	May-29-18

<b>E10a (1805007-38)</b>		<b>Matrix: Water</b>	<b>Sampled: May-03-18 07:15</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.20	0.50	mg/L	1	B18E063	May-24-18	May-29-18

<b>E10a Dup (1805007-39)</b>		<b>Matrix: Water</b>	<b>Sampled: May-03-18 07:15</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.20	0.50	mg/L	1	B18E063	May-24-18	May-29-18

<b>E10b (1805007-40)</b>		<b>Matrix: Water</b>	<b>Sampled: May-03-18 07:27</b>	<b>Received: May-04-18 10:00</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.09		0.20	0.50	mg/L	1	B18E063	May-24-18	May-29-18



## Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-12-18 10:48
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### Total Kjeldahl Nitrogen, EPA 351.2 (modified) US EPA Region 5 Chicago Regional Laboratory

<b>FB4 (1805007-41)</b>	<b>Matrix: Water</b>	<b>Sampled: May-03-18 07:36</b>	<b>Received: May-04-18 10:00</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.20	0.50	mg/L	1	B18E063	May-24-18	May-29-18

<b>E10 Equip (1805007-42)</b>	<b>Matrix: Water</b>	<b>Sampled: May-03-18 07:13</b>	<b>Received: May-04-18 10:00</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.20	0.50	mg/L	1	B18E063	May-24-18	May-29-18

<b>E9a (1805007-43)</b>	<b>Matrix: Water</b>	<b>Sampled: May-03-18 09:53</b>	<b>Received: May-04-18 10:00</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	0.53		0.20	0.50	mg/L	1	B18E063	May-24-18	May-29-18

<b>E9b (1805007-44)</b>	<b>Matrix: Water</b>	<b>Sampled: May-03-18 10:02</b>	<b>Received: May-04-18 10:00</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	1.85		0.20	0.50	mg/L	1	B18E063	May-24-18	May-29-18



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

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Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
Jun-12-18 10:48

**Notes and Definitions**

- I The identification of the analyte is acceptable; the reported value is an estimate.
- U Not Detected
- NR Not Reported
- Q QC limit Exceeded





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5 CHICAGO REGIONAL LABORATORY  
536 SOUTH CLARK STREET  
CHICAGO, ILLINOIS 60605

Date: 6/4/2018  
Subject: Review of Region 5 Data for Central Sands  
To: Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604  
From: Francis Awanya, Chemist  
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with the EPA QA/G-8 *Guidance on Environmental Data Verification and Data Validation* and the U.S. EPA Region 5 RMD QMP, CRL performs data verification on all the data generated internally. CRL does not perform data validation or quality assessment procedures.

This report was reviewed and the information provided herein accurately represents the analysis performed.

*Francis A Awanya*

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*Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.*

**Attached are Results for: Central Sands**

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**Analyses included in this report:**

TOC

Report Name: 1805005,1805007 TOC FINAL Jun 04 18 1529





# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
Jun-04-18 15:29

## Accredited Analyses included in this Report



*Method: SM 5310 B in Water*

*Analysis: TOC*

**Analyte**

**Certifications**

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Total Organic Carbon

ISO/IEC 17025:2005

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Analytes not listed above are not accredited by ANAB.



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-04-18 15:29
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### Analysis Case Narrative

#### General Information

Ninety-eight (98) water samples collected for the project were received at the Chicago Regional Laboratory (CRL) on May 2 and May 4, 2018. The samples were logged in the CRL LIMS under Work Order Number 1805005 and 1805007. Total Organic Carbon (TOC) analysis was assigned to those samples. The samples were analyzed for TOC in water using Standard Operating Procedure (SOP) CRL Document # AIG021D Version # 5 (Based on SM 5310 B (APHA, AWWA, WEF)). The designated analyst for the sample is Francis Awanya. Francis can be reached at 312-886-3682. Other pertinent information and dates are provided in the final analysis report.

The following samples were not preserved to pH < 2 units with sulfuric acid and were flagged "J"; The identification of the analyte is acceptable; the reported value is an estimate. The affected samples are 1805005-12 (Sample name: B1a), 1805005-29 (Sample name: C6b), 1805005-41 (Sample name: C11a), 1805005-45 (Sample name: C13a), 1805005-48 (Sample name: D1b), and 1805005-49 (Sample name: D2a).

All supporting data are archived with Work Order Number 1805005.

#### Sample Analysis and Results

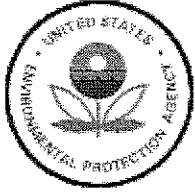
Reagents and standards were prepared using Version # 4 of Standard Operating Procedure (SOP) AIG021D (Based on SM 5310B (APHA, AWWA, WEF)). Analysis was completed using Version # 5 of the SOP. There are no differences between the two procedures as Version # 5 reflects revision based on the method update rule which resulted in no changes. There are no differences between the two procedures.

The data reported here in met the requirements of Standard Operating Procedure (SOP) AIG021D (Based on SM 5310B (APHA, AWWA, WEF)) and any laboratory specifications contained in the sampling QAPP "*FINAL\_2018\_GW\_Sampling\_Plan4\_27\_2018.pdf*". Exceptions are discussed in the Quality Control (QC) section.

#### Quality Control

All required quality control criteria for the laboratory, method, and system performance audits were evaluated and determined to be within the CRL's QC limits with the following exceptions.

Matrix spike: The matrix spike recoveries of 77.9% and 36.1% obtained for samples 1805005-05 (Sample



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**Chicago Regional Laboratory**

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Water Division, WECA Region 5  
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Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
Jun-04-18 15:29

name: A3a) and 1805005-41 (Sample name: C11a) exceeded the limit of 85.1 to 143%. This may indicate low bias due to matrix interference. The blank and four spike recoveries result were within the limits. TOC result for sample 1805005-05 is flagged J: The identification of the analyte is acceptable; the reported value is an estimate. No additional flag was applied to the result for sample 1805005-41 on this basis. The sample result is already flagged "J" for under preservation.

Determination Limit: TOC concentrations of 11 mg/L obtained for sample 1805005-44 (Sample name: C12b) marginally exceeded the upper determination limit of 10 mg/L. The result is flagged J: The identification of the analyte is acceptable; the reported value is an estimate. Analysis could not be repeated within the holding time. The impact is insignificant as it is in the range of 10% of the top calibration standard.



1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-02      Sampled: Apr-30-18 07:32      Matrix: Water

Sample Name: A1b      Sample Location/Comments: 1st Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-07-18 07:32	pH = 5
TKN DA	28	May-28-18 07:32	pH = 2
TOC	28	May-28-18 07:32	pH = 2
Total Phosphorus DA	28	May-28-18 07:32	pH = 2

Sample ID: 1805005-03      Sampled: Apr-30-18 08:15      Matrix: Water

Sample Name: A2a      Sample Location/Comments: 22nd Avenue North

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 08:15	pH = 2
Anions by IC	28	May-28-18 08:15	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 08:15	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 08:15	pH = 2
Solids, TDS	7	May-07-18 08:15	pH = 6
TKN DA	28	May-28-18 08:15	pH = 2
TOC	28	May-28-18 08:15	pH = 2
Total Phosphorus DA	28	May-28-18 08:15	pH = 2

Sample ID: 1805005-04      Sampled: Apr-30-18 08:24      Matrix: Water

Sample Name: A2b      Sample Location/Comments: 22nd Avenue North

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 08:24	pH = 2
Anions by IC	28	May-28-18 08:24	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 08:24	pH = 5
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 08:24	pH = 2
Solids, TDS	7	May-07-18 08:24	pH = 6
TKN DA	28	May-28-18 08:24	pH = 2
TOC	28	May-28-18 08:24	pH = 2
Total Phosphorus DA	28	May-28-18 08:24	pH = 2



1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-05      Sampled: Apr-30-18 09:06      Matrix: Water      OC Source Sample MS/MSD

Sample Name: A3a      Sample Location/Comments: 2nd Street

Sample Comments: MS/MSD

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:06	pH = 2
Anions by IC	28	May-28-18 09:06	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:06	pH = 2
Solids, TDS	7	May-07-18 09:06	pH = 6
TKN DA	28	May-28-18 09:06	pH = 2
TOC	28	May-28-18 09:06	pH = 2
Total Phosphorus DA	28	May-28-18 09:06	pH = 2

Sample ID: 1805005-06      Sampled: Apr-30-18 09:14      Matrix: Water

Sample Name: A3b      Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:14	pH = 2
Anions by IC	28	May-28-18 09:14	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:14	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:14	pH = 2
Solids, TDS	7	May-07-18 09:14	pH = 6
TKN DA	28	May-28-18 09:14	pH = 2
TOC	28	May-28-18 09:14	pH = 2
Total Phosphorus DA	28	May-28-18 09:14	pH = 2

Sample ID: 1805005-07      Sampled: Apr-30-18 09:38      Matrix: Water

Sample Name: A4 Equip      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:38	pH = 2
Anions by IC	28	May-28-18 09:38	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 09:38	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:38	pH = 2
Solids, TDS	7	May-07-18 09:38	pH = 5
TKN DA	28	May-28-18 09:38	pH = 2
TOC	28	May-28-18 09:38	pH = 2

1805005

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-07      **Sampled:** Apr-30-18 09:38      **Matrix:** Water

**Sample Name:** A4 Equip      **Sample Location/Comments:** Cranberry Rock Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 09:38	pH = 2

**Sample ID:** 1805005-08      **Sampled:** Apr-30-18 09:06      **Matrix:** Water

**Sample Name:** A3a (Dup)      **Sample Location/Comments:** 2nd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:06	pH = 2
Anions by IC	28	May-28-18 09:06	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:06	pH = 2
Solids, TDS	7	May-07-18 09:06	pH = 6
TKN DA	28	May-28-18 09:06	pH = 2
TOC	28	May-28-18 09:06	pH = 2
Total Phosphorus DA	28	May-28-18 09:06	pH = 2

**Sample ID:** 1805005-09      **Sampled:** Apr-30-18 09:49      **Matrix:** Water

**Sample Name:** FB1      **Sample Location/Comments:** Cranberry Rock Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:49	pH = 2
Anions by IC	28	May-28-18 09:49	pH = 4
Metals ICP-AES (w)	180	Oct-27-18 09:49	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:49	pH = 2
Solids, TDS	7	May-07-18 09:49	pH = 4
TKN DA	28	May-28-18 09:49	pH = 2
TOC	28	May-28-18 09:49	pH = 2
Total Phosphorus DA	28	May-28-18 09:49	pH = 2

**Sample ID:** 1805005-10      **Sampled:** Apr-30-18 09:58      **Matrix:** Water

**Sample Name:** A4a      **Sample Location/Comments:** Cranberry Rock Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:58	pH = 2
Anions by IC	28	May-28-18 09:58	pH = 6

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-10      Sampled: Apr-30-18 09:58      Matrix: Water

Sample Name: A4a      Sample Location/Comments: Cranberry Rock Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-27-18 09:58	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:58	pH = 2
Solids, TDS	7	May-07-18 09:58	pH = 6
TKN DA	28	May-28-18 09:58	pH = 2
TOC	28	May-28-18 09:58	pH = 2
Total Phosphorus DA	28	May-28-18 09:58	pH = 2

Sample ID: 1805005-11      Sampled: Apr-30-18 10:09      Matrix: Water

Sample Name: A4b      Sample Location/Comments: Cranberry Rock Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:09	pH = 2
Anions by IC	28	May-28-18 10:09	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:09	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:09	pH = 2
Solids, TDS	7	May-07-18 10:09	pH = 5
TKN DA	28	May-28-18 10:09	pH = 2
TOC	28	May-28-18 10:09	pH = 2
Total Phosphorus DA	28	May-28-18 10:09	pH = 2

Sample ID: 1805005-12      Sampled: Apr-30-18 10:51      Matrix: Water

Sample Name: B1a      Sample Location/Comments: 20th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:51	pH = 3
Anions by IC	28	May-28-18 10:51	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:51	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:51	pH = 3
Solids, TDS	7	May-07-18 10:51	pH = 5
TKN DA	28	May-28-18 10:51	pH = 3
TOC	28	May-28-18 10:51	pH = 3
Total Phosphorus DA	28	May-28-18 10:51	pH = 3

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-13      Sampled: Apr-30-18 10:58      Matrix: Water

Sample Name: B1b      Sample Location/Comments: 20th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:58	pH = 2
Anions by IC	28	May-28-18 10:58	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:58	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:58	pH = 2
Solids, TDS	7	May-07-18 10:58	pH = 5
TKN DA	28	May-28-18 10:58	pH = 2
TOC	28	May-28-18 10:58	pH = 2
Total Phosphorus DA	28	May-28-18 10:58	pH = 2

Sample ID: 1805005-14      Sampled: Apr-30-18 11:40      Matrix: Water

Sample Name: B2a      Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 11:40	pH = 2
Anions by IC	28	May-28-18 11:40	pH = 7
Metals ICP-AES (w)	180	Oct-27-18 11:40	pH = 4
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 11:40	pH = 2
Solids, TDS	7	May-07-18 11:40	pH = 7
TKN DA	28	May-28-18 11:40	pH = 2
TOC	28	May-28-18 11:40	pH = 2
Total Phosphorus DA	28	May-28-18 11:40	pH = 2

Sample ID: 1805005-15      Sampled: Apr-30-18 11:48      Matrix: Water

Sample Name: B2b      Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 11:48	pH = 2
Anions by IC	28	May-28-18 11:48	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 11:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 11:48	pH = 2
Solids, TDS	7	May-07-18 11:48	pH = 5
TKN DA	28	May-28-18 11:48	pH = 2
TOC	28	May-28-18 11:48	pH = 2

WORK ORDER

Printed: 5/3/2018 3:33:25PM

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-15      Sampled: Apr-30-18 11:48      Matrix: Water

Sample Name: B2b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 11:48	pH = 2

Sample ID: 1805005-16      Sampled: Apr-30-18 12:29      Matrix: Water

Sample Name: B3a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 12:29	pH = 2
Anions by IC	28	May-28-18 12:29	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 12:29	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 12:29	pH = 2
Solids, TDS	7	May-07-18 12:29	pH = 6
TKN DA	28	May-28-18 12:29	pH = 2
TOC	28	May-28-18 12:29	pH = 2
Total Phosphorus DA	28	May-28-18 12:29	pH = 2

Sample ID: 1805005-17      Sampled: Apr-30-18 12:36      Matrix: Water

Sample Name: B3b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 12:36	pH = 2
Anions by IC	28	May-28-18 12:36	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 12:36	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 12:36	pH = 2
Solids, TDS	7	May-07-18 12:36	pH = 5
TKN DA	28	May-28-18 12:36	pH = 2
TOC	28	May-28-18 12:36	pH = 2
Total Phosphorus DA	28	May-28-18 12:36	pH = 2

Sample ID: 1805005-18      Sampled: Apr-30-18 13:10      Matrix: Water

Sample Name: B4a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 13:10	pH = 2
Anions by IC	28	May-28-18 13:10	pH = 5

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-18      Sampled: Apr-30-18 13:10      Matrix: Water

Sample Name: B4a      Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-27-18 13:10	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 13:10	pH = 2
Solids, TDS	7	May-07-18 13:10	pH = 5
TKN DA	28	May-28-18 13:10	pH = 2
TOC	28	May-28-18 13:10	pH = 2
Total Phosphorus DA	28	May-28-18 13:10	pH = 2

Sample ID: 1805005-19      Sampled: Apr-30-18 13:41      Matrix: Water

Sample Name: B4b      Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 13:41	pH = 2
Anions by IC	28	May-28-18 13:41	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 13:41	pH = 4
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 13:41	pH = 2
Solids, TDS	7	May-07-18 13:41	pH = 5
TKN DA	28	May-28-18 13:41	pH = 2
TOC	28	May-28-18 13:41	pH = 2
Total Phosphorus DA	28	May-28-18 13:41	pH = 2

Sample ID: 1805005-20      Sampled: Apr-30-18 15:02      Matrix: Water

Sample Name: C1a      Sample Location/Comments: 2nd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 15:02	pH = 2
Anions by IC	28	May-28-18 15:02	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 15:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 15:02	pH = 2
Solids, TDS	7	May-07-18 15:02	pH = 5
TKN DA	28	May-28-18 15:02	pH = 2
TOC	28	May-28-18 15:02	pH = 2
Total Phosphorus DA	28	May-28-18 15:02	pH = 2



1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-21      Sampled: Apr-30-18 15:27      Matrix: Water

Sample Name: C1b      Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 15:27	pH = 2
Anions by IC	28	May-28-18 15:27	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 15:27	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 15:27	pH = 2
Solids, TDS	7	May-07-18 15:27	pH = 5
TKN DA	28	May-28-18 15:27	pH = 2
TOC	28	May-28-18 15:27	pH = 2
Total Phosphorus DA	28	May-28-18 15:27	pH = 2

Sample ID: 1805005-22      Sampled: Apr-30-18 16:06      Matrix: Water

Sample Name: C2a      Sample Location/Comments: Nelson Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 16:06	pH = 2
Anions by IC	28	May-28-18 16:06	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 16:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 16:06	pH = 2
Solids, TDS	7	May-07-18 16:06	pH = 5
TKN DA	28	May-28-18 16:06	pH = 2
TOC	28	May-28-18 16:06	pH = 2
Total Phosphorus DA	28	May-28-18 16:06	pH = 2

Sample ID: 1805005-23      Sampled: Apr-30-18 16:14      Matrix: Water

Sample Name: C2b      Sample Location/Comments: Nelson Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 16:14	pH = 2
Anions by IC	28	May-28-18 16:14	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 16:14	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 16:14	pH = 2
Solids, TDS	7	May-07-18 16:14	pH = 5
TKN DA	28	May-28-18 16:14	pH = 2
TOC	28	May-28-18 16:14	pH = 2

**WORK ORDER**

Printed: 5/3/2018 3:33:25PM

**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-23      **Sampled:** Apr-30-18 16:14      **Matrix:** Water

**Sample Name:** C2b      **Sample Location/Comments:** Nelson Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 16:14	pH = 2

**Sample ID:** 1805005-24      **Sampled:** Apr-30-18 14:16      **Matrix:** Water

**Sample Name:** C3a      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 14:16	pH = 2
Anions by IC	28	May-28-18 14:16	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 14:16	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 14:16	pH = 2
Solids, TDS	7	May-07-18 14:16	pH = 5
TKN DA	28	May-28-18 14:16	pH = 2
TOC	28	May-28-18 14:16	pH = 2
Total Phosphorus DA	28	May-28-18 14:16	pH = 2

**Sample ID:** 1805005-25      **Sampled:** Apr-30-18 14:26      **Matrix:** Water

**Sample Name:** C3b      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 14:26	pH = 2
Anions by IC	28	May-28-18 14:26	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 14:26	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 14:26	pH = 2
Solids, TDS	7	May-07-18 14:26	pH = 5
TKN DA	28	May-28-18 14:26	pH = 2
TOC	28	May-28-18 14:26	pH = 2
Total Phosphorus DA	28	May-28-18 14:26	pH = 2

**Sample ID:** 1805005-26      **Sampled:** May-01-18 06:29      **Matrix:** Water

**Sample Name:** C5Aa      **Sample Location/Comments:** CR G (Nelson Road)

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 06:29	pH = 2
Anions by IC	28	May-29-18 06:29	pH = 5

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-26      Sampled: May-01-18 06:29      Matrix: Water

Sample Name: C5Aa

Sample Location/Comments: CR G (Nelson Road)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 06:29	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 06:29	pH = 2
Solids, TDS	7	May-08-18 06:29	pH = 5
TKN DA	28	May-29-18 06:29	pH = 2
TOC	28	May-29-18 06:29	pH = 2
Total Phosphorus DA	28	May-29-18 06:29	pH = 2

Sample ID: 1805005-27      Sampled: May-01-18 06:43      Matrix: Water

Sample Name: C5Ab

Sample Location/Comments: CR G (Nelson Road)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 06:43	pH = 2
Anions by IC	28	May-29-18 06:43	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 06:43	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 06:43	pH = 2
Solids, TDS	7	May-08-18 06:43	pH = 5
TKN DA	28	May-29-18 06:43	pH = 2
TOC	28	May-29-18 06:43	pH = 2
Total Phosphorus DA	28	May-29-18 06:43	pH = 2

Sample ID: 1805005-28      Sampled: May-01-18 07:06      Matrix: Water

Sample Name: C6a

Sample Location/Comments: CR G (Nelson Road)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:06	pH = 2
Anions by IC	28	May-29-18 07:06	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 07:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:06	pH = 2
Solids, TDS	7	May-08-18 07:06	pH = 6
TKN DA	28	May-29-18 07:06	pH = 2
TOC	28	May-29-18 07:06	pH = 2
Total Phosphorus DA	28	May-29-18 07:06	pH = 2

**WORK ORDER**

Printed: 5/3/2018 3:33:25PM

**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-29      **Sampled:** May-01-18 07:15      **Matrix:** Water

**Sample Name:** C6h      **Sample Location/Comments:** CR G (Nelson Road)

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:15	pH = 3
Anions by IC	28	May-29-18 07:15	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 07:15	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:15	pH = 3
Solids, TDS	7	May-08-18 07:15	pH = 5
TKN DA	28	May-29-18 07:15	pH = 3
TOC	28	May-29-18 07:15	pH = 3
Total Phosphorus DA	28	May-29-18 07:15	pH = 3

**Sample ID:** 1805005-30      **Sampled:** May-01-18 07:48      **Matrix:** Water

**Sample Name:** C7a      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:48	pH = 2
Anions by IC	28	May-29-18 07:48	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 07:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:48	pH = 2
Solids, TDS	7	May-08-18 07:48	pH = 6
TKN DA	28	May-29-18 07:48	pH = 2
TOC	28	May-29-18 07:48	pH = 2
Total Phosphorus DA	28	May-29-18 07:48	pH = 2

**Sample ID:** 1805005-31      **Sampled:** May-01-18 08:02      **Matrix:** Water

**Sample Name:** C7b      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:02	pH = 2
Anions by IC	28	May-29-18 08:02	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:02	pH = 2
Solids, TDS	7	May-08-18 08:02	pH = 5
TKN DA	28	May-29-18 08:02	pH = 2
TOC	28	May-29-18 08:02	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-31      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 08:02	pH = 2

Sample ID: 1805005-32      Sampled: May-01-18 07:39      Matrix: Water

Sample Name: FB2      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:39	pH = 2
Anions by IC	28	May-29-18 07:39	pH = 4
Metals ICP-AES (w)	180	Oct-28-18 07:39	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:39	pH = 2
Solids, TDS	7	May-08-18 07:39	pH = 4
TKN DA	28	May-29-18 07:39	pH = 2
TOC	28	May-29-18 07:39	pH = 2
Total Phosphorus DA	28	May-29-18 07:39	pH = 2

Sample ID: 1805005-33      Sampled: May-01-18 07:38      Matrix: Water

Sample Name: C7 equip      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:38	pH = 2
Anions by IC	28	May-29-18 07:38	pH = 4
Metals ICP-AES (w)	180	Oct-28-18 07:38	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:38	pH = 2
Solids, TDS	7	May-08-18 07:38	pH = 4
TKN DA	28	May-29-18 07:38	pH = 2
TOC	28	May-29-18 07:38	pH = 2
Total Phosphorus DA	28	May-29-18 07:38	pH = 2

Sample ID: 1805005-34      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7 Dup      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:02	pH = 2
Anions by IC	28	May-29-18 08:02	pH = 5

1805005

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-34      **Sampled:** May-01-18 08:02      **Matrix:** Water

**Sample Name:** C7 Dup      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 08:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:02	pH = 2
Solids, TDS	7	May-08-18 08:02	pH = 5
TKN DA	28	May-29-18 08:02	pH = 2
TOC	28	May-29-18 08:02	pH = 2
Total Phosphorus DA	28	May-29-18 08:02	pH = 2

**Sample ID:** 1805005-35      **Sampled:** May-01-18 08:35      **Matrix:** Water

**Sample Name:** C8a      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:35	pH = 2
Anions by IC	28	May-29-18 08:35	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:35	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:35	pH = 2
Solids, TDS	7	May-08-18 08:35	pH = 5
TKN DA	28	May-29-18 08:35	pH = 2
TOC	28	May-29-18 08:35	pH = 2
Total Phosphorus DA	28	May-29-18 08:35	pH = 2

**Sample ID:** 1805005-36      **Sampled:** May-01-18 08:42      **Matrix:** Water

**Sample Name:** C8b      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:42	pH = 2
Anions by IC	28	May-29-18 08:42	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:42	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:42	pH = 2
Solids, TDS	7	May-08-18 08:42	pH = 5
TKN DA	28	May-29-18 08:42	pH = 2
TOC	28	May-29-18 08:42	pH = 2
Total Phosphorus DA	28	May-29-18 08:42	pH = 2



1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-37      Sampled: May-01-18 10:00      Matrix: Water

Sample Name: C9a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 10:00	pH = 2
Anions by IC	28	May-29-18 10:00	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 10:00	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 10:00	pH = 2
Solids, TDS	7	May-08-18 10:00	pH = 5
TKN DA	28	May-29-18 10:00	pH = 2
TOC	28	May-29-18 10:00	pH = 2
Total Phosphorus DA	28	May-29-18 10:00	pH = 2

Sample ID: 1805005-38      Sampled: May-01-18 10:21      Matrix: Water

Sample Name: C9b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 10:21	pH = 2
Anions by IC	28	May-29-18 10:21	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 10:21	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 10:21	pH = 2
Solids, TDS	7	May-08-18 10:21	pH = 5
TKN DA	28	May-29-18 10:21	pH = 2
TOC	28	May-29-18 10:21	pH = 2
Total Phosphorus DA	28	May-29-18 10:21	pH = 2

Sample ID: 1805005-39      Sampled: May-01-18 11:05      Matrix: Water

Sample Name: C10a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:05	pH = 2
Anions by IC	28	May-29-18 11:05	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 11:05	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:05	pH = 2
Solids, TDS	7	May-08-18 11:05	pH = 6
TKN DA	28	May-29-18 11:05	pH = 2
TOC	28	May-29-18 11:05	pH = 2

1805005

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> [none]
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**Sample ID:** 1805005-39      **Sampled:** May-01-18 11:05      **Matrix:** Water

**Sample Name:** C10a      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 11:05	pH = 2

**Sample ID:** 1805005-40      **Sampled:** May-01-18 11:12      **Matrix:** Water

**Sample Name:** C10b      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:12	pH = 2
Anions by IC	28	May-29-18 11:12	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 11:12	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:12	pH = 2
Solids, TDS	7	May-08-18 11:12	pH = 5
TKN DA	28	May-29-18 11:12	pH = 2
TOC	28	May-29-18 11:12	pH = 2
Total Phosphorus DA	28	May-29-18 11:12	pH = 2

**Sample ID:** 1805005-41      **Sampled:** May-01-18 11:46      **Matrix:** Water

**Sample Name:** C11a      **Sample Location/Comments:** 20th Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:46	pH = 3
Anions by IC	28	May-29-18 11:46	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 11:46	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:46	pH = 3
Solids, TDS	7	May-08-18 11:46	pH = 6
TKN DA	28	May-29-18 11:46	pH = 3
TOC	28	May-29-18 11:46	pH = 3
Total Phosphorus DA	28	May-29-18 11:46	pH = 3

**Sample ID:** 1805005-42      **Sampled:** May-01-18 11:52      **Matrix:** Water

**Sample Name:** C11b      **Sample Location/Comments:** 20th Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:52	pH = 2
Anions by IC	28	May-29-18 11:52	pH = 5

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-42      Sampled: May-01-18 11:52      Matrix: Water

Sample Name: C11h      Sample Location/Comments: 20th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 11:52	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:52	pH = 2
Solids, TDS	7	May-08-18 11:52	pH = 5
TKN DA	28	May-29-18 11:52	pH = 2
TOC	28	May-29-18 11:52	pH = 2
Total Phosphorus DA	28	May-29-18 11:52	pH = 2

Sample ID: 1805005-43      Sampled: May-01-18 12:41      Matrix: Water

Sample Name: C12a      Sample Location/Comments: 19th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 12:41	pH = 2
Anions by IC	28	May-29-18 12:41	pH = 7
Metals ICP-AES (w)	180	Oct-28-18 12:41	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 12:41	pH = 2
Solids, TDS	7	May-08-18 12:41	pH = 7
TKN DA	28	May-29-18 12:41	pH = 2
TOC	28	May-29-18 12:41	pH = 2
Total Phosphorus DA	28	May-29-18 12:41	pH = 2

Sample ID: 1805005-44      Sampled: May-01-18 12:47      Matrix: Water

Sample Name: C12b      Sample Location/Comments: 19th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 12:47	pH = 2
Anions by IC	28	May-29-18 12:47	pH = 7
Metals ICP-AES (w)	180	Oct-28-18 12:47	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 12:47	pH = 2
Solids, TDS	7	May-08-18 12:47	pH = 7
TKN DA	28	May-29-18 12:47	pH = 2
TOC	28	May-29-18 12:47	pH = 2
Total Phosphorus DA	28	May-29-18 12:47	pH = 2

WORK ORDER

Printed: 5/3/2018 3:33:25PM

1805005

US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> [none]
---	--

**Sample ID:** 1805005-45      **Sampled:** May-01-18 13:30      **Matrix:** Water

**Sample Name:** C13a      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 13:30	pH = 3
Anions by IC	28	May-29-18 13:30	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 13:30	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 13:30	pH = 3
Solids, TDS	7	May-08-18 13:30	pH = 6
TKN DA	28	May-29-18 13:30	pH = 3
TOC	28	May-29-18 13:30	pH = 3
Total Phosphorus DA	28	May-29-18 13:30	pH = 3

**Sample ID:** 1805005-46      **Sampled:** May-01-18 13:39      **Matrix:** Water

**Sample Name:** C13b      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 13:39	pH = 2
Anions by IC	28	May-29-18 13:39	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 13:39	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 13:39	pH = 2
Solids, TDS	7	May-08-18 13:39	pH = 5
TKN DA	28	May-29-18 13:39	pH = 2
TOC	28	May-29-18 13:39	pH = 2
Total Phosphorus DA	28	May-29-18 13:39	pH = 2

**Sample ID:** 1805005-47      **Sampled:** May-01-18 14:19      **Matrix:** Water

**Sample Name:** D1a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 14:19	pH = 2
Anions by IC	28	May-29-18 14:19	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 14:19	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 14:19	pH = 2
Solids, TDS	7	May-08-18 14:19	pH = 6
TKN DA	28	May-29-18 14:19	pH = 2
TOC	28	May-29-18 14:19	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-47      Sampled: May-01-18 14:19      Matrix: Water

Sample Name: D1a      Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 14:19	pH = 2

Sample ID: 1805005-48      Sampled: May-01-18 14:26      Matrix: Water

Sample Name: D1b      Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 14:26	pH = 3
Anions by IC	28	May-29-18 14:26	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 14:26	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 14:26	pH = 3
Solids, TDS	7	May-08-18 14:26	pH = 5
TKN DA	28	May-29-18 14:26	pH = 3
TOC	28	May-29-18 14:26	pH = 3
Total Phosphorus DA	28	May-29-18 14:26	pH = 3

Sample ID: 1805005-49      Sampled: May-01-18 15:00      Matrix: Water

Sample Name: D2a      Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:00	pH = 3
Anions by IC	28	May-29-18 15:00	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:00	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:00	pH = 3
Solids, TDS	7	May-08-18 15:00	pH = 6
TKN DA	28	May-29-18 15:00	pH = 3
TOC	28	May-29-18 15:00	pH = 3
Total Phosphorus DA	28	May-29-18 15:00	pH = 3

Sample ID: 1805005-50      Sampled: May-01-18 15:06      Matrix: Water

Sample Name: D2b      Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:06	pH = 2
Anions by IC	28	May-29-18 15:06	pH = 6

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-50      Sampled: May-01-18 15:06      Matrix: Water

Sample Name: D2b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 15:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:06	pH = 2
Solids, TDS	7	May-08-18 15:06	pH = 6
TKN DA	28	May-29-18 15:06	pH = 2
TOC	28	May-29-18 15:06	pH = 2
Total Phosphorus DA	28	May-29-18 15:06	pH = 2

Sample ID: 1805005-51      Sampled: May-01-18 15:41      Matrix: Water

Sample Name: D3a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:41	pH = 2
Anions by IC	28	May-29-18 15:41	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:41	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:41	pH = 2
Solids, TDS	7	May-08-18 15:41	pH = 6
TKN DA	28	May-29-18 15:41	pH = 2
TOC	28	May-29-18 15:41	pH = 2
Total Phosphorus DA	28	May-29-18 15:41	pH = 2

Sample ID: 1805005-52      Sampled: May-01-18 15:48      Matrix: Water

Sample Name: D3b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:48	pH = 2
Anions by IC	28	May-29-18 15:48	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 15:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:48	pH = 2
Solids, TDS	7	May-08-18 15:48	pH = 5
TKN DA	28	May-29-18 15:48	pH = 2
TOC	28	May-29-18 15:48	pH = 2
Total Phosphorus DA	28	May-29-18 15:48	pH = 2



1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-53      Sampled: May-01-18 16:19      Matrix: Water

Sample Name: D4a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 16:19	pH = 2
Anions by IC	28	May-29-18 16:19	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 16:19	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 16:19	pH = 2
Solids, TDS	7	May-08-18 16:19	pH = 6
TKN DA	28	May-29-18 16:19	pH = 2
TOC	28	May-29-18 16:19	pH = 2
Total Phosphorus DA	28	May-29-18 16:19	pH = 2

Sample ID: 1805005-54      Sampled: May-01-18 16:26      Matrix: Water

Sample Name: D4b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 16:26	pH = 2
Anions by IC	28	May-29-18 16:26	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 16:26	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 16:26	pH = 2
Solids, TDS	7	May-08-18 16:26	pH = 5
TKN DA	28	May-29-18 16:26	pH = 2
TOC	28	May-29-18 16:26	pH = 2
Total Phosphorus DA	28	May-29-18 16:26	pH = 2

WORK ORDER MEMO: NCR 14118

PROJECT COMMENTS: Anions: Chloride, fluoride, bromide, sulfate.  
Full List metals

**REVIEWED**

*By Amanda Wroble at 3:35 pm, May 03, 2018*

Reviewed By \_\_\_\_\_ Date \_\_\_\_\_



**Environmental Protection Agency Region 5**  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
 Phone:(312)353-8370 Fax:(312)886-2591

**WORK ORDER**

Printed: 5/7/2018 9:53:28AM

**1805007**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

<b>Report To:</b>		
Cheryl Burdett	77 West Jackson Boulevard	Phone: (312) 886-1463
Water Division, WECA Region 5	Chicago, IL 60604	Fax: (312) 886-2001

Date Due:	Jun-04-18 15:00 (30 day TAT)	Date Received:	May-04-18 10:00
Received By:	Robert Snyder	Date Logged In:	May-07-18 07:38
Logged In By:	Robert Snyder		

<b>Samples Received at:</b>	<b>Work Order Comments:</b>
Sample tags/labels <b>Yes</b>	Copy/Relog from 1805005. Anions: Chloride and nitrate as NO3
Seals Intact <b>Yes</b>	Full List metals
Received on ice <b>Yes</b>	pH paper used in SC 16H2601
Paperwork Included <b>Yes</b>	

**Sample ID:** 1805007-01      **Sampled:** May-02-18 06:38      **Matrix:** Water  
**Sample Name:** D5a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 06:38	pH = 1
Anions by IC	28	May-30-18 06:38	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 06:38	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 06:38	pH = 1
Solids, TDS	7	May-09-18 06:38	pH = 6
TKN DA	28	May-30-18 06:38	pH = 1
TOC	28	May-30-18 06:38	pH = 1
Total Phosphorus DA	28	May-30-18 06:38	pH = 1

**Sample ID:** 1805007-02      **Sampled:** May-02-18 06:46      **Matrix:** Water  
**Sample Name:** D5b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 06:46	pH = 1
Anions by IC	28	May-30-18 06:46	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 06:46	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 06:46	pH = 1

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-02      Sampled: May-02-18 06:46      Matrix: Water

Sample Name: D5h      Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-09-18 06:46	pH = 5
TKN DA	28	May-30-18 06:46	pH = 1
TOC	28	May-30-18 06:46	pH = 1
Total Phosphorus DA	28	May-30-18 06:46	pH = 1

Sample ID: 1805007-03      Sampled: May-02-18 07:17      Matrix: Water

Sample Name: D6a      Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 07:17	pH = 1
Anions by IC	28	May-30-18 07:17	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 07:17	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 07:17	pH = 1
Solids, TDS	7	May-09-18 07:17	pH = 6
TKN DA	28	May-30-18 07:17	pH = 1
TOC	28	May-30-18 07:17	pH = 1
Total Phosphorus DA	28	May-30-18 07:17	pH = 1

Sample ID: 1805007-04      Sampled: May-02-18 07:29      Matrix: Water

Sample Name: D6b      Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 07:29	pH = 1
Anions by IC	28	May-30-18 07:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 07:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 07:29	pH = 1
Solids, TDS	7	May-09-18 07:29	pH = 6
TKN DA	28	May-30-18 07:29	pH = 1
TOC	28	May-30-18 07:29	pH = 1
Total Phosphorus DA	28	May-30-18 07:29	pH = 1

1805007

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

**Sample ID:** 1805007-05      **Sampled:** May-02-18 08:01      **Matrix:** Water  
**Sample Name:** D7 equip      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:01	pH = 1
Anions by IC	28	May-30-18 08:01	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 08:01	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:01	pH = 1
Solids, TDS	7	May-09-18 08:01	pH = 5
TKN DA	28	May-30-18 08:01	pH = 1
TOC	28	May-30-18 08:01	pH = 1
Total Phosphorus DA	28	May-30-18 08:01	pH = 1

**Sample ID:** 1805007-06      **Sampled:** May-02-18 08:03      **Matrix:** Water  
**Sample Name:** FB3      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:03	pH = 1
Anions by IC	28	May-30-18 08:03	pH = 4
Metals ICP-AES (w)	180	Oct-29-18 08:03	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:03	pH = 1
Solids, TDS	7	May-09-18 08:03	pH = 4
TKN DA	28	May-30-18 08:03	pH = 1
TOC	28	May-30-18 08:03	pH = 1
Total Phosphorus DA	28	May-30-18 08:03	pH = 1

**Sample ID:** 1805007-07      **Sampled:** May-02-18 08:12      **Matrix:** Water  
**Sample Name:** D7a Dup      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:12	pH = 1
Anions by IC	28	May-30-18 08:12	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:12	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:12	pH = 1
Solids, TDS	7	May-09-18 08:12	pH = 6
TKN DA	28	May-30-18 08:12	pH = 1
TOC	28	May-30-18 08:12	pH = 1

WORK ORDER

Printed: 5/7/2018 9:53:28AM

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-07      Sampled: May-02-18 08:12      Matrix: Water  
 Sample Name: D7a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 08:12	pH = 1

Sample ID: 1805007-08      Sampled: May-02-18 08:12      Matrix: Water      OC Source Sample MS/MSD  
 Sample Name: D7a      Sample Location/Comments: 23rd Avenue

Sample Comments: MS/MSD

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:12	pH = 1
Anions by IC	28	May-30-18 08:12	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:12	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:12	pH = 1
Solids, TDS	7	May-09-18 08:12	pH = 6
TKN DA	28	May-30-18 08:12	pH = 1
TOC	28	May-30-18 08:12	pH = 1
Total Phosphorus DA	28	May-30-18 08:12	pH = 1

Sample ID: 1805007-09      Sampled: May-02-18 08:19      Matrix: Water  
 Sample Name: D7b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:19	pH = 1
Anions by IC	28	May-30-18 08:19	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 08:19	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:19	pH = 1
Solids, TDS	7	May-09-18 08:19	pH = 5
TKN DA	28	May-30-18 08:19	pH = 1
TOC	28	May-30-18 08:19	pH = 1
Total Phosphorus DA	28	May-30-18 08:19	pH = 1

Sample ID: 1805007-10      Sampled: May-02-18 08:55      Matrix: Water  
 Sample Name: D8a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:55	pH = 1
Anions by IC	28	May-30-18 08:55	pH = 6

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-10      Sampled: May-02-18 08:55      Matrix: Water

Sample Name: D8a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 08:55	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:55	pH = 1
Solids, TDS	7	May-09-18 08:55	pH = 6
TKN DA	28	May-30-18 08:55	pH = 1
TOC	28	May-30-18 08:55	pH = 1
Total Phosphorus DA	28	May-30-18 08:55	pH = 1

Sample ID: 1805007-11      Sampled: May-02-18 09:11      Matrix: Water

Sample Name: D8b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:11	pH = 1
Anions by IC	28	May-30-18 09:11	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:11	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:11	pH = 1
Solids, TDS	7	May-09-18 09:11	pH = 6
TKN DA	28	May-30-18 09:11	pH = 1
TOC	28	May-30-18 09:11	pH = 1
Total Phosphorus DA	28	May-30-18 09:11	pH = 1

Sample ID: 1805007-12      Sampled: May-02-18 09:45      Matrix: Water

Sample Name: D9a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:45	pH = 1
Anions by IC	28	May-30-18 09:45	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:45	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:45	pH = 1
Solids, TDS	7	May-09-18 09:45	pH = 6
TKN DA	28	May-30-18 09:45	pH = 1
TOC	28	May-30-18 09:45	pH = 1
Total Phosphorus DA	28	May-30-18 09:45	pH = 1



1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-13      Sampled: May-02-18 09:54      Matrix: Water  
 Sample Name: D9b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:54	pH = 1
Anions by IC	28	May-30-18 09:54	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:54	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:54	pH = 1
Solids, TDS	7	May-09-18 09:54	pH = 6
TKN DA	28	May-30-18 09:54	pH = 1
TOC	28	May-30-18 09:54	pH = 1
Total Phosphorus DA	28	May-30-18 09:54	pH = 1

Sample ID: 1805007-14      Sampled: May-02-18 10:29      Matrix: Water  
 Sample Name: D10a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:29	pH = 1
Anions by IC	28	May-30-18 10:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 10:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:29	pH = 1
Solids, TDS	7	May-09-18 10:29	pH = 6
TKN DA	28	May-30-18 10:29	pH = 1
TOC	28	May-30-18 10:29	pH = 1
Total Phosphorus DA	28	May-30-18 10:29	pH = 1

Sample ID: 1805007-15      Sampled: May-02-18 10:29      Matrix: Water  
 Sample Name: D10a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:29	pH = 1
Anions by IC	28	May-30-18 10:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 10:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:29	pH = 1
Solids, TDS	7	May-09-18 10:29	pH = 6
TKN DA	28	May-30-18 10:29	pH = 1
TOC	28	May-30-18 10:29	pH = 1

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b>	Project Manager: <b>Angela Ockrassa Davis</b>
Project: <b>Central Sands</b>	Project Number: <b>CB022018</b>

Sample ID: 1805007-15      Sampled: May-02-18 10:29      Matrix: Water  
 Sample Name: D10a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 10:29	pH = 1

Sample ID: 1805007-16      Sampled: May-02-18 10:41      Matrix: Water  
 Sample Name: D10b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:41	pH = 1
Anions by IC	28	May-30-18 10:41	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 10:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:41	pH = 1
Solids, TDS	7	May-09-18 10:41	pH = 5
TKN DA	28	May-30-18 10:41	pH = 1
TOC	28	May-30-18 10:41	pH = 1
Total Phosphorus DA	28	May-30-18 10:41	pH = 1

Sample ID: 1805007-17      Sampled: May-02-18 10:41      Matrix: Water  
 Sample Name: D10b Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:41	pH = 1
Anions by IC	28	May-30-18 10:41	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 10:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:41	pH = 1
Solids, TDS	7	May-09-18 10:41	pH = 5
TKN DA	28	May-30-18 10:41	pH = 1
TOC	28	May-30-18 10:41	pH = 1
Total Phosphorus DA	28	May-30-18 10:41	pH = 1

Sample ID: 1805007-18      Sampled: May-02-18 11:19      Matrix: Water  
 Sample Name: D11a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 11:19	pH = 1
Anions by IC	28	May-30-18 11:19	pH = 6

1805007

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> CB022018
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**Sample ID:** 1805007-18      **Sampled:** May-02-18 11:19      **Matrix:** Water

**Sample Name:** D11a      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 11:19	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 11:19	pH = 1
Solids, TDS	7	May-09-18 11:19	pH = 6
TKN DA	28	May-30-18 11:19	pH = 1
TOC	28	May-30-18 11:19	pH = 1
Total Phosphorus DA	28	May-30-18 11:19	pH = 1

**Sample ID:** 1805007-19      **Sampled:** May-02-18 11:42      **Matrix:** Water

**Sample Name:** D11b      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 11:42	pH = 1
Anions by IC	28	May-30-18 11:42	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 11:42	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 11:42	pH = 1
Solids, TDS	7	May-09-18 11:42	pH = 5
TKN DA	28	May-30-18 11:42	pH = 1
TOC	28	May-30-18 11:42	pH = 1
Total Phosphorus DA	28	May-30-18 11:42	pH = 1

**Sample ID:** 1805007-20      **Sampled:** May-02-18 12:41      **Matrix:** Water

**Sample Name:** E1a      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 12:41	pH = 1
Anions by IC	28	May-30-18 12:41	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 12:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 12:41	pH = 1
Solids, TDS	7	May-09-18 12:41	pH = 6
TKN DA	28	May-30-18 12:41	pH = 1
TOC	28	May-30-18 12:41	pH = 1
Total Phosphorus DA	28	May-30-18 12:41	pH = 1

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**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

**Sample ID:** 1805007-21      **Sampled:** May-02-18 12:58      **Matrix:** Water

**Sample Name:** E1b      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 12:58	pH = 1
Anions by IC	28	May-30-18 12:58	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 12:58	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 12:58	pH = 1
Solids, TDS	7	May-09-18 12:58	pH = 6
TKN DA	28	May-30-18 12:58	pH = 1
TOC	28	May-30-18 12:58	pH = 1
Total Phosphorus DA	28	May-30-18 12:58	pH = 1

**Sample ID:** 1805007-22      **Sampled:** May-02-18 13:28      **Matrix:** Water

**Sample Name:** E2a      **Sample Location/Comments:** Porter Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:28	pH = 1
Anions by IC	28	May-30-18 13:28	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 13:28	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:28	pH = 1
Solids, TDS	7	May-09-18 13:28	pH = 6
TKN DA	28	May-30-18 13:28	pH = 1
TOC	28	May-30-18 13:28	pH = 1
Total Phosphorus DA	28	May-30-18 13:28	pH = 1

**Sample ID:** 1805007-23      **Sampled:** May-02-18 13:37      **Matrix:** Water

**Sample Name:** E2b      **Sample Location/Comments:** Porter Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:37	pH = 1
Anions by IC	28	May-30-18 13:37	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 13:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:37	pH = 1
Solids, TDS	7	May-09-18 13:37	pH = 5
TKN DA	28	May-30-18 13:37	pH = 1
TOC	28	May-30-18 13:37	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-23      Sampled: May-02-18 13:37      Matrix: Water  
Sample Name: E2b      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 13:37	pH = 1

Sample ID: 1805007-24      Sampled: May-02-18 13:28      Matrix: Water  
Sample Name: E2a Dup      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:28	pH = 1
Anions by IC	28	May-30-18 13:28	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 13:28	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:28	pH = 1
Solids, TDS	7	May-09-18 13:28	pH = 6
TKN DA	28	May-30-18 13:28	pH = 1
TOC	28	May-30-18 13:28	pH = 1
Total Phosphorus DA	28	May-30-18 13:28	pH = 1

Sample ID: 1805007-25      Sampled: May-02-18 13:37      Matrix: Water  
Sample Name: E2b Dup      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:37	pH = 1
Anions by IC	28	May-30-18 13:37	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 13:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:37	pH = 1
Solids, TDS	7	May-09-18 13:37	pH = 5
TKN DA	28	May-30-18 13:37	pH = 1
TOC	28	May-30-18 13:37	pH = 1
Total Phosphorus DA	28	May-30-18 13:37	pH = 1

Sample ID: 1805007-26      Sampled: May-02-18 14:03      Matrix: Water  
Sample Name: E3a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:03	pH = 1
Anions by IC	28	May-30-18 14:03	pH = 6

WORK ORDER

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-26      Sampled: May-02-18 14:03      Matrix: Water  
Sample Name: E3a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 14:03	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:03	pH = 1
Solids, TDS	7	May-09-18 14:03	pH = 6
TKN DA	28	May-30-18 14:03	pH = 1
TOC	28	May-30-18 14:03	pH = 1
Total Phosphorus DA	28	May-30-18 14:03	pH = 1

Sample ID: 1805007-27      Sampled: May-02-18 14:09      Matrix: Water  
Sample Name: E3b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:09	pH = 1
Anions by IC	28	May-30-18 14:09	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:09	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:09	pH = 1
Solids, TDS	7	May-09-18 14:09	pH = 6
TKN DA	28	May-30-18 14:09	pH = 1
TOC	28	May-30-18 14:09	pH = 1
Total Phosphorus DA	28	May-30-18 14:09	pH = 1

Sample ID: 1805007-28      Sampled: May-02-18 14:37      Matrix: Water  
Sample Name: E4a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:37	pH = 1
Anions by IC	28	May-30-18 14:37	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:37	pH = 1
Solids, TDS	7	May-09-18 14:37	pH = 6
TKN DA	28	May-30-18 14:37	pH = 1
TOC	28	May-30-18 14:37	pH = 1
Total Phosphorus DA	28	May-30-18 14:37	pH = 1



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## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-29      Sampled: May-02-18 14:43      Matrix: Water

Sample Name: E4b      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:43	pH = 1
Anions by IC	28	May-30-18 14:43	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:43	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:43	pH = 1
Solids, TDS	7	May-09-18 14:43	pH = 6
TKN DA	28	May-30-18 14:43	pH = 1
TOC	28	May-30-18 14:43	pH = 1
Total Phosphorus DA	28	May-30-18 14:43	pH = 1

Sample ID: 1805007-30      Sampled: May-02-18 15:08      Matrix: Water

Sample Name: E5a      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:08	pH = 1
Anions by IC	28	May-30-18 15:08	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:08	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:08	pH = 1
Solids, TDS	7	May-09-18 15:08	pH = 6
TKN DA	28	May-30-18 15:08	pH = 1
TOC	28	May-30-18 15:08	pH = 1
Total Phosphorus DA	28	May-30-18 15:08	pH = 1

Sample ID: 1805007-31      Sampled: May-02-18 15:13      Matrix: Water

Sample Name: E5b      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:13	pH = 1
Anions by IC	28	May-30-18 15:13	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:13	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:13	pH = 1
Solids, TDS	7	May-09-18 15:13	pH = 6
TKN DA	28	May-30-18 15:13	pH = 1
TOC	28	May-30-18 15:13	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b> Project: <b>Central Sands</b>	Project Manager: <b>Angela Ockrassa Davis</b> Project Number: <b>CB022018</b>
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**Sample ID:** 1805007-31      **Sampled:** May-02-18 15:13      **Matrix:** Water  
**Sample Name:** E5b      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 15:13	pH = 1

**Sample ID:** 1805007-32      **Sampled:** May-02-18 15:38      **Matrix:** Water  
**Sample Name:** E6a      **Sample Location/Comments:** 20th Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:38	pH = 1
Anions by IC	28	May-30-18 15:38	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:38	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:38	pH = 1
Solids, TDS	7	May-09-18 15:38	pH = 6
TKN DA	28	May-30-18 15:38	pH = 1
TOC	28	May-30-18 15:38	pH = 1
Total Phosphorus DA	28	May-30-18 15:38	pH = 1

**Sample ID:** 1805007-33      **Sampled:** May-02-18 15:44      **Matrix:** Water  
**Sample Name:** E6b      **Sample Location/Comments:** 20th Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:44	pH = 1
Anions by IC	28	May-30-18 15:44	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:44	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:44	pH = 1
Solids, TDS	7	May-09-18 15:44	pH = 6
TKN DA	28	May-30-18 15:44	pH = 1
TOC	28	May-30-18 15:44	pH = 1
Total Phosphorus DA	28	May-30-18 15:44	pH = 1

**Sample ID:** 1805007-34      **Sampled:** May-02-18 16:09      **Matrix:** Water  
**Sample Name:** E7a      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 16:09	pH = 1
Anions by IC	28	May-30-18 16:09	pH = 5

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## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-34      Sampled: May-02-18 16:09      Matrix: Water

Sample Name: E7a      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 16:09	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 16:09	pH = 1
Solids, TDS	7	May-09-18 16:09	pH = 5
TKN DA	28	May-30-18 16:09	pH = 1
TOC	28	May-30-18 16:09	pH = 1
Total Phosphorus DA	28	May-30-18 16:09	pH = 1

Sample ID: 1805007-35      Sampled: May-02-18 16:35      Matrix: Water

Sample Name: E7b      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 16:35	pH = 1
Anions by IC	28	May-30-18 16:35	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 16:35	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 16:35	pH = 1
Solids, TDS	7	May-09-18 16:35	pH = 5
TKN DA	28	May-30-18 16:35	pH = 1
TOC	28	May-30-18 16:35	pH = 1
Total Phosphorus DA	28	May-30-18 16:35	pH = 1

Sample ID: 1805007-36      Sampled: May-03-18 08:40      Matrix: Water

Sample Name: E8a      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 08:40	pH = 1
Anions by IC	28	May-31-18 08:40	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 08:40	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 08:40	pH = 1
Solids, TDS	7	May-10-18 08:40	pH = 5
TKN DA	28	May-31-18 08:40	pH = 1
TOC	28	May-31-18 08:40	pH = 1
Total Phosphorus DA	28	May-31-18 08:40	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-37      Sampled: May-03-18 08:48      Matrix: Water

Sample Name: ESb      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 08:48	pH = 1
Anions by IC	28	May-31-18 08:48	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 08:48	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 08:48	pH = 1
Solids, TDS	7	May-10-18 08:48	pH = 6
TKN DA	28	May-31-18 08:48	pH = 1
TOC	28	May-31-18 08:48	pH = 1
Total Phosphorus DA	28	May-31-18 08:48	pH = 1

Sample ID: 1805007-38      Sampled: May-03-18 07:15      Matrix: Water

Sample Name: E10a      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:15	pH = 1
Anions by IC	28	May-31-18 07:15	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:15	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:15	pH = 1
Solids, TDS	7	May-10-18 07:15	pH = 6
TKN DA	28	May-31-18 07:15	pH = 1
TOC	28	May-31-18 07:15	pH = 1
Total Phosphorus DA	28	May-31-18 07:15	pH = 1

Sample ID: 1805007-39      Sampled: May-03-18 07:15      Matrix: Water

Sample Name: E10a Dup      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:15	pH = 1
Anions by IC	28	May-31-18 07:15	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:15	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:15	pH = 1
Solids, TDS	7	May-10-18 07:15	pH = 6
TKN DA	28	May-31-18 07:15	pH = 1
TOC	28	May-31-18 07:15	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-39      Sampled: May-03-18 07:15      Matrix: Water  
Sample Name: E10a Dup      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-31-18 07:15	pH = 1

Sample ID: 1805007-40      Sampled: May-03-18 07:27      Matrix: Water  
Sample Name: E10b      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:27	pH = 1
Anions by IC	28	May-31-18 07:27	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:27	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:27	pH = 1
Solids, TDS	7	May-10-18 07:27	pH = 6
TKN DA	28	May-31-18 07:27	pH = 1
TOC	28	May-31-18 07:27	pH = 1
Total Phosphorus DA	28	May-31-18 07:27	pH = 1

Sample ID: 1805007-41      Sampled: May-03-18 07:36      Matrix: Water  
Sample Name: FB4      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:36	pH = 1
Anions by IC	28	May-31-18 07:36	pH = 4
Metals ICP-AES (w)	180	Oct-30-18 07:36	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:36	pH = 1
Solids, TDS	7	May-10-18 07:36	pH = 4
TKN DA	28	May-31-18 07:36	pH = 1
TOC	28	May-31-18 07:36	pH = 1
Total Phosphorus DA	28	May-31-18 07:36	pH = 1

Sample ID: 1805007-42      Sampled: May-03-18 07:13      Matrix: Water  
Sample Name: E10 Equip      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:13	pH = 1
Anions by IC	28	May-31-18 07:13	pH = 4

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US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b>	Project Manager: <b>Angela Ockrassa Davis</b>
Project: <b>Central Sands</b>	Project Number: <b>CB022018</b>

Sample ID: 1805007-42      Sampled: May-03-18 07:13      Matrix: Water  
 Sample Name: E10 Equip      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-30-18 07:13	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:13	pH = 1
Solids, TDS	7	May-10-18 07:13	pH = 4
TKN DA	28	May-31-18 07:13	pH = 1
TOC	28	May-31-18 07:13	pH = 1
Total Phosphorus DA	28	May-31-18 07:13	pH = 1

Sample ID: 1805007-43      Sampled: May-03-18 09:53      Matrix: Water  
 Sample Name: E9a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 09:53	pH = 1
Anions by IC	28	May-31-18 09:53	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 09:53	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 09:53	pH = 1
Solids, TDS	7	May-10-18 09:53	pH = 5
TKN DA	28	May-31-18 09:53	pH = 1
TOC	28	May-31-18 09:53	pH = 1
Total Phosphorus DA	28	May-31-18 09:53	pH = 1

Sample ID: 1805007-44      Sampled: May-03-18 10:02      Matrix: Water  
 Sample Name: E9b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 10:02	pH = 1
Anions by IC	28	May-31-18 10:02	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 10:02	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 10:02	pH = 1
Solids, TDS	7	May-10-18 10:02	pH = 5
TKN DA	28	May-31-18 10:02	pH = 1
TOC	28	May-31-18 10:02	pH = 1
Total Phosphorus DA	28	May-31-18 10:02	pH = 1

Reviewed By \_\_\_\_\_

Date \_\_\_\_\_



1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

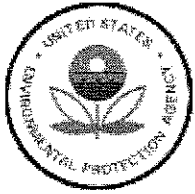
PROJECT COMMENTS: Anions: Chloride, fluoride, bromide, sulfate.  
Full List metals

**REVIEWED**

*By Robert Thompson at 9:54 am, May 07, 2018*

Reviewed By

Date



**Environmental Protection Agency Region 5**  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
 Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-04-18 15:29
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**Organic Carbon, Infra-red Combustion, Standard Method 5310 B (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**A1a (1805005-01) Matrix: Water Sampled: Apr-30-18 07:19 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	3		1	2	mg/L	1	B18E033	May-14-18	May-15-18

**A1b (1805005-02) Matrix: Water Sampled: Apr-30-18 07:32 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	2		1	2	mg/L	1	B18E033	May-14-18	May-15-18

**A2a (1805005-03) Matrix: Water Sampled: Apr-30-18 08:15 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	5		1	2	mg/L	1	B18E033	May-14-18	May-15-18

**A2b (1805005-04) Matrix: Water Sampled: Apr-30-18 08:24 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	4		1	2	mg/L	1	B18E033	May-14-18	May-15-18

**A3a (1805005-05) Matrix: Water Sampled: Apr-30-18 09:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	2		1	2	mg/L	1	B18E033	May-14-18	May-15-18

**A3b (1805005-06) Matrix: Water Sampled: Apr-30-18 09:14 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	4		1	2	mg/L	1	B18E033	May-14-18	May-15-18

**A4 Equip (1805005-07) Matrix: Water Sampled: Apr-30-18 09:38 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E033	May-14-18	May-15-18

**A3a (Dup) (1805005-08) Matrix: Water Sampled: Apr-30-18 09:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	2		1	2	mg/L	1	B18E033	May-14-18	May-15-18



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-04-18 15:29
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## Organic Carbon, Infra-red Combustion, Standard Method 5310 B (modified) US EPA Region 5 Chicago Regional Laboratory

<b>FB1 (1805005-09)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 09:49</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Organic Carbon</b>	U		1	2	mg/L	1	B18E033	May-14-18	May-15-18

<b>A4a (1805005-10)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 09:58</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Organic Carbon</b>	U		1	2	mg/L	1	B18E033	May-14-18	May-15-18

<b>A4b (1805005-11)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 10:09</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Organic Carbon</b>	4		1	2	mg/L	1	B18E033	May-14-18	May-15-18

<b>B1a (1805005-12)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 10:51</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Organic Carbon</b>	2	J	1	2	mg/L	1	B18E033	May-14-18	May-15-18

<b>B1b (1805005-13)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 10:58</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Organic Carbon</b>	2		1	2	mg/L	1	B18E033	May-14-18	May-16-18

<b>B2a (1805005-14)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 11:40</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Organic Carbon</b>	2		1	2	mg/L	1	B18E033	May-14-18	May-16-18

<b>B2b (1805005-15)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 11:48</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Organic Carbon</b>	3		1	2	mg/L	1	B18E033	May-14-18	May-16-18

<b>B3a (1805005-16)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 12:29</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Organic Carbon</b>	U		1	2	mg/L	1	B18E033	May-14-18	May-16-18



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Chicago Regional Laboratory**

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> Jun-04-18 15:29
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**Organic Carbon, Infra-red Combustion, Standard Method 5310 B (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**B3b (1805005-17) Matrix: Water Sampled: Apr-30-18 12:36 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	5		1	2	mg/L	1	B18E033	May-14-18	May-16-18

**B4a (1805005-18) Matrix: Water Sampled: Apr-30-18 13:10 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E033	May-14-18	May-16-18

**B4b (1805005-19) Matrix: Water Sampled: Apr-30-18 13:41 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	5		1	2	mg/L	1	B18E033	May-14-18	May-16-18

**C1a (1805005-20) Matrix: Water Sampled: Apr-30-18 15:02 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E033	May-14-18	May-16-18

**C1b (1805005-21) Matrix: Water Sampled: Apr-30-18 15:27 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E033	May-14-18	May-16-18

**C2a (1805005-22) Matrix: Water Sampled: Apr-30-18 16:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E033	May-14-18	May-16-18

**C2b (1805005-23) Matrix: Water Sampled: Apr-30-18 16:14 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E033	May-14-18	May-16-18

**C3a (1805005-24) Matrix: Water Sampled: Apr-30-18 14:16 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E033	May-14-18	May-16-18



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-04-18 15:29
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## Organic Carbon, Infra-red Combustion, Standard Method 5310 B (modified) US EPA Region 5 Chicago Regional Laboratory

<b>C3b (1805005-25)</b>	<b>Matrix: Water</b>	<b>Sampled: Apr-30-18 14:26</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Organic Carbon</b>	3		1	2	mg/L	1	B18E033	May-14-18	May-16-18

<b>C5Aa (1805005-26)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 06:29</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Organic Carbon</b>	2		1	2	mg/L	1	B18E033	May-14-18	May-16-18

<b>C5Ab (1805005-27)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 06:43</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Organic Carbon</b>	3		1	2	mg/L	1	B18E033	May-14-18	May-16-18

<b>C6a (1805005-28)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 07:06</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Organic Carbon</b>	U		1	2	mg/L	1	B18E033	May-14-18	May-16-18

<b>C6b (1805005-29)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 07:15</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Organic Carbon</b>	2	J	1	2	mg/L	1	B18E033	May-14-18	May-16-18

<b>C7a (1805005-30)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 07:48</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Organic Carbon</b>	U		1	2	mg/L	1	B18E033	May-14-18	May-16-18

<b>C7b (1805005-31)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 08:02</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Organic Carbon</b>	2		1	2	mg/L	1	B18E033	May-14-18	May-16-18

<b>FB2 (1805005-32)</b>	<b>Matrix: Water</b>	<b>Sampled: May-01-18 07:39</b>	<b>Received: May-02-18 09:55</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Organic Carbon</b>	U		1	2	mg/L	1	B18E033	May-14-18	May-16-18



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> Jun-04-18 15:29
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## Organic Carbon, Infra-red Combustion, Standard Method 5310 B (modified) US EPA Region 5 Chicago Regional Laboratory

**C7 equip (1805005-33) Matrix: Water Sampled: May-01-18 07:38 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E033	May-14-18	May-16-18

**C7b Dup (1805005-34) Matrix: Water Sampled: May-01-18 08:02 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	2		1	2	mg/L	1	B18E033	May-14-18	May-16-18

**C8a (1805005-35) Matrix: Water Sampled: May-01-18 08:35 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E033	May-14-18	May-16-18

**C8b (1805005-36) Matrix: Water Sampled: May-01-18 08:42 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E033	May-14-18	May-16-18

**C9a (1805005-37) Matrix: Water Sampled: May-01-18 10:00 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	2		1	2	mg/L	1	B18E033	May-14-18	May-16-18

**C9b (1805005-38) Matrix: Water Sampled: May-01-18 10:21 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	2		1	2	mg/L	1	B18E033	May-14-18	May-16-18

**C10a (1805005-39) Matrix: Water Sampled: May-01-18 11:05 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E033	May-14-18	May-16-18

**C10b (1805005-40) Matrix: Water Sampled: May-01-18 11:12 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E033	May-14-18	May-21-18





**Environmental Protection Agency Region 5**  
**Chicago Regional Laboratory**

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**Organic Carbon, Infra-red Combustion, Standard Method 5310 B (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**C11a (1805005-41) Matrix: Water Sampled: May-01-18 11:46 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	3	J	1	2	mg/L	1	B18E033	May-14-18	May-21-18

**C11b (1805005-42) Matrix: Water Sampled: May-01-18 11:52 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E033	May-14-18	May-16-18

**C12a (1805005-43) Matrix: Water Sampled: May-01-18 12:41 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	9		1	2	mg/L	1	B18E033	May-14-18	May-16-18

**C12b (1805005-44) Matrix: Water Sampled: May-01-18 12:47 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	11		1	2	mg/L	1	B18E033	May-14-18	May-16-18

**C13a (1805005-45) Matrix: Water Sampled: May-01-18 13:30 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	5	J	1	2	mg/L	1	B18E033	May-14-18	May-16-18

**C13b (1805005-46) Matrix: Water Sampled: May-01-18 13:39 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	3		1	2	mg/L	1	B18E033	May-14-18	May-16-18

**D1a (1805005-47) Matrix: Water Sampled: May-01-18 14:19 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	6		1	2	mg/L	1	B18E033	May-14-18	May-16-18

**D1b (1805005-48) Matrix: Water Sampled: May-01-18 14:26 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	3	J	1	2	mg/L	1	B18E033	May-14-18	May-16-18



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-04-18 15:29
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## Organic Carbon, Infra-red Combustion, Standard Method 5310 B (modified) US EPA Region 5 Chicago Regional Laboratory

**D2a (1805005-49) Matrix: Water Sampled: May-01-18 15:00 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	2	J	1	2	mg/L	1	B18E033	May-14-18	May-16-18

**D2b (1805005-50) Matrix: Water Sampled: May-01-18 15:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	2		1	2	mg/L	1	B18E033	May-14-18	May-16-18

**D3a (1805005-51) Matrix: Water Sampled: May-01-18 15:41 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E033	May-14-18	May-17-18

**D3b (1805005-52) Matrix: Water Sampled: May-01-18 15:48 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E033	May-14-18	May-17-18

**D4a (1805005-53) Matrix: Water Sampled: May-01-18 16:19 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E033	May-14-18	May-17-18

**D4b (1805005-54) Matrix: Water Sampled: May-01-18 16:26 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	3		1	2	mg/L	1	B18E033	May-14-18	May-17-18

**D5a (1805007-01) Matrix: Water Sampled: May-02-18 06:38 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**D5b (1805007-02) Matrix: Water Sampled: May-02-18 06:46 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-17-18



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> Jun-04-18 15:29
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**Organic Carbon, Infra-red Combustion, Standard Method 5310 B (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**D6a (1805007-03) Matrix: Water Sampled: May-02-18 07:17 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**D6b (1805007-04) Matrix: Water Sampled: May-02-18 07:29 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**D7 equip (1805007-05) Matrix: Water Sampled: May-02-18 08:01 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**FB3 (1805007-06) Matrix: Water Sampled: May-02-18 08:03 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**D7a Dup (1805007-07) Matrix: Water Sampled: May-02-18 08:12 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**D7a (1805007-08) Matrix: Water Sampled: May-02-18 08:12 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**D7b (1805007-09) Matrix: Water Sampled: May-02-18 08:19 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	2		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**D8a (1805007-10) Matrix: Water Sampled: May-02-18 08:55 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-17-18



**Environmental Protection Agency Region 5**  
**Chicago Regional Laboratory**

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 Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> Jun-04-18 15:29
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**Organic Carbon, Infra-red Combustion, Standard Method 5310 B (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**D8b (1805007-11) Matrix: Water Sampled: May-02-18 09:11 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	2		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**D9a (1805007-12) Matrix: Water Sampled: May-02-18 09:45 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**D9b (1805007-13) Matrix: Water Sampled: May-02-18 09:54 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	2		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**D10a (1805007-14) Matrix: Water Sampled: May-02-18 10:29 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**D10a Dup (1805007-15) Matrix: Water Sampled: May-02-18 10:29 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**D10b (1805007-16) Matrix: Water Sampled: May-02-18 10:41 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**D10b Dup (1805007-17) Matrix: Water Sampled: May-02-18 10:41 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**D11a (1805007-18) Matrix: Water Sampled: May-02-18 11:19 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-17-18



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-04-18 15:29
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## Organic Carbon, Infra-red Combustion, Standard Method 5310 B (modified) US EPA Region 5 Chicago Regional Laboratory

**D11b (1805007-19) Matrix: Water Sampled: May-02-18 11:42 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**E1a (1805007-20) Matrix: Water Sampled: May-02-18 12:41 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**E1b (1805007-21) Matrix: Water Sampled: May-02-18 12:58 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	2		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**E2a (1805007-22) Matrix: Water Sampled: May-02-18 13:28 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**E2b (1805007-23) Matrix: Water Sampled: May-02-18 13:37 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**E2a Dup (1805007-24) Matrix: Water Sampled: May-02-18 13:28 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-17-18

**E2b Dup (1805007-25) Matrix: Water Sampled: May-02-18 13:37 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-18-18

**E3a (1805007-26) Matrix: Water Sampled: May-02-18 14:03 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-18-18



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-04-18 15:29
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## Organic Carbon, Infra-red Combustion, Standard Method 5310 B (modified) US EPA Region 5 Chicago Regional Laboratory

**E3b (1805007-27) Matrix: Water Sampled: May-02-18 14:09 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-18-18

**E4a (1805007-28) Matrix: Water Sampled: May-02-18 14:37 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-18-18

**E4b (1805007-29) Matrix: Water Sampled: May-02-18 14:43 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-18-18

**E5a (1805007-30) Matrix: Water Sampled: May-02-18 15:08 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-18-18

**E5b (1805007-31) Matrix: Water Sampled: May-02-18 15:13 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-18-18

**E6a (1805007-32) Matrix: Water Sampled: May-02-18 15:38 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-18-18

**E6b (1805007-33) Matrix: Water Sampled: May-02-18 15:44 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	2		1	2	mg/L	1	B18E047	May-16-18	May-18-18

**E7a (1805007-34) Matrix: Water Sampled: May-02-18 16:09 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-18-18





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-04-18 15:29
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**Organic Carbon, Infra-red Combustion, Standard Method 5310 B (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**E7b (1805007-35) Matrix: Water Sampled: May-02-18 16:35 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-18-18

**E8a (1805007-36) Matrix: Water Sampled: May-03-18 08:40 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-18-18

**E8b (1805007-37) Matrix: Water Sampled: May-03-18 08:48 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	3		1	2	mg/L	1	B18E047	May-16-18	May-18-18

**E10a (1805007-38) Matrix: Water Sampled: May-03-18 07:15 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-18-18

**E10a Dup (1805007-39) Matrix: Water Sampled: May-03-18 07:15 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-18-18

**E10b (1805007-40) Matrix: Water Sampled: May-03-18 07:27 Received: May-04-18 10:00**

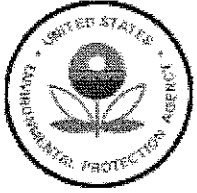
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	7		1	2	mg/L	1	B18E047	May-16-18	May-18-18

**FB4 (1805007-41) Matrix: Water Sampled: May-03-18 07:36 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-18-18

**E10 Equip (1805007-42) Matrix: Water Sampled: May-03-18 07:13 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Organic Carbon	U		1	2	mg/L	1	B18E047	May-16-18	May-18-18



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> Jun-04-18 15:29
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**Organic Carbon, Infra-red Combustion, Standard Method 5310 B (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**E9a (1805007-43) Matrix: Water Sampled: May-03-18 09:53 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Organic Carbon</b>	U		1	2	mg/L	1	B18E047	May-16-18	May-18-18

**E9b (1805007-44) Matrix: Water Sampled: May-03-18 10:02 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Organic Carbon</b>	4		1	2	mg/L	1	B18E047	May-16-18	May-18-18



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## Organic Carbon, Infra-red Combustion, Standard Method 5310 B (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

### Batch B18E033 - General Preparation

Blank (B18E033-BLK1)		Prepared: May-14-18 Analyzed: May-15-18									
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Organic Carbon	U		1	2	mg/L						

LCS (B18E033-BS1)		Prepared: May-14-18 Analyzed: May-15-18									
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Organic Carbon	4.98		1	2	mg/L	5.000		99.6%	80.7-123		

Duplicate (B18E033-DUP1)		Source: 1805005-05		Prepared: May-14-18 Analyzed: May-15-18							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Organic Carbon	2.04		1	2	mg/L		2.10			3.07	15

Duplicate (B18E033-DUP2)		Source: 1805005-21		Prepared: May-14-18 Analyzed: May-16-18							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Organic Carbon	U		1	2	mg/L		U				15

Duplicate (B18E033-DUP3)		Source: 1805005-41		Prepared: May-14-18 Analyzed: May-21-18							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Organic Carbon	3.58		1	2	mg/L		3.34			6.86	15

MRL Check (B18E033-MRL1)		Prepared: May-14-18 Analyzed: May-15-18									
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Organic Carbon	2.12				mg/L	2.000		106%	47-142		

Matrix Spike (B18E033-MS1)		Source: 1805005-05		Prepared: May-14-18 Analyzed: May-15-18							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Organic Carbon	6.00	Q	1	2	mg/L	5.000	2.10	77.9%	85.1-143		

Matrix Spike (B18E033-MS2)		Source: 1805005-21		Prepared: May-14-18 Analyzed: May-16-18							
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Organic Carbon											



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## Organic Carbon, Infra-red Combustion, Standard Method 5310 B (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

### Batch B18E033 - General Preparation

Matrix Spike (B18E033-MS2)		Source: 1805005-21			Prepared: May-14-18 Analyzed: May-16-18						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Organic Carbon	6.01		1	2	mg/L	5.000	U	120%	85.1-143		

Matrix Spike (B18E033-MS3)		Source: 1805005-41			Prepared: May-14-18 Analyzed: May-16-18						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Organic Carbon	5.15	Q	1	2	mg/L	5.000	3.34	36.1%	85.1-143		

### Batch B18E047 - General Preparation

Blank (B18E047-BLK1)					Prepared: May-16-18 Analyzed: May-17-18						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Organic Carbon	U		1	2	mg/L						

LCS (B18E047-BS1)					Prepared: May-16-18 Analyzed: May-17-18						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Organic Carbon	4.81		1	2	mg/L	5.000		96.2%	80.7-123		

Duplicate (B18E047-DUP1)		Source: 1805007-08			Prepared: May-16-18 Analyzed: May-17-18						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Organic Carbon	U		1	2	mg/L		U				15

Duplicate (B18E047-DUP2)		Source: 1805007-21			Prepared: May-16-18 Analyzed: May-17-18						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Organic Carbon	1.65		1	2	mg/L		1.67			1.14	15

Duplicate (B18E047-DUP3)		Source: 1805007-43			Prepared: May-16-18 Analyzed: May-18-18						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Organic Carbon	1.20		1	2	mg/L		1.17			2.05	15



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**Organic Carbon, Infra-red Combustion, Standard Method 5310 B (modified) - Quality Control**  
**US EPA Region 5 Chicago Regional Laboratory**

**Batch B18E047 - General Preparation**

MRL Check (B18E047-MRL1)		Prepared: May-16-18 Analyzed: May-17-18									
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Organic Carbon	1.93				mg/L	2.000		96.6%	47-142		

Matrix Spike (B18E047-MS1)		Source: 1805007-08 Prepared: May-16-18 Analyzed: May-17-18									
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Organic Carbon	5.14		1	2	mg/L	5.000	U	103%	85.1-143		

Matrix Spike (B18E047-MS2)		Source: 1805007-21 Prepared: May-16-18 Analyzed: May-17-18									
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Organic Carbon	6.35		1	2	mg/L	5.000	1.67	93.8%	85.1-143		

Matrix Spike (B18E047-MS3)		Source: 1805007-43 Prepared: May-16-18 Analyzed: May-18-18									
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Organic Carbon	5.70		1	2	mg/L	5.000	1.17	90.4%	85.1-143		



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Water Division, WECA Region 5  
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Chicago IL, 60604

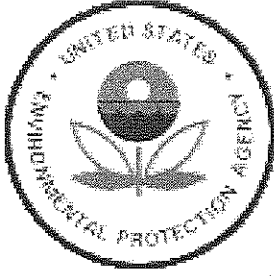
Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
Jun-04-18 15:29

**Notes and Definitions**

- J The identification of the analyte is acceptable; the reported value is an estimate.
- U Not Detected
- NR Not Reported
- Q QC limit Exceeded





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5 CHICAGO REGIONAL LABORATORY  
536 SOUTH CLARK STREET  
CHICAGO, ILLINOIS 60605

**Date:** 6/6/2018  
**Subject:** Review of Region 5 Data for Central Sands  
**To:** Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604  
**From:** Francis Awanya, Chemist  
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with the EPA QA/G-8 *Guidance on Environmental Data Verification and Data Validation* and the U.S. EPA Region 5 RMD QMP, CRL performs data verification on all the data generated internally. CRL does not perform data validation or quality assessment procedures.

This report was reviewed and the information provided herein accurately represents the analysis performed.

*Francis A Awanya*

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*Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.*

**Attached are Results for: Central Sands**

**Analyses included in this report:**

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Solids, TDS

Report Name: 1805005,1805007 Solids, TDS FINAL Jun 06 18 1455



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> Jun-06-18 14:55
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## Accredited Analyses included in this Report



**Method:** SM 2540 C in Water

**Analysis:** Solids, TDS

**Analyte**

**Certifications**

Total Dissolved Solids

ISO/IEC 17025:2005

Analytes not listed above are not accredited by ANAB.



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
Jun-06-18 14:55

## Analysis Case Narrative

### General Information

Ninety-eight (98) water samples collected for the project were received at the Chicago Regional Laboratory (CRL) on May 2 and May 4, 2018. The samples were logged in the CRL LIMS under Work Order Number 1805005 and 1805007. Total Dissolved Solids (TDS) analysis was assigned to those samples. The samples were analyzed for TDS using Standard Operating Procedure (SOP) CRL Document # AIG017 Version # 5 (Based on SM 2540 C (APHA, AWWA, WEF)). The designated analyst is Francis Awanya. Francis can be reached at 312-886-3682. Other pertinent information is provided in the final analysis report.

The following samples could not be processed and analyzed within the holding time. The sample results were flagged "J"; The identification of the analyte is acceptable; the reported value is an estimate. The affected samples are 1805005-01 (Sample name: A1a), 1805005-02 (Sample name: A1b), 1805007-01 (Sample name: D5a), 1805007-02 (Sample name: D5b), 1805007-03 (Sample name: D6a), and 1805007-04 (Sample name: D6b), 1805007-05 (Sample name: D7 equip), 1805007-06 (Sample name: FB3), 1805007-07 (Sample name: D7a Dup), and 1805007-08 (Sample name: D7a), 1805007-09 (Sample name: D7b), and 1805007-10 (Sample name: D8A).

All supporting data are archived with Work Order Number 1805005.

### Sample Analysis and Results

The data reported herein met the requirements of Standard Operating Procedure (SOP) CRL Document # AIG017 Version # 5 (Based on SM 2540 C (APHA, AWWA, WEF)) and any laboratory specifications contained in the sampling QAPP "*FINAL\_2018 GW Sampling Plan4\_27\_2018.pdf*". Exceptions are discussed above and in the Quality Control (QC) section.

### Quality Control

All required quality control criteria for the laboratory, method, and system performance audits were evaluated and determined to be within the CRL's QC limits with the following exceptions.

Duplicate audit: The reproducibility of 13% and 14% obtained for samples 1805005-15 (Sample name: B2b) and 1805005-21 (Sample name: C1b) respectively exceeded the limit of 10% Relative. The absolute differences obtained for both samples were less than detection. No flags were applied to the two sample results.



1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
 Project: Central Sands

Project Manager: Angela Ockrassa Davis  
 Project Number: [none]

Sample ID: 1805005-02      Sampled: Apr-30-18 07:32      Matrix: Water

Sample Name: A1b

Sample Location/Comments: 1st Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-07-18 07:32	pH = 5
TKN DA	28	May-28-18 07:32	pH = 2
TOC	28	May-28-18 07:32	pH = 2
Total Phosphorus DA	28	May-28-18 07:32	pH = 2

Sample ID: 1805005-03      Sampled: Apr-30-18 08:15      Matrix: Water

Sample Name: A2a

Sample Location/Comments: 22nd Avenue North

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 08:15	pH = 2
Anions by IC	28	May-28-18 08:15	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 08:15	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 08:15	pH = 2
Solids, TDS	7	May-07-18 08:15	pH = 6
TKN DA	28	May-28-18 08:15	pH = 2
TOC	28	May-28-18 08:15	pH = 2
Total Phosphorus DA	28	May-28-18 08:15	pH = 2

Sample ID: 1805005-04      Sampled: Apr-30-18 08:24      Matrix: Water

Sample Name: A2b

Sample Location/Comments: 22nd Avenue North

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 08:24	pH = 2
Anions by IC	28	May-28-18 08:24	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 08:24	pH = 5
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 08:24	pH = 2
Solids, TDS	7	May-07-18 08:24	pH = 6
TKN DA	28	May-28-18 08:24	pH = 2
TOC	28	May-28-18 08:24	pH = 2
Total Phosphorus DA	28	May-28-18 08:24	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-05      Sampled: Apr-30-18 09:06      Matrix: Water      OC Source Sample MS/MSD

Sample Name: A3a      Sample Location/Comments: 2nd Street

Sample Comments: MS/MSD

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:06	pH = 2
Anions by IC	28	May-28-18 09:06	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:06	pH = 2
Solids, TDS	7	May-07-18 09:06	pH = 6
TKN DA	28	May-28-18 09:06	pH = 2
TOC	28	May-28-18 09:06	pH = 2
Total Phosphorus DA	28	May-28-18 09:06	pH = 2

Sample ID: 1805005-06      Sampled: Apr-30-18 09:14      Matrix: Water

Sample Name: A3b      Sample Location/Comments: 2nd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:14	pH = 2
Anions by IC	28	May-28-18 09:14	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:14	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:14	pH = 2
Solids, TDS	7	May-07-18 09:14	pH = 6
TKN DA	28	May-28-18 09:14	pH = 2
TOC	28	May-28-18 09:14	pH = 2
Total Phosphorus DA	28	May-28-18 09:14	pH = 2

Sample ID: 1805005-07      Sampled: Apr-30-18 09:38      Matrix: Water

Sample Name: A4 Equip      Sample Location/Comments: Cranberry Rock Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:38	pH = 2
Anions by IC	28	May-28-18 09:38	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 09:38	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:38	pH = 2
Solids, TDS	7	May-07-18 09:38	pH = 5
TKN DA	28	May-28-18 09:38	pH = 2
TOC	28	May-28-18 09:38	pH = 2



1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-07      Sampled: Apr-30-18 09:38      Matrix: Water

Sample Name: A4 Equip      Sample Location/Comments: Cranberry Rock Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 09:38	pH = 2

Sample ID: 1805005-08      Sampled: Apr-30-18 09:06      Matrix: Water

Sample Name: A3a (Dup)      Sample Location/Comments: 2nd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:06	pH = 2
Anions by IC	28	May-28-18 09:06	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:06	pH = 2
Solids, TDS	7	May-07-18 09:06	pH = 6
TKN DA	28	May-28-18 09:06	pH = 2
TOC	28	May-28-18 09:06	pH = 2
Total Phosphorus DA	28	May-28-18 09:06	pH = 2

Sample ID: 1805005-09      Sampled: Apr-30-18 09:49      Matrix: Water

Sample Name: FBI      Sample Location/Comments: Cranberry Rock Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:49	pH = 2
Anions by IC	28	May-28-18 09:49	pH = 4
Metals ICP-AES (w)	180	Oct-27-18 09:49	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:49	pH = 2
Solids, TDS	7	May-07-18 09:49	pH = 4
TKN DA	28	May-28-18 09:49	pH = 2
TOC	28	May-28-18 09:49	pH = 2
Total Phosphorus DA	28	May-28-18 09:49	pH = 2

Sample ID: 1805005-10      Sampled: Apr-30-18 09:58      Matrix: Water

Sample Name: A4a      Sample Location/Comments: Cranberry Rock Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:58	pH = 2
Anions by IC	28	May-28-18 09:58	pH = 6

**WORK ORDER**

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**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> [none]
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**Sample ID:** 1805005-10      **Sampled:** Apr-30-18 09:58      **Matrix:** Water

**Sample Name:** A4a      **Sample Location/Comments:** Cranberry Rock Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-27-18 09:58	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:58	pH = 2
Solids, TDS	7	May-07-18 09:58	pH = 6
TKN DA	28	May-28-18 09:58	pH = 2
TOC	28	May-28-18 09:58	pH = 2
Total Phosphorus DA	28	May-28-18 09:58	pH = 2

**Sample ID:** 1805005-11      **Sampled:** Apr-30-18 10:09      **Matrix:** Water

**Sample Name:** A4b      **Sample Location/Comments:** Cranberry Rock Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:09	pH = 2
Anions by IC	28	May-28-18 10:09	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:09	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:09	pH = 2
Solids, TDS	7	May-07-18 10:09	pH = 5
TKN DA	28	May-28-18 10:09	pH = 2
TOC	28	May-28-18 10:09	pH = 2
Total Phosphorus DA	28	May-28-18 10:09	pH = 2

**Sample ID:** 1805005-12      **Sampled:** Apr-30-18 10:51      **Matrix:** Water

**Sample Name:** B1a      **Sample Location/Comments:** 20th Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:51	pH = 3
Anions by IC	28	May-28-18 10:51	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:51	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:51	pH = 3
Solids, TDS	7	May-07-18 10:51	pH = 5
TKN DA	28	May-28-18 10:51	pH = 3
TOC	28	May-28-18 10:51	pH = 3
Total Phosphorus DA	28	May-28-18 10:51	pH = 3

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b>	Project Manager: <b>Angela Ockrassa Davis</b>
Project: <b>Central Sands</b>	Project Number: <b>[none]</b>

Sample ID: 1805005-13      Sampled: Apr-30-18 10:58      Matrix: Water

Sample Name: B1b      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:58	pH = 2
Anions by IC	28	May-28-18 10:58	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:58	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:58	pH = 2
Solids, TDS	7	May-07-18 10:58	pH = 5
TKN DA	28	May-28-18 10:58	pH = 2
TOC	28	May-28-18 10:58	pH = 2
Total Phosphorus DA	28	May-28-18 10:58	pH = 2

Sample ID: 1805005-14      Sampled: Apr-30-18 11:40      Matrix: Water

Sample Name: B2a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 11:40	pH = 2
Anions by IC	28	May-28-18 11:40	pH = 7
Metals ICP-AES (w)	180	Oct-27-18 11:40	pH = 4
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 11:40	pH = 2
Solids, TDS	7	May-07-18 11:40	pH = 7
TKN DA	28	May-28-18 11:40	pH = 2
TOC	28	May-28-18 11:40	pH = 2
Total Phosphorus DA	28	May-28-18 11:40	pH = 2

Sample ID: 1805005-15      Sampled: Apr-30-18 11:48      Matrix: Water

Sample Name: B2b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 11:48	pH = 2
Anions by IC	28	May-28-18 11:48	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 11:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 11:48	pH = 2
Solids, TDS	7	May-07-18 11:48	pH = 5
TKN DA	28	May-28-18 11:48	pH = 2
TOC	28	May-28-18 11:48	pH = 2

1805005

**US EPA Region 5 Chicago Regional Laboratory**

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-15      Sampled: Apr-30-18 11:48      Matrix: Water

Sample Name: B2b      Sample Location/Comments: 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 11:48	pH = 2

Sample ID: 1805005-16      Sampled: Apr-30-18 12:29      Matrix: Water

Sample Name: B3a      Sample Location/Comments: 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 12:29	pH = 2
Anions by IC	28	May-28-18 12:29	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 12:29	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 12:29	pH = 2
Solids, TDS	7	May-07-18 12:29	pH = 6
TKN DA	28	May-28-18 12:29	pH = 2
TOC	28	May-28-18 12:29	pH = 2
Total Phosphorus DA	28	May-28-18 12:29	pH = 2

Sample ID: 1805005-17      Sampled: Apr-30-18 12:36      Matrix: Water

Sample Name: B3b      Sample Location/Comments: 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 12:36	pH = 2
Anions by IC	28	May-28-18 12:36	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 12:36	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 12:36	pH = 2
Solids, TDS	7	May-07-18 12:36	pH = 5
TKN DA	28	May-28-18 12:36	pH = 2
TOC	28	May-28-18 12:36	pH = 2
Total Phosphorus DA	28	May-28-18 12:36	pH = 2

Sample ID: 1805005-18      Sampled: Apr-30-18 13:10      Matrix: Water

Sample Name: B4a      Sample Location/Comments: 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 13:10	pH = 2
Anions by IC	28	May-28-18 13:10	pH = 5

WORK ORDER

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-18      Sampled: Apr-30-18 13:10      Matrix: Water

Sample Name: B4a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-27-18 13:10	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 13:10	pH = 2
Solids, TDS	7	May-07-18 13:10	pH = 5
TKN DA	28	May-28-18 13:10	pH = 2
TOC	28	May-28-18 13:10	pH = 2
Total Phosphorus DA	28	May-28-18 13:10	pH = 2

Sample ID: 1805005-19      Sampled: Apr-30-18 13:41      Matrix: Water

Sample Name: B4b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 13:41	pH = 2
Anions by IC	28	May-28-18 13:41	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 13:41	pH = 4
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 13:41	pH = 2
Solids, TDS	7	May-07-18 13:41	pH = 5
TKN DA	28	May-28-18 13:41	pH = 2
TOC	28	May-28-18 13:41	pH = 2
Total Phosphorus DA	28	May-28-18 13:41	pH = 2

Sample ID: 1805005-20      Sampled: Apr-30-18 15:02      Matrix: Water

Sample Name: C1a      Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 15:02	pH = 2
Anions by IC	28	May-28-18 15:02	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 15:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 15:02	pH = 2
Solids, TDS	7	May-07-18 15:02	pH = 5
TKN DA	28	May-28-18 15:02	pH = 2
TOC	28	May-28-18 15:02	pH = 2
Total Phosphorus DA	28	May-28-18 15:02	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-21      Sampled: Apr-30-18 15:27      Matrix: Water

Sample Name: C1b

Sample Location/Comments: 2nd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 15:27	pH = 2
Anions by IC	28	May-28-18 15:27	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 15:27	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 15:27	pH = 2
Solids, TDS	7	May-07-18 15:27	pH = 5
TKN DA	28	May-28-18 15:27	pH = 2
TOC	28	May-28-18 15:27	pH = 2
Total Phosphorus DA	28	May-28-18 15:27	pH = 2

Sample ID: 1805005-22      Sampled: Apr-30-18 16:06      Matrix: Water

Sample Name: C2a

Sample Location/Comments: Nelson Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 16:06	pH = 2
Anions by IC	28	May-28-18 16:06	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 16:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 16:06	pH = 2
Solids, TDS	7	May-07-18 16:06	pH = 5
TKN DA	28	May-28-18 16:06	pH = 2
TOC	28	May-28-18 16:06	pH = 2
Total Phosphorus DA	28	May-28-18 16:06	pH = 2

Sample ID: 1805005-23      Sampled: Apr-30-18 16:14      Matrix: Water

Sample Name: C2b

Sample Location/Comments: Nelson Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 16:14	pH = 2
Anions by IC	28	May-28-18 16:14	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 16:14	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 16:14	pH = 2
Solids, TDS	7	May-07-18 16:14	pH = 5
TKN DA	28	May-28-18 16:14	pH = 2
TOC	28	May-28-18 16:14	pH = 2



1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-23      Sampled: Apr-30-18 16:14      Matrix: Water

Sample Name: C2b      Sample Location/Comments: Nelson Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 16:14	pH = 2

Sample ID: 1805005-24      Sampled: Apr-30-18 14:16      Matrix: Water

Sample Name: C3a      Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 14:16	pH = 2
Anions by IC	28	May-28-18 14:16	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 14:16	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 14:16	pH = 2
Solids, TDS	7	May-07-18 14:16	pH = 5
TKN DA	28	May-28-18 14:16	pH = 2
TOC	28	May-28-18 14:16	pH = 2
Total Phosphorus DA	28	May-28-18 14:16	pH = 2

Sample ID: 1805005-25      Sampled: Apr-30-18 14:26      Matrix: Water

Sample Name: C3b      Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 14:26	pH = 2
Anions by IC	28	May-28-18 14:26	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 14:26	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 14:26	pH = 2
Solids, TDS	7	May-07-18 14:26	pH = 5
TKN DA	28	May-28-18 14:26	pH = 2
TOC	28	May-28-18 14:26	pH = 2
Total Phosphorus DA	28	May-28-18 14:26	pH = 2

Sample ID: 1805005-26      Sampled: May-01-18 06:29      Matrix: Water

Sample Name: C5Aa      Sample Location/Comments: CR G (Nelson Road)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 06:29	pH = 2
Anions by IC	28	May-29-18 06:29	pH = 5

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-26      Sampled: May-01-18 06:29      Matrix: Water

Sample Name: C5Aa      Sample Location/Comments: CR G (Nelson Road)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 06:29	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 06:29	pH = 2
Solids, TDS	7	May-08-18 06:29	pH = 5
TKN DA	28	May-29-18 06:29	pH = 2
TOC	28	May-29-18 06:29	pH = 2
Total Phosphorus DA	28	May-29-18 06:29	pH = 2

Sample ID: 1805005-27      Sampled: May-01-18 06:43      Matrix: Water

Sample Name: C5Ab      Sample Location/Comments: CR G (Nelson Road)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 06:43	pH = 2
Anions by IC	28	May-29-18 06:43	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 06:43	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 06:43	pH = 2
Solids, TDS	7	May-08-18 06:43	pH = 5
TKN DA	28	May-29-18 06:43	pH = 2
TOC	28	May-29-18 06:43	pH = 2
Total Phosphorus DA	28	May-29-18 06:43	pH = 2

Sample ID: 1805005-28      Sampled: May-01-18 07:06      Matrix: Water

Sample Name: C6a      Sample Location/Comments: CR G (Nelson Road)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:06	pH = 2
Anions by IC	28	May-29-18 07:06	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 07:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:06	pH = 2
Solids, TDS	7	May-08-18 07:06	pH = 6
TKN DA	28	May-29-18 07:06	pH = 2
TOC	28	May-29-18 07:06	pH = 2
Total Phosphorus DA	28	May-29-18 07:06	pH = 2

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-29      Sampled: May-01-18 07:15      Matrix: Water

Sample Name: C6b      Sample Location/Comments: CR G (Nelson Road)

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:15	pH = 3
Anions by IC	28	May-29-18 07:15	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 07:15	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:15	pH = 3
Solids, TDS	7	May-08-18 07:15	pH = 5
TKN DA	28	May-29-18 07:15	pH = 3
TOC	28	May-29-18 07:15	pH = 3
Total Phosphorus DA	28	May-29-18 07:15	pH = 3

Sample ID: 1805005-30      Sampled: May-01-18 07:48      Matrix: Water

Sample Name: C7a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:48	pH = 2
Anions by IC	28	May-29-18 07:48	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 07:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:48	pH = 2
Solids, TDS	7	May-08-18 07:48	pH = 6
TKN DA	28	May-29-18 07:48	pH = 2
TOC	28	May-29-18 07:48	pH = 2
Total Phosphorus DA	28	May-29-18 07:48	pH = 2

Sample ID: 1805005-31      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:02	pH = 2
Anions by IC	28	May-29-18 08:02	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:02	pH = 2
Solids, TDS	7	May-08-18 08:02	pH = 5
TKN DA	28	May-29-18 08:02	pH = 2
TOC	28	May-29-18 08:02	pH = 2

WORK ORDER

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-31      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 08:02	pH = 2

Sample ID: 1805005-32      Sampled: May-01-18 07:39      Matrix: Water

Sample Name: FB2      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:39	pH = 2
Anions by IC	28	May-29-18 07:39	pH = 4
Metals ICP-AES (w)	180	Oct-28-18 07:39	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:39	pH = 2
Solids, TDS	7	May-08-18 07:39	pH = 4
TKN DA	28	May-29-18 07:39	pH = 2
TOC	28	May-29-18 07:39	pH = 2
Total Phosphorus DA	28	May-29-18 07:39	pH = 2

Sample ID: 1805005-33      Sampled: May-01-18 07:38      Matrix: Water

Sample Name: C7 equip      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:38	pH = 2
Anions by IC	28	May-29-18 07:38	pH = 4
Metals ICP-AES (w)	180	Oct-28-18 07:38	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:38	pH = 2
Solids, TDS	7	May-08-18 07:38	pH = 4
TKN DA	28	May-29-18 07:38	pH = 2
TOC	28	May-29-18 07:38	pH = 2
Total Phosphorus DA	28	May-29-18 07:38	pH = 2

Sample ID: 1805005-34      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7 Dup      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:02	pH = 2
Anions by IC	28	May-29-18 08:02	pH = 5

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-34      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7 Dup

Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 08:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:02	pH = 2
Solids, TDS	7	May-08-18 08:02	pH = 5
TKN DA	28	May-29-18 08:02	pH = 2
TOC	28	May-29-18 08:02	pH = 2
Total Phosphorus DA	28	May-29-18 08:02	pH = 2

Sample ID: 1805005-35      Sampled: May-01-18 08:35      Matrix: Water

Sample Name: C8a

Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:35	pH = 2
Anions by IC	28	May-29-18 08:35	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:35	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:35	pH = 2
Solids, TDS	7	May-08-18 08:35	pH = 5
TKN DA	28	May-29-18 08:35	pH = 2
TOC	28	May-29-18 08:35	pH = 2
Total Phosphorus DA	28	May-29-18 08:35	pH = 2

Sample ID: 1805005-36      Sampled: May-01-18 08:42      Matrix: Water

Sample Name: C8b

Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:42	pH = 2
Anions by IC	28	May-29-18 08:42	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:42	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:42	pH = 2
Solids, TDS	7	May-08-18 08:42	pH = 5
TKN DA	28	May-29-18 08:42	pH = 2
TOC	28	May-29-18 08:42	pH = 2
Total Phosphorus DA	28	May-29-18 08:42	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-37      Sampled: May-01-18 10:00      Matrix: Water

Sample Name: C9a

Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 10:00	pH = 2
Anions by IC	28	May-29-18 10:00	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 10:00	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 10:00	pH = 2
Solids, TDS	7	May-08-18 10:00	pH = 5
TKN DA	28	May-29-18 10:00	pH = 2
TOC	28	May-29-18 10:00	pH = 2
Total Phosphorus DA	28	May-29-18 10:00	pH = 2

Sample ID: 1805005-38      Sampled: May-01-18 10:21      Matrix: Water

Sample Name: C9b

Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 10:21	pH = 2
Anions by IC	28	May-29-18 10:21	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 10:21	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 10:21	pH = 2
Solids, TDS	7	May-08-18 10:21	pH = 5
TKN DA	28	May-29-18 10:21	pH = 2
TOC	28	May-29-18 10:21	pH = 2
Total Phosphorus DA	28	May-29-18 10:21	pH = 2

Sample ID: 1805005-39      Sampled: May-01-18 11:05      Matrix: Water

Sample Name: C10a

Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:05	pH = 2
Anions by IC	28	May-29-18 11:05	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 11:05	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:05	pH = 2
Solids, TDS	7	May-08-18 11:05	pH = 6
TKN DA	28	May-29-18 11:05	pH = 2
TOC	28	May-29-18 11:05	pH = 2



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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-39      Sampled: May-01-18 11:05      Matrix: Water

Sample Name: C10a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 11:05	pH = 2

Sample ID: 1805005-40      Sampled: May-01-18 11:12      Matrix: Water

Sample Name: C10b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:12	pH = 2
Anions by IC	28	May-29-18 11:12	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 11:12	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:12	pH = 2
Solids, TDS	7	May-08-18 11:12	pH = 5
TKN DA	28	May-29-18 11:12	pH = 2
TOC	28	May-29-18 11:12	pH = 2
Total Phosphorus DA	28	May-29-18 11:12	pH = 2

Sample ID: 1805005-41      Sampled: May-01-18 11:46      Matrix: Water

Sample Name: C11a      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:46	pH = 3
Anions by IC	28	May-29-18 11:46	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 11:46	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:46	pH = 3
Solids, TDS	7	May-08-18 11:46	pH = 6
TKN DA	28	May-29-18 11:46	pH = 3
TOC	28	May-29-18 11:46	pH = 3
Total Phosphorus DA	28	May-29-18 11:46	pH = 3

Sample ID: 1805005-42      Sampled: May-01-18 11:52      Matrix: Water

Sample Name: C11b      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:52	pH = 2
Anions by IC	28	May-29-18 11:52	pH = 5

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-42      Sampled: May-01-18 11:52      Matrix: Water

Sample Name: C11b

Sample Location/Comments: 20th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 11:52	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:52	pH = 2
Solids, TDS	7	May-08-18 11:52	pH = 5
TKN DA	28	May-29-18 11:52	pH = 2
TOC	28	May-29-18 11:52	pH = 2
Total Phosphorus DA	28	May-29-18 11:52	pH = 2

Sample ID: 1805005-43      Sampled: May-01-18 12:41      Matrix: Water

Sample Name: C12a

Sample Location/Comments: 19th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 12:41	pH = 2
Anions by IC	28	May-29-18 12:41	pH = 7
Metals ICP-AES (w)	180	Oct-28-18 12:41	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 12:41	pH = 2
Solids, TDS	7	May-08-18 12:41	pH = 7
TKN DA	28	May-29-18 12:41	pH = 2
TOC	28	May-29-18 12:41	pH = 2
Total Phosphorus DA	28	May-29-18 12:41	pH = 2

Sample ID: 1805005-44      Sampled: May-01-18 12:47      Matrix: Water

Sample Name: C12b

Sample Location/Comments: 19th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 12:47	pH = 2
Anions by IC	28	May-29-18 12:47	pH = 7
Metals ICP-AES (w)	180	Oct-28-18 12:47	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 12:47	pH = 2
Solids, TDS	7	May-08-18 12:47	pH = 7
TKN DA	28	May-29-18 12:47	pH = 2
TOC	28	May-29-18 12:47	pH = 2
Total Phosphorus DA	28	May-29-18 12:47	pH = 2

1805005

**US EPA Region 5 Chicago Regional Laboratory**

Client: <b>Water Division, WECA Region 5</b> Project: <b>Central Sands</b>	Project Manager: <b>Angela Ockrassa Davis</b> Project Number: <b>[none]</b>
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**Sample ID:** 1805005-45     **Sampled:** May-01-18 13:30     **Matrix:** Water

**Sample Name:** C13a     **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 13:30	pH = 3
Anions by IC	28	May-29-18 13:30	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 13:30	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 13:30	pH = 3
Solids, TDS	7	May-08-18 13:30	pH = 6
TKN DA	28	May-29-18 13:30	pH = 3
TOC	28	May-29-18 13:30	pH = 3
Total Phosphorus DA	28	May-29-18 13:30	pH = 3

**Sample ID:** 1805005-46     **Sampled:** May-01-18 13:39     **Matrix:** Water

**Sample Name:** C13b     **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 13:39	pH = 2
Anions by IC	28	May-29-18 13:39	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 13:39	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 13:39	pH = 2
Solids, TDS	7	May-08-18 13:39	pH = 5
TKN DA	28	May-29-18 13:39	pH = 2
TOC	28	May-29-18 13:39	pH = 2
Total Phosphorus DA	28	May-29-18 13:39	pH = 2

**Sample ID:** 1805005-47     **Sampled:** May-01-18 14:19     **Matrix:** Water

**Sample Name:** D1a     **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 14:19	pH = 2
Anions by IC	28	May-29-18 14:19	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 14:19	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 14:19	pH = 2
Solids, TDS	7	May-08-18 14:19	pH = 6
TKN DA	28	May-29-18 14:19	pH = 2
TOC	28	May-29-18 14:19	pH = 2

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-47      Sampled: May-01-18 14:19      Matrix: Water

Sample Name: D1a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 14:19	pH = 2

Sample ID: 1805005-48      Sampled: May-01-18 14:26      Matrix: Water

Sample Name: D1b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 14:26	pH = 3
Anions by IC	28	May-29-18 14:26	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 14:26	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 14:26	pH = 3
Solids, TDS	7	May-08-18 14:26	pH = 5
TKN DA	28	May-29-18 14:26	pH = 3
TOC	28	May-29-18 14:26	pH = 3
Total Phosphorus DA	28	May-29-18 14:26	pH = 3

Sample ID: 1805005-49      Sampled: May-01-18 15:00      Matrix: Water

Sample Name: D2a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:00	pH = 3
Anions by IC	28	May-29-18 15:00	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:00	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:00	pH = 3
Solids, TDS	7	May-08-18 15:00	pH = 6
TKN DA	28	May-29-18 15:00	pH = 3
TOC	28	May-29-18 15:00	pH = 3
Total Phosphorus DA	28	May-29-18 15:00	pH = 3

Sample ID: 1805005-50      Sampled: May-01-18 15:06      Matrix: Water

Sample Name: D2b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:06	pH = 2
Anions by IC	28	May-29-18 15:06	pH = 6

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-50      Sampled: May-01-18 15:06      Matrix: Water

Sample Name: D2h      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 15:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:06	pH = 2
Solids, TDS	7	May-08-18 15:06	pH = 6
TKN DA	28	May-29-18 15:06	pH = 2
TOC	28	May-29-18 15:06	pH = 2
Total Phosphorus DA	28	May-29-18 15:06	pH = 2

Sample ID: 1805005-51      Sampled: May-01-18 15:41      Matrix: Water

Sample Name: D3a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:41	pH = 2
Anions by IC	28	May-29-18 15:41	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:41	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:41	pH = 2
Solids, TDS	7	May-08-18 15:41	pH = 6
TKN DA	28	May-29-18 15:41	pH = 2
TOC	28	May-29-18 15:41	pH = 2
Total Phosphorus DA	28	May-29-18 15:41	pH = 2

Sample ID: 1805005-52      Sampled: May-01-18 15:48      Matrix: Water

Sample Name: D3b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:48	pH = 2
Anions by IC	28	May-29-18 15:48	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 15:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:48	pH = 2
Solids, TDS	7	May-08-18 15:48	pH = 5
TKN DA	28	May-29-18 15:48	pH = 2
TOC	28	May-29-18 15:48	pH = 2
Total Phosphorus DA	28	May-29-18 15:48	pH = 2

**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-53      **Sampled:** May-01-18 16:19      **Matrix:** Water

**Sample Name:** D4a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 16:19	pH = 2
Anions by IC	28	May-29-18 16:19	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 16:19	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 16:19	pH = 2
Solids, TDS	7	May-08-18 16:19	pH = 6
TKN DA	28	May-29-18 16:19	pH = 2
TOC	28	May-29-18 16:19	pH = 2
Total Phosphorus DA	28	May-29-18 16:19	pH = 2

**Sample ID:** 1805005-54      **Sampled:** May-01-18 16:26      **Matrix:** Water

**Sample Name:** D4b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 16:26	pH = 2
Anions by IC	28	May-29-18 16:26	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 16:26	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 16:26	pH = 2
Solids, TDS	7	May-08-18 16:26	pH = 5
TKN DA	28	May-29-18 16:26	pH = 2
TOC	28	May-29-18 16:26	pH = 2
Total Phosphorus DA	28	May-29-18 16:26	pH = 2

WORK ORDER MEMO: NCR 14118

PROJECT COMMENTS: Anions: Chloride, fluoride, bromide, sulfate.  
Full List metals

**REVIEWED**

*By Amanda Wroble at 3:35 pm, May 03, 2018*





**Environmental Protection Agency Region 5**  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
 Phone:(312)353-8370 Fax:(312)886-2591

**WORK ORDER**

Printed: 5/7/2018 9:53:28AM

**1805007**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

<b>Report To:</b>	Cheryl Burdett	77 West Jackson Boulevard	Phone: (312) 886-1463
	Water Division, WECA Region 5	Chicago, IL 60604	Fax: (312) 886-2001

Date Due:	Jun-04-18 15:00 (30 day TAT)	Date Received:	May-04-18 10:00
Received By:	Robert Snyder	Date Logged In:	May-07-18 07:38
Logged In By:	Robert Snyder		

<b>Samples Received at:</b>	<b>Work Order Comments:</b>
Sample tags/labels Yes	Copy/Relog from 1805005. Anions: Chloride and nitrate as NO3
Seals intact Yes	Full List metals
Received on ice Yes	pH paper used in SC 16H2601
Paperwork Included Yes	

**Sample ID:** 1805007-01      **Sampled:** May-02-18 06:38      **Matrix:** Water  
**Sample Name:** D5a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 06:38	pH = 1
Anions by IC	28	May-30-18 06:38	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 06:38	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 06:38	pH = 1
Solids, TDS	7	May-09-18 06:38	pH = 6
TKN DA	28	May-30-18 06:38	pH = 1
TOC	28	May-30-18 06:38	pH = 1
Total Phosphorus DA	28	May-30-18 06:38	pH = 1

**Sample ID:** 1805007-02      **Sampled:** May-02-18 06:46      **Matrix:** Water  
**Sample Name:** D5b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 06:46	pH = 1
Anions by IC	28	May-30-18 06:46	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 06:46	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 06:46	pH = 1

WORK ORDER

Printed: 5/7/2018 9:53:28AM

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: CB022018
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**Sample ID:** 1805007-02      **Sampled:** May-02-18 06:46      **Matrix:** Water  
**Sample Name:** D5b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-09-18 06:46	pH = 5
TKN DA	28	May-30-18 06:46	pH = 1
TOC	28	May-30-18 06:46	pH = 1
Total Phosphorus DA	28	May-30-18 06:46	pH = 1

**Sample ID:** 1805007-03      **Sampled:** May-02-18 07:17      **Matrix:** Water  
**Sample Name:** D6a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 07:17	pH = 1
Anions by IC	28	May-30-18 07:17	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 07:17	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 07:17	pH = 1
Solids, TDS	7	May-09-18 07:17	pH = 6
TKN DA	28	May-30-18 07:17	pH = 1
TOC	28	May-30-18 07:17	pH = 1
Total Phosphorus DA	28	May-30-18 07:17	pH = 1

**Sample ID:** 1805007-04      **Sampled:** May-02-18 07:29      **Matrix:** Water  
**Sample Name:** D6b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 07:29	pH = 1
Anions by IC	28	May-30-18 07:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 07:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 07:29	pH = 1
Solids, TDS	7	May-09-18 07:29	pH = 6
TKN DA	28	May-30-18 07:29	pH = 1
TOC	28	May-30-18 07:29	pH = 1
Total Phosphorus DA	28	May-30-18 07:29	pH = 1

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-05      Sampled: May-02-18 08:01      Matrix: Water

Sample Name: D7 equip      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:01	pH = 1
Anions by IC	28	May-30-18 08:01	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 08:01	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:01	pH = 1
Solids, TDS	7	May-09-18 08:01	pH = 5
TKN DA	28	May-30-18 08:01	pH = 1
TOC	28	May-30-18 08:01	pH = 1
Total Phosphorus DA	28	May-30-18 08:01	pH = 1

Sample ID: 1805007-06      Sampled: May-02-18 08:03      Matrix: Water

Sample Name: FB3      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:03	pH = 1
Anions by IC	28	May-30-18 08:03	pH = 4
Metals ICP-AES (w)	180	Oct-29-18 08:03	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:03	pH = 1
Solids, TDS	7	May-09-18 08:03	pH = 4
TKN DA	28	May-30-18 08:03	pH = 1
TOC	28	May-30-18 08:03	pH = 1
Total Phosphorus DA	28	May-30-18 08:03	pH = 1

Sample ID: 1805007-07      Sampled: May-02-18 08:12      Matrix: Water

Sample Name: D7a Dup      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:12	pH = 1
Anions by IC	28	May-30-18 08:12	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:12	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:12	pH = 1
Solids, TDS	7	May-09-18 08:12	pH = 6
TKN DA	28	May-30-18 08:12	pH = 1
TOC	28	May-30-18 08:12	pH = 1

1805007

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> CB022018
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**Sample ID:** 1805007-07      **Sampled:** May-02-18 08:12      **Matrix:** Water  
**Sample Name:** D7a Dup      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 08:12	pH = 1

**Sample ID:** 1805007-08      **Sampled:** May-02-18 08:12      **Matrix:** Water      OC Source Sample MS/MSD  
**Sample Name:** D7a      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:** MS/MSD

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:12	pH = 1
Anions by IC	28	May-30-18 08:12	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:12	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:12	pH = 1
Solids, TDS	7	May-09-18 08:12	pH = 6
TKN DA	28	May-30-18 08:12	pH = 1
TOC	28	May-30-18 08:12	pH = 1
Total Phosphorus DA	28	May-30-18 08:12	pH = 1

**Sample ID:** 1805007-09      **Sampled:** May-02-18 08:19      **Matrix:** Water  
**Sample Name:** D7b      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:19	pH = 1
Anions by IC	28	May-30-18 08:19	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 08:19	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:19	pH = 1
Solids, TDS	7	May-09-18 08:19	pH = 5
TKN DA	28	May-30-18 08:19	pH = 1
TOC	28	May-30-18 08:19	pH = 1
Total Phosphorus DA	28	May-30-18 08:19	pH = 1

**Sample ID:** 1805007-10      **Sampled:** May-02-18 08:55      **Matrix:** Water  
**Sample Name:** D8a      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:55	pH = 1
Anions by IC	28	May-30-18 08:55	pH = 6

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
 Project: Central Sands

Project Manager: Angela Ockrassa Davis  
 Project Number: CB022018

Sample ID: 1805007-10      Sampled: May-02-18 08:55      Matrix: Water

Sample Name: D8a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 08:55	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:55	pH = 1
Solids, TDS	7	May-09-18 08:55	pH = 6
TKN DA	28	May-30-18 08:55	pH = 1
TOC	28	May-30-18 08:55	pH = 1
Total Phosphorus DA	28	May-30-18 08:55	pH = 1

Sample ID: 1805007-11      Sampled: May-02-18 09:11      Matrix: Water

Sample Name: D8b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:11	pH = 1
Anions by IC	28	May-30-18 09:11	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:11	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:11	pH = 1
Solids, TDS	7	May-09-18 09:11	pH = 6
TKN DA	28	May-30-18 09:11	pH = 1
TOC	28	May-30-18 09:11	pH = 1
Total Phosphorus DA	28	May-30-18 09:11	pH = 1

Sample ID: 1805007-12      Sampled: May-02-18 09:45      Matrix: Water

Sample Name: D9a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:45	pH = 1
Anions by IC	28	May-30-18 09:45	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:45	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:45	pH = 1
Solids, TDS	7	May-09-18 09:45	pH = 6
TKN DA	28	May-30-18 09:45	pH = 1
TOC	28	May-30-18 09:45	pH = 1
Total Phosphorus DA	28	May-30-18 09:45	pH = 1

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-13      Sampled: May-02-18 09:54      Matrix: Water

Sample Name: D9b      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:54	pH = 1
Anions by IC	28	May-30-18 09:54	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:54	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:54	pH = 1
Solids, TDS	7	May-09-18 09:54	pH = 6
TKN DA	28	May-30-18 09:54	pH = 1
TOC	28	May-30-18 09:54	pH = 1
Total Phosphorus DA	28	May-30-18 09:54	pH = 1

Sample ID: 1805007-14      Sampled: May-02-18 10:29      Matrix: Water

Sample Name: D10a      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:29	pH = 1
Anions by IC	28	May-30-18 10:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 10:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:29	pH = 1
Solids, TDS	7	May-09-18 10:29	pH = 6
TKN DA	28	May-30-18 10:29	pH = 1
TOC	28	May-30-18 10:29	pH = 1
Total Phosphorus DA	28	May-30-18 10:29	pH = 1

Sample ID: 1805007-15      Sampled: May-02-18 10:29      Matrix: Water

Sample Name: D10a Dup      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:29	pH = 1
Anions by IC	28	May-30-18 10:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 10:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:29	pH = 1
Solids, TDS	7	May-09-18 10:29	pH = 6
TKN DA	28	May-30-18 10:29	pH = 1
TOC	28	May-30-18 10:29	pH = 1



1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-15      Sampled: May-02-18 10:29      Matrix: Water  
 Sample Name: D10a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 10:29	pH = 1

Sample ID: 1805007-16      Sampled: May-02-18 10:41      Matrix: Water  
 Sample Name: D10b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:41	pH = 1
Anions by IC	28	May-30-18 10:41	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 10:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:41	pH = 1
Solids, TDS	7	May-09-18 10:41	pH = 5
TKN DA	28	May-30-18 10:41	pH = 1
TOC	28	May-30-18 10:41	pH = 1
Total Phosphorus DA	28	May-30-18 10:41	pH = 1

Sample ID: 1805007-17      Sampled: May-02-18 10:41      Matrix: Water  
 Sample Name: D10b Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:41	pH = 1
Anions by IC	28	May-30-18 10:41	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 10:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:41	pH = 1
Solids, TDS	7	May-09-18 10:41	pH = 5
TKN DA	28	May-30-18 10:41	pH = 1
TOC	28	May-30-18 10:41	pH = 1
Total Phosphorus DA	28	May-30-18 10:41	pH = 1

Sample ID: 1805007-18      Sampled: May-02-18 11:19      Matrix: Water  
 Sample Name: D11a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 11:19	pH = 1
Anions by IC	28	May-30-18 11:19	pH = 6

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-18      Sampled: May-02-18 11:19      Matrix: Water

Sample Name: D11a      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 11:19	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 11:19	pH = 1
Solids, TDS	7	May-09-18 11:19	pH = 6
TKN DA	28	May-30-18 11:19	pH = 1
TOC	28	May-30-18 11:19	pH = 1
Total Phosphorus DA	28	May-30-18 11:19	pH = 1

Sample ID: 1805007-19      Sampled: May-02-18 11:42      Matrix: Water

Sample Name: D11b      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 11:42	pH = 1
Anions by IC	28	May-30-18 11:42	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 11:42	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 11:42	pH = 1
Solids, TDS	7	May-09-18 11:42	pH = 5
TKN DA	28	May-30-18 11:42	pH = 1
TOC	28	May-30-18 11:42	pH = 1
Total Phosphorus DA	28	May-30-18 11:42	pH = 1

Sample ID: 1805007-20      Sampled: May-02-18 12:41      Matrix: Water

Sample Name: E1a      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 12:41	pH = 1
Anions by IC	28	May-30-18 12:41	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 12:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 12:41	pH = 1
Solids, TDS	7	May-09-18 12:41	pH = 6
TKN DA	28	May-30-18 12:41	pH = 1
TOC	28	May-30-18 12:41	pH = 1
Total Phosphorus DA	28	May-30-18 12:41	pH = 1

1805007

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

**Sample ID:** 1805007-21      **Sampled:** May-02-18 12:58      **Matrix:** Water

**Sample Name:** E1b      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 12:58	pH = 1
Anions by IC	28	May-30-18 12:58	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 12:58	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 12:58	pH = 1
Solids, TDS	7	May-09-18 12:58	pH = 6
TKN DA	28	May-30-18 12:58	pH = 1
TOC	28	May-30-18 12:58	pH = 1
Total Phosphorus DA	28	May-30-18 12:58	pH = 1

**Sample ID:** 1805007-22      **Sampled:** May-02-18 13:28      **Matrix:** Water

**Sample Name:** E2a      **Sample Location/Comments:** Porter Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:28	pH = 1
Anions by IC	28	May-30-18 13:28	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 13:28	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:28	pH = 1
Solids, TDS	7	May-09-18 13:28	pH = 6
TKN DA	28	May-30-18 13:28	pH = 1
TOC	28	May-30-18 13:28	pH = 1
Total Phosphorus DA	28	May-30-18 13:28	pH = 1

**Sample ID:** 1805007-23      **Sampled:** May-02-18 13:37      **Matrix:** Water

**Sample Name:** E2b      **Sample Location/Comments:** Porter Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:37	pH = 1
Anions by IC	28	May-30-18 13:37	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 13:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:37	pH = 1
Solids, TDS	7	May-09-18 13:37	pH = 5
TKN DA	28	May-30-18 13:37	pH = 1
TOC	28	May-30-18 13:37	pH = 1

1805007

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

**Sample ID:** 1805007-23      **Sampled:** May-02-18 13:37      **Matrix:** Water  
**Sample Name:** E2b      **Sample Location/Comments:** Porter Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 13:37	pH = 1

**Sample ID:** 1805007-24      **Sampled:** May-02-18 13:28      **Matrix:** Water  
**Sample Name:** E2a Dup      **Sample Location/Comments:** Porter Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:28	pH = 1
Anions by IC	28	May-30-18 13:28	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 13:28	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:28	pH = 1
Solids, TDS	7	May-09-18 13:28	pH = 6
TKN DA	28	May-30-18 13:28	pH = 1
TOC	28	May-30-18 13:28	pH = 1
Total Phosphorus DA	28	May-30-18 13:28	pH = 1

**Sample ID:** 1805007-25      **Sampled:** May-02-18 13:37      **Matrix:** Water  
**Sample Name:** E2b Dup      **Sample Location/Comments:** Porter Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:37	pH = 1
Anions by IC	28	May-30-18 13:37	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 13:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:37	pH = 1
Solids, TDS	7	May-09-18 13:37	pH = 5
TKN DA	28	May-30-18 13:37	pH = 1
TOC	28	May-30-18 13:37	pH = 1
Total Phosphorus DA	28	May-30-18 13:37	pH = 1

**Sample ID:** 1805007-26      **Sampled:** May-02-18 14:03      **Matrix:** Water  
**Sample Name:** E3a      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:03	pH = 1
Anions by IC	28	May-30-18 14:03	pH = 6

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: CB022018
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Sample ID: 1805007-26      Sampled: May-02-18 14:03      Matrix: Water

Sample Name: E3a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 14:03	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:03	pH = 1
Solids, TDS	7	May-09-18 14:03	pH = 6
TKN DA	28	May-30-18 14:03	pH = 1
TOC	28	May-30-18 14:03	pH = 1
Total Phosphorus DA	28	May-30-18 14:03	pH = 1

Sample ID: 1805007-27      Sampled: May-02-18 14:09      Matrix: Water

Sample Name: E3b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:09	pH = 1
Anions by IC	28	May-30-18 14:09	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:09	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:09	pH = 1
Solids, TDS	7	May-09-18 14:09	pH = 6
TKN DA	28	May-30-18 14:09	pH = 1
TOC	28	May-30-18 14:09	pH = 1
Total Phosphorus DA	28	May-30-18 14:09	pH = 1

Sample ID: 1805007-28      Sampled: May-02-18 14:37      Matrix: Water

Sample Name: E4a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:37	pH = 1
Anions by IC	28	May-30-18 14:37	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:37	pH = 1
Solids, TDS	7	May-09-18 14:37	pH = 6
TKN DA	28	May-30-18 14:37	pH = 1
TOC	28	May-30-18 14:37	pH = 1
Total Phosphorus DA	28	May-30-18 14:37	pH = 1

WORK ORDER

Printed: 5/7/2018 9:53:28AM

1805007

US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

**Sample ID:** 1805007-29      **Sampled:** May-02-18 14:43      **Matrix:** Water

**Sample Name:** E4b      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:43	pH = 1
Anions by IC	28	May-30-18 14:43	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:43	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:43	pH = 1
Solids, TDS	7	May-09-18 14:43	pH = 6
TKN DA	28	May-30-18 14:43	pH = 1
TOC	28	May-30-18 14:43	pH = 1
Total Phosphorus DA	28	May-30-18 14:43	pH = 1

**Sample ID:** 1805007-30      **Sampled:** May-02-18 15:08      **Matrix:** Water

**Sample Name:** E5a      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:08	pH = 1
Anions by IC	28	May-30-18 15:08	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:08	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:08	pH = 1
Solids, TDS	7	May-09-18 15:08	pH = 6
TKN DA	28	May-30-18 15:08	pH = 1
TOC	28	May-30-18 15:08	pH = 1
Total Phosphorus DA	28	May-30-18 15:08	pH = 1

**Sample ID:** 1805007-31      **Sampled:** May-02-18 15:13      **Matrix:** Water

**Sample Name:** E5b      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:13	pH = 1
Anions by IC	28	May-30-18 15:13	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:13	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:13	pH = 1
Solids, TDS	7	May-09-18 15:13	pH = 6
TKN DA	28	May-30-18 15:13	pH = 1
TOC	28	May-30-18 15:13	pH = 1



1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-31      Sampled: May-02-18 15:13      Matrix: Water  
Sample Name: E5b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 15:13	pH = 1

Sample ID: 1805007-32      Sampled: May-02-18 15:38      Matrix: Water  
Sample Name: E6a      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:38	pH = 1
Anions by IC	28	May-30-18 15:38	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:38	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:38	pH = 1
Solids, TDS	7	May-09-18 15:38	pH = 6
TKN DA	28	May-30-18 15:38	pH = 1
TOC	28	May-30-18 15:38	pH = 1
Total Phosphorus DA	28	May-30-18 15:38	pH = 1

Sample ID: 1805007-33      Sampled: May-02-18 15:44      Matrix: Water  
Sample Name: E6b      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:44	pH = 1
Anions by IC	28	May-30-18 15:44	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:44	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:44	pH = 1
Solids, TDS	7	May-09-18 15:44	pH = 6
TKN DA	28	May-30-18 15:44	pH = 1
TOC	28	May-30-18 15:44	pH = 1
Total Phosphorus DA	28	May-30-18 15:44	pH = 1

Sample ID: 1805007-34      Sampled: May-02-18 16:09      Matrix: Water  
Sample Name: E7a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 16:09	pH = 1
Anions by IC	28	May-30-18 16:09	pH = 5

**WORK ORDER**

Printed: 5/7/2018 9:53:28AM

**1805007**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

**Sample ID:** 1805007-34      **Sampled:** May-02-18 16:09      **Matrix:** Water

**Sample Name:** E7a      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 16:09	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 16:09	pH = 1
Solids, TDS	7	May-09-18 16:09	pH = 5
TKN DA	28	May-30-18 16:09	pH = 1
TOC	28	May-30-18 16:09	pH = 1
Total Phosphorus DA	28	May-30-18 16:09	pH = 1

**Sample ID:** 1805007-35      **Sampled:** May-02-18 16:35      **Matrix:** Water

**Sample Name:** E7b      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 16:35	pH = 1
Anions by IC	28	May-30-18 16:35	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 16:35	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 16:35	pH = 1
Solids, TDS	7	May-09-18 16:35	pH = 5
TKN DA	28	May-30-18 16:35	pH = 1
TOC	28	May-30-18 16:35	pH = 1
Total Phosphorus DA	28	May-30-18 16:35	pH = 1

**Sample ID:** 1805007-36      **Sampled:** May-03-18 08:40      **Matrix:** Water

**Sample Name:** E8a      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 08:40	pH = 1
Anions by IC	28	May-31-18 08:40	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 08:40	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 08:40	pH = 1
Solids, TDS	7	May-10-18 08:40	pH = 5
TKN DA	28	May-31-18 08:40	pH = 1
TOC	28	May-31-18 08:40	pH = 1
Total Phosphorus DA	28	May-31-18 08:40	pH = 1

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b> Project: <b>Central Sands</b>	Project Manager: <b>Angela Ockrassa Davis</b> Project Number: <b>CB022018</b>
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**Sample ID:** 1805007-37      **Sampled:** May-03-18 08:48      **Matrix:** Water  
**Sample Name:** E8b      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 08:48	pH = 1
Anions by IC	28	May-31-18 08:48	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 08:48	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 08:48	pH = 1
Solids, TDS	7	May-10-18 08:48	pH = 6
TKN DA	28	May-31-18 08:48	pH = 1
TOC	28	May-31-18 08:48	pH = 1
Total Phosphorus DA	28	May-31-18 08:48	pH = 1

**Sample ID:** 1805007-38      **Sampled:** May-03-18 07:15      **Matrix:** Water  
**Sample Name:** E10a      **Sample Location/Comments:** 8th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:15	pH = 1
Anions by IC	28	May-31-18 07:15	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:15	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:15	pH = 1
Solids, TDS	7	May-10-18 07:15	pH = 6
TKN DA	28	May-31-18 07:15	pH = 1
TOC	28	May-31-18 07:15	pH = 1
Total Phosphorus DA	28	May-31-18 07:15	pH = 1

**Sample ID:** 1805007-39      **Sampled:** May-03-18 07:15      **Matrix:** Water  
**Sample Name:** E10a Dup      **Sample Location/Comments:** 8th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:15	pH = 1
Anions by IC	28	May-31-18 07:15	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:15	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:15	pH = 1
Solids, TDS	7	May-10-18 07:15	pH = 6
TKN DA	28	May-31-18 07:15	pH = 1
TOC	28	May-31-18 07:15	pH = 1

1805007

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

**Sample ID:** 1805007-39      **Sampled:** May-03-18 07:15      **Matrix:** Water  
**Sample Name:** E10a Dup      **Sample Location/Comments:** 8th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-31-18 07:15	pH = 1

**Sample ID:** 1805007-40      **Sampled:** May-03-18 07:27      **Matrix:** Water  
**Sample Name:** E10b      **Sample Location/Comments:** 8th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:27	pH = 1
Anions by IC	28	May-31-18 07:27	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:27	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:27	pH = 1
Solids, TDS	7	May-10-18 07:27	pH = 6
TKN DA	28	May-31-18 07:27	pH = 1
TOC	28	May-31-18 07:27	pH = 1
Total Phosphorus DA	28	May-31-18 07:27	pH = 1

**Sample ID:** 1805007-41      **Sampled:** May-03-18 07:36      **Matrix:** Water  
**Sample Name:** FB4      **Sample Location/Comments:** 8th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:36	pH = 1
Anions by IC	28	May-31-18 07:36	pH = 4
Metals ICP-AES (w)	180	Oct-30-18 07:36	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:36	pH = 1
Solids, TDS	7	May-10-18 07:36	pH = 4
TKN DA	28	May-31-18 07:36	pH = 1
TOC	28	May-31-18 07:36	pH = 1
Total Phosphorus DA	28	May-31-18 07:36	pH = 1

**Sample ID:** 1805007-42      **Sampled:** May-03-18 07:13      **Matrix:** Water  
**Sample Name:** E10 Equip      **Sample Location/Comments:** 8th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:13	pH = 1
Anions by IC	28	May-31-18 07:13	pH = 4

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-42      Sampled: May-03-18 07:13      Matrix: Water

Sample Name: E10 Equip      Sample Location/Comments: 8th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-30-18 07:13	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:13	pH = 1
Solids, TDS	7	May-10-18 07:13	pH = 4
TKN DA	28	May-31-18 07:13	pH = 1
TOC	28	May-31-18 07:13	pH = 1
Total Phosphorus DA	28	May-31-18 07:13	pH = 1

Sample ID: 1805007-43      Sampled: May-03-18 09:53      Matrix: Water

Sample Name: E9a      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 09:53	pH = 1
Anions by IC	28	May-31-18 09:53	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 09:53	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 09:53	pH = 1
Solids, TDS	7	May-10-18 09:53	pH = 5
TKN DA	28	May-31-18 09:53	pH = 1
TOC	28	May-31-18 09:53	pH = 1
Total Phosphorus DA	28	May-31-18 09:53	pH = 1

Sample ID: 1805007-44      Sampled: May-03-18 10:02      Matrix: Water

Sample Name: E9b      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 10:02	pH = 1
Anions by IC	28	May-31-18 10:02	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 10:02	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 10:02	pH = 1
Solids, TDS	7	May-10-18 10:02	pH = 5
TKN DA	28	May-31-18 10:02	pH = 1
TOC	28	May-31-18 10:02	pH = 1
Total Phosphorus DA	28	May-31-18 10:02	pH = 1

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

PROJECT COMMENTS: Anions: Chloride, fluoride, bromide, sulfite.  
Full List metals

**REVIEWED**  
By Robert Thompson at 9:54 am, May 07, 2018





# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312)353-8370 Fax: (312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-06-18 14:55
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## Dissolved Solids, SM 2540C (modified) US EPA Region 5 Chicago Regional Laboratory

**A1a (1805005-01)      Matrix: Water      Sampled: Apr-30-18 07:19      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	122	J		20.0	mg/L	1	B18E010	May-07-18	May-15-18

**A1b (1805005-02)      Matrix: Water      Sampled: Apr-30-18 07:32      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	74.0	J		20.0	mg/L	1	B18E010	May-07-18	May-08-18

**A2a (1805005-03)      Matrix: Water      Sampled: Apr-30-18 08:15      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	124			20.0	mg/L	1	B18E010	May-07-18	May-08-18

**A2b (1805005-04)      Matrix: Water      Sampled: Apr-30-18 08:24      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	164			20.0	mg/L	1	B18E010	May-07-18	May-08-18

**A3a (1805005-05)      Matrix: Water      Sampled: Apr-30-18 09:06      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	96.0			20.0	mg/L	1	B18E010	May-07-18	May-08-18

**A3b (1805005-06)      Matrix: Water      Sampled: Apr-30-18 09:14      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	76.0			20.0	mg/L	1	B18E010	May-07-18	May-08-18

**A4 Equip (1805005-07)      Matrix: Water      Sampled: Apr-30-18 09:38      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	36.0			20.0	mg/L	1	B18E010	May-07-18	May-08-18

**A3a (Dup) (1805005-08)      Matrix: Water      Sampled: Apr-30-18 09:06      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	92.0			20.0	mg/L	1	B18E010	May-07-18	May-08-18



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312)353-8370 Fax: (312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-06-18 14:55
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## Dissolved Solids, SM 2540C (modified) US EPA Region 5 Chicago Regional Laboratory

**FB1 (1805005-09) Matrix: Water Sampled: Apr-30-18 09:49 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	U			20.0	mg/L	1	B18E010	May-07-18	May-08-18

**A4a (1805005-10) Matrix: Water Sampled: Apr-30-18 09:58 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	104			20.0	mg/L	1	B18E010	May-07-18	May-08-18

**A4b (1805005-11) Matrix: Water Sampled: Apr-30-18 10:09 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	108			20.0	mg/L	1	B18E010	May-07-18	May-08-18

**B1a (1805005-12) Matrix: Water Sampled: Apr-30-18 10:51 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	102			20.0	mg/L	1	B18E010	May-07-18	May-08-18

**B1b (1805005-13) Matrix: Water Sampled: Apr-30-18 10:58 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	84.0			20.0	mg/L	1	B18E010	May-07-18	May-08-18

**B2a (1805005-14) Matrix: Water Sampled: Apr-30-18 11:40 Received: May-02-18 09:55**

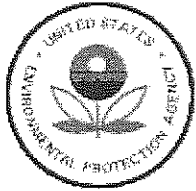
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	124			20.0	mg/L	1	B18E010	May-07-18	May-08-18

**B2b (1805005-15) Matrix: Water Sampled: Apr-30-18 11:48 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	44.0			20.0	mg/L	1	B18E010	May-07-18	May-08-18

**B3a (1805005-16) Matrix: Water Sampled: Apr-30-18 12:29 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	176			20.0	mg/L	1	B18E010	May-07-18	May-08-18



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312) 353-8370 Fax: (312) 886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-06-18 14:55
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## Dissolved Solids, SM 2540C (modified) US EPA Region 5 Chicago Regional Laboratory

**B3b (1805005-17) Matrix: Water Sampled: Apr-30-18 12:36 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	56.0			20.0	mg/L	1	B18E010	May-07-18	May-08-18

**B4a (1805005-18) Matrix: Water Sampled: Apr-30-18 13:10 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	418			20.0	mg/L	1	B18E010	May-07-18	May-08-18

**B4b (1805005-19) Matrix: Water Sampled: Apr-30-18 13:41 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	396			20.0	mg/L	1	B18E010	May-07-18	May-08-18

**C1a (1805005-20) Matrix: Water Sampled: Apr-30-18 15:02 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	46.0			20.0	mg/L	1	B18E010	May-07-18	May-08-18

**C1b (1805005-21) Matrix: Water Sampled: Apr-30-18 15:27 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	64.0			20.0	mg/L	1	B18E010	May-07-18	May-08-18

**C2a (1805005-22) Matrix: Water Sampled: Apr-30-18 16:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	448			20.0	mg/L	1	B18E010	May-07-18	May-08-18

**C2b (1805005-23) Matrix: Water Sampled: Apr-30-18 16:14 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	70.0			20.0	mg/L	1	B18E010	May-07-18	May-08-18

**C3a (1805005-24) Matrix: Water Sampled: Apr-30-18 14:16 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	322			20.0	mg/L	1	B18E010	May-07-18	May-08-18



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-06-18 14:55
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## Dissolved Solids, SM 2540C (modified) US EPA Region 5 Chicago Regional Laboratory

**C3b (1805005-25) Matrix: Water Sampled: Apr-30-18 14:26 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	62.0			20.0	mg/L	1	B18E010	May-07-18	May-08-18

**C5Aa (1805005-26) Matrix: Water Sampled: May-01-18 06:29 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	492			20.0	mg/L	1	B18E011	May-07-18	May-09-18

**C5Ab (1805005-27) Matrix: Water Sampled: May-01-18 06:43 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	644			20.0	mg/L	1	B18E011	May-07-18	May-09-18

**C6a (1805005-28) Matrix: Water Sampled: May-01-18 07:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	416			20.0	mg/L	1	B18E011	May-07-18	May-09-18

**C6b (1805005-29) Matrix: Water Sampled: May-01-18 07:15 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	386			20.0	mg/L	1	B18E011	May-07-18	May-09-18

**C7a (1805005-30) Matrix: Water Sampled: May-01-18 07:48 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	378			20.0	mg/L	1	B18E011	May-07-18	May-09-18

**C7b (1805005-31) Matrix: Water Sampled: May-01-18 08:02 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	450			20.0	mg/L	1	B18E011	May-07-18	May-09-18

**FB2 (1805005-32) Matrix: Water Sampled: May-01-18 07:39 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	U			20.0	mg/L	1	B18E011	May-07-18	May-09-18



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312)353-8370 Fax: (312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-06-18 14:55
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## Dissolved Solids, SM 2540C (modified) US EPA Region 5 Chicago Regional Laboratory

<b>C7 equip (1805005-33)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 07:38</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	U			20.0	mg/L	1	B18E011	May-07-18	May-09-18

<b>C7b Dup (1805005-34)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 08:02</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	444			20.0	mg/L	1	B18E011	May-07-18	May-09-18

<b>C8a (1805005-35)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 08:35</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	216			20.0	mg/L	1	B18E011	May-07-18	May-09-18

<b>C8b (1805005-36)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 08:42</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	84.0			20.0	mg/L	1	B18E011	May-07-18	May-09-18

<b>C9a (1805005-37)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 10:00</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	90.0			20.0	mg/L	1	B18E011	May-08-18	May-09-18

<b>C9b (1805005-38)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 10:21</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	46.0			20.0	mg/L	1	B18E011	May-08-18	May-09-18

<b>C10a (1805005-39)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 11:05</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	128			20.0	mg/L	1	B18E011	May-08-18	May-09-18

<b>C10b (1805005-40)</b>		<b>Matrix: Water</b>	<b>Sampled: May-01-18 11:12</b>	<b>Received: May-02-18 09:55</b>					
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	196			20.0	mg/L	1	B18E011	May-08-18	May-09-18



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> Jun-06-18 14:55
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**Dissolved Solids, SM 2540C (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**C11a (1805005-41) Matrix: Water Sampled: May-01-18 11:46 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	<b>96.0</b>			20.0	mg/L	1	B18E011	May-08-18	May-09-18

**C11b (1805005-42) Matrix: Water Sampled: May-01-18 11:52 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	<b>56.0</b>			20.0	mg/L	1	B18E011	May-08-18	May-09-18

**C12a (1805005-43) Matrix: Water Sampled: May-01-18 12:41 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	<b>120</b>			20.0	mg/L	1	B18E011	May-08-18	May-09-18

**C12b (1805005-44) Matrix: Water Sampled: May-01-18 12:47 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	<b>126</b>			20.0	mg/L	1	B18E011	May-08-18	May-09-18

**C13a (1805005-45) Matrix: Water Sampled: May-01-18 13:30 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	<b>100</b>			20.0	mg/L	1	B18E011	May-08-18	May-09-18

**C13b (1805005-46) Matrix: Water Sampled: May-01-18 13:39 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	<b>74.0</b>			20.0	mg/L	1	B18E011	May-08-18	May-09-18

**D1a (1805005-47) Matrix: Water Sampled: May-01-18 14:19 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	<b>108</b>			20.0	mg/L	1	B18E011	May-08-18	May-09-18

**D1b (1805005-48) Matrix: Water Sampled: May-01-18 14:26 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	<b>62.0</b>			20.0	mg/L	1	B18E011	May-08-18	May-09-18





Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

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Water Division, WECA Region 5  
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Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
Jun-06-18 14:55

**Dissolved Solids, SM 2540C (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**D2a (1805005-49) Matrix: Water Sampled: May-01-18 15:00 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	246			20.0	mg/L	1	B18E011	May-08-18	May-09-18

**D2b (1805005-50) Matrix: Water Sampled: May-01-18 15:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	444			20.0	mg/L	1	B18E011	May-08-18	May-09-18

**D3a (1805005-51) Matrix: Water Sampled: May-01-18 15:41 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	352			20.0	mg/L	1	B18E011	May-08-18	May-09-18

**D3b (1805005-52) Matrix: Water Sampled: May-01-18 15:48 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	232			20.0	mg/L	1	B18E011	May-08-18	May-09-18

**D4a (1805005-53) Matrix: Water Sampled: May-01-18 16:19 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	288			20.0	mg/L	1	B18E011	May-08-18	May-09-18

**D4b (1805005-54) Matrix: Water Sampled: May-01-18 16:26 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	648			20.0	mg/L	1	B18E011	May-08-18	May-09-18

**D5a (1805007-01) Matrix: Water Sampled: May-02-18 06:38 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	98.0	J		20.0	mg/L	1	B18E020	May-09-18	May-11-18

**D5b (1805007-02) Matrix: Water Sampled: May-02-18 06:46 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	58.0	J		20.0	mg/L	1	B18E020	May-09-18	May-09-18



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-06-18 14:55
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## Dissolved Solids, SM 2540C (modified) US EPA Region 5 Chicago Regional Laboratory

**D6a (1805007-03)      Matrix: Water      Sampled: May-02-18 07:17      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	526	J		20.0	mg/L	1	B18E020	May-09-18	May-09-18

**D6b (1805007-04)      Matrix: Water      Sampled: May-02-18 07:29      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	380	J		20.0	mg/L	1	B18E020	May-09-18	May-09-18

**D7 equip (1805007-05)      Matrix: Water      Sampled: May-02-18 08:01      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	52.0	J		20.0	mg/L	1	B18E020	May-09-18	May-09-18

**FB3 (1805007-06)      Matrix: Water      Sampled: May-02-18 08:03      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	30.0	J		20.0	mg/L	1	B18E020	May-09-18	May-09-18

**D7a Dup (1805007-07)      Matrix: Water      Sampled: May-02-18 08:12      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	468	J		20.0	mg/L	1	B18E020	May-09-18	May-09-18

**D7a (1805007-08)      Matrix: Water      Sampled: May-02-18 08:12      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	428	J		20.0	mg/L	1	B18E020	May-09-18	May-09-18

**D7b (1805007-09)      Matrix: Water      Sampled: May-02-18 08:19      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	548	J		20.0	mg/L	1	B18E020	May-09-18	May-09-18

**D8a (1805007-10)      Matrix: Water      Sampled: May-02-18 08:55      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	568	J		20.0	mg/L	1	B18E020	May-09-18	May-09-18



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> Jun-06-18 14:55
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**Dissolved Solids, SM 2540C (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**D8b (1805007-11) Matrix: Water Sampled: May-02-18 09:11 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	536			20.0	mg/L	1	B18E020	May-09-18	May-09-18

**D9a (1805007-12) Matrix: Water Sampled: May-02-18 09:45 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	384			20.0	mg/L	1	B18E020	May-09-18	May-09-18

**D9b (1805007-13) Matrix: Water Sampled: May-02-18 09:54 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	82.0			20.0	mg/L	1	B18E020	May-09-18	May-09-18

**D10a (1805007-14) Matrix: Water Sampled: May-02-18 10:29 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	214			20.0	mg/L	1	B18E020	May-09-18	May-09-18

**D10a Dup (1805007-15) Matrix: Water Sampled: May-02-18 10:29 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	212			20.0	mg/L	1	B18E020	May-09-18	May-09-18

**D10b (1805007-16) Matrix: Water Sampled: May-02-18 10:41 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	218			20.0	mg/L	1	B18E020	May-09-18	May-09-18

**D10b Dup (1805007-17) Matrix: Water Sampled: May-02-18 10:41 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	220			20.0	mg/L	1	B18E020	May-09-18	May-09-18

**D11a (1805007-18) Matrix: Water Sampled: May-02-18 11:19 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	314			20.0	mg/L	1	B18E020	May-09-18	May-09-18



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-06-18 14:55
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## Dissolved Solids, SM 2540C (modified) US EPA Region 5 Chicago Regional Laboratory

**D11b (1805007-19)      Matrix: Water      Sampled: May-02-18 11:42      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	352			20.0	mg/L	1	B18E020	May-09-18	May-09-18

**E1a (1805007-20)      Matrix: Water      Sampled: May-02-18 12:41      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	392			20.0	mg/L	1	B18E020	May-09-18	May-09-18

**E1b (1805007-21)      Matrix: Water      Sampled: May-02-18 12:58      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	377			20.0	mg/L	1	B18E020	May-09-18	May-09-18

**E2a (1805007-22)      Matrix: Water      Sampled: May-02-18 13:28      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	166			20.0	mg/L	1	B18E020	May-09-18	May-09-18

**E2b (1805007-23)      Matrix: Water      Sampled: May-02-18 13:37      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	104			20.0	mg/L	1	B18E020	May-09-18	May-09-18

**E2a Dup (1805007-24)      Matrix: Water      Sampled: May-02-18 13:28      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	162			20.0	mg/L	1	B18E020	May-09-18	May-09-18

**E2b Dup (1805007-25)      Matrix: Water      Sampled: May-02-18 13:37      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	82.0			20.0	mg/L	1	B18E020	May-09-18	May-09-18

**E3a (1805007-26)      Matrix: Water      Sampled: May-02-18 14:03      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	180			20.0	mg/L	1	B18E020	May-09-18	May-09-18



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-06-18 14:55
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### Dissolved Solids, SM 2540C (modified) US EPA Region 5 Chicago Regional Laboratory

<b>E3b (1805007-27)</b>	<b>Matrix: Water</b>	<b>Sampled: May-02-18 14:09</b>	<b>Received: May-04-18 10:00</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	144			20.0	mg/L	1	B18E020	May-09-18	May-09-18

<b>E4a (1805007-28)</b>	<b>Matrix: Water</b>	<b>Sampled: May-02-18 14:37</b>	<b>Received: May-04-18 10:00</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	340			20.0	mg/L	1	B18E020	May-09-18	May-09-18

<b>E4b (1805007-29)</b>	<b>Matrix: Water</b>	<b>Sampled: May-02-18 14:43</b>	<b>Received: May-04-18 10:00</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	324			20.0	mg/L	1	B18E020	May-09-18	May-09-18

<b>E5a (1805007-30)</b>	<b>Matrix: Water</b>	<b>Sampled: May-02-18 15:08</b>	<b>Received: May-04-18 10:00</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	416			20.0	mg/L	1	B18E020	May-09-18	May-09-18

<b>E5b (1805007-31)</b>	<b>Matrix: Water</b>	<b>Sampled: May-02-18 15:13</b>	<b>Received: May-04-18 10:00</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	338			20.0	mg/L	1	B18E020	May-09-18	May-09-18

<b>E6a (1805007-32)</b>	<b>Matrix: Water</b>	<b>Sampled: May-02-18 15:38</b>	<b>Received: May-04-18 10:00</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	86.0			20.0	mg/L	1	B18E020	May-09-18	May-09-18

<b>E6b (1805007-33)</b>	<b>Matrix: Water</b>	<b>Sampled: May-02-18 15:44</b>	<b>Received: May-04-18 10:00</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	56.0			20.0	mg/L	1	B18E020	May-09-18	May-09-18

<b>E7a (1805007-34)</b>	<b>Matrix: Water</b>	<b>Sampled: May-02-18 16:09</b>	<b>Received: May-04-18 10:00</b>						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	282			20.0	mg/L	1	B18E020	May-09-18	May-09-18



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312) 353-8370 Fax: (312) 886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> Jun-06-18 14:55
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## Dissolved Solids, SM 2540C (modified) US EPA Region 5 Chicago Regional Laboratory

**E7b (1805007-35) Matrix: Water Sampled: May-02-18 16:35 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	<b>288</b>			20.0	mg/L	1	B18E020	May-09-18	May-09-18

**E8a (1805007-36) Matrix: Water Sampled: May-03-18 08:40 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	<b>332</b>			20.0	mg/L	1	B18E020	May-09-18	May-09-18

**E8b (1805007-37) Matrix: Water Sampled: May-03-18 08:48 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	<b>352</b>			20.0	mg/L	1	B18E021	May-10-18	May-11-18

**E10a (1805007-38) Matrix: Water Sampled: May-03-18 07:15 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	<b>94.0</b>			20.0	mg/L	1	B18E021	May-10-18	May-11-18

**E10a Dup (1805007-39) Matrix: Water Sampled: May-03-18 07:15 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	<b>76.0</b>			20.0	mg/L	1	B18E021	May-10-18	May-11-18

**E10b (1805007-40) Matrix: Water Sampled: May-03-18 07:27 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	<b>82.0</b>			20.0	mg/L	1	B18E021	May-10-18	May-11-18

**FB4 (1805007-41) Matrix: Water Sampled: May-03-18 07:36 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	<b>U</b>			20.0	mg/L	1	B18E021	May-10-18	May-11-18

**E10 Equip (1805007-42) Matrix: Water Sampled: May-03-18 07:13 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
<b>Total Dissolved Solids</b>	<b>U</b>			20.0	mg/L	1	B18E021	May-10-18	May-11-18





Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-06-18 14:55
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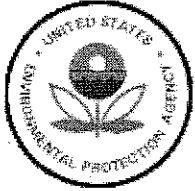
**Dissolved Solids, SM 2540C (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

E9a (1805007-43) Matrix: Water Sampled: May-03-18 09:53 Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	308			20.0	mg/L	1	B18E021	May-10-18	May-11-18

E9b (1805007-44) Matrix: Water Sampled: May-03-18 10:02 Received: May-04-18 10:00

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	282			20.0	mg/L	1	B18E021	May-10-18	May-11-18



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-06-18 14:55
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## Dissolved Solids, SM 2540C (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

### Batch B18E010 - General Preparation

Blank (B18E010-BLK1)		Prepared: May-07-18 Analyzed: May-08-18									
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	U			20.0	mg/L						

Duplicate (B18E010-DUP1)		Source: 1805005-05 Prepared: May-07-18 Analyzed: May-08-18									
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	96.0			20.0	mg/L		96.0			0	10

Duplicate (B18E010-DUP2)		Source: 1805005-15 Prepared: May-07-18 Analyzed: May-08-18									
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	50.0	*, Q		20.0	mg/L		44.0			13	10

Duplicate (B18E010-DUP3)		Source: 1805005-21 Prepared: May-07-18 Analyzed: May-08-18									
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	74.0	*, Q		20.0	mg/L		64.0			14	10

Reference (B18E010-SRM1)		Prepared: May-07-18 Analyzed: May-08-18									
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	234			20.0	mg/L				84.5-110		

### Batch B18E011 - General Preparation

Blank (B18E011-BLK1)		Prepared: May-07-18 Analyzed: May-09-18									
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	U			20.0	mg/L						

Blank (B18E011-BLK2)		Prepared: May-08-18 Analyzed: May-09-18									
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	U			20.0	mg/L						



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-06-18 14:55
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## Dissolved Solids, SM 2540C (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

### Batch B18E011 - General Preparation

Duplicate (B18E011-DUP1)		Source: 1805005-26			Prepared: May-07-18 Analyzed: May-09-18						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	494			20.0	mg/L		492			0.4	10

Duplicate (B18E011-DUP2)		Source: 1805005-36			Prepared: May-07-18 Analyzed: May-09-18						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	76.0			20.0	mg/L		84.0			10	10

Duplicate (B18E011-DUP3)		Source: 1805005-46			Prepared: May-08-18 Analyzed: May-09-18						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	72.0			20.0	mg/L		74.0			3	10

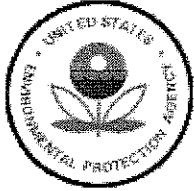
Duplicate (B18E011-DUP4)		Source: 1805005-51			Prepared: May-08-18 Analyzed: May-09-18						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	368			20.0	mg/L		352			4	10

Reference (B18E011-SRM1)		Prepared: May-07-18 Analyzed: May-09-18									
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	242				mg/L	225.0		108%	84.5-110		

Reference (B18E011-SRM2)		Prepared: May-08-18 Analyzed: May-09-18									
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	246				mg/L	225.0		109%	84.5-110		

### Batch B18E020 - General Preparation

Blank (B18E020-BLK1)		Prepared & Analyzed: May-09-18									
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	U			20.0	mg/L						



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-06-18 14:55
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## Dissolved Solids, SM 2540C (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

### Batch B18E020 - General Preparation

Duplicate (B18E020-DUP1)		Source: 1805007-08			Prepared & Analyzed: May-09-18						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	438			20.0	mg/L		428			2	10

Duplicate (B18E020-DUP2)		Source: 1805007-16			Prepared & Analyzed: May-09-18						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	212			20.0	mg/L		218			3	10

Duplicate (B18E020-DUP3)		Source: 1805007-24			Prepared & Analyzed: May-09-18						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	146			20.0	mg/L		162			10	10

Duplicate (B18E020-DUP4)		Source: 1805007-32			Prepared & Analyzed: May-09-18						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	80.0			20.0	mg/L		86.0			7	10

Reference (B18E020-SRM1)		Prepared & Analyzed: May-09-18									
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	228				mg/L	225.0		101%	84.5-110		

### Batch B18E021 - General Preparation

Blank (B18E021-BLK1)		Prepared: May-10-18 Analyzed: May-11-18									
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	U			20.0	mg/L						

Duplicate (B18E021-DUP1)		Source: 1805007-37			Prepared: May-10-18 Analyzed: May-11-18						
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	336			20.0	mg/L		352			5	10



**Environmental Protection Agency Region 5**  
**Chicago Regional Laboratory**

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-06-18 14:55
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**Dissolved Solids, SM 2540C (modified) - Quality Control**  
**US EPA Region 5 Chicago Regional Laboratory**

**Batch B18E021 - General Preparation**

Reference (B18E021-SRM1)

Prepared: May-10-18 Analyzed: May-11-18

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Total Dissolved Solids	234				mg/L	225.0		104%	84.5-110		



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

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Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
Jun-06-18 14:55

**Notes and Definitions**

- J The identification of the analyte is acceptable; the reported value is an estimate.
- \* This Quality Control measure meets the requirements of the CRL SOP for this analyte.
- U Not Detected
- NR Not Reported
- Q QC limit Exceeded





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5 CHICAGO REGIONAL LABORATORY  
536 SOUTH CLARK STREET  
CHICAGO, ILLINOIS 60605

Date: 6/4/2018  
Subject: Review of Region 5 Data for Central Sands  
To: Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604  
From: Anna Knoebel, Chemist  
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with the EPA QA/G-8 *Guidance on Environmental Data Verification and Data Validation* and the U.S. EPA Region 5 RMD QMP, CRL performs data verification on all the data generated internally. CRL does not perform data validation or quality assessment procedures.

This report was reviewed and the information provided herein accurately represents the analysis performed.

A handwritten signature in cursive script that reads "Anna Knoebel".

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*Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.*

**Attached are Results for: Central Sands**

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**Analyses included in this report:**

Anions by IC

Report Name: 1805005,1805007 Anions by IC FINAL Jun 04 18 1340



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> Jun-04-18 13:40
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### Accredited Analyses included in this Report



**Method:** EPA 300.0 in Water

**Analysis:** Anions by IC

Analyte	Certifications
Fluoride	ISO/IEC 17025:2005
Chloride	ISO/IEC 17025:2005
Nitrite as NO <sub>2</sub>	ISO/IEC 17025:2005
Sulfate as SO <sub>4</sub>	ISO/IEC 17025:2005
Bromide	ISO/IEC 17025:2005
Nitrate --NO <sub>3</sub>	ISO/IEC 17025:2005
Orthophosphate as PO <sub>4</sub>	ISO/IEC 17025:2005

Not included in report

**REVIEWED**  
By AK at 1:51 pm, Jun 04, 2018

Analytes not listed above are not accredited by ANAB.



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

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Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
Jun-04-18 13:40

## ANALYSIS CASE NARRATIVE – Anions by IC

Work order #: 1805005, 1805007  
Analyst: Anna Knoebel  
Phone #: (312) 353-9467

### General Information

Ninety-eight water samples for Anions by IC (fluoride, chloride, sulfate, and bromide) were received on May 2, 2018 and May 4, 2018. All holding times were met.

### Sample Analysis and Results

The samples were analyzed May 8 – 18, 2018 for Anions by IC in water using CRL SOP AIG045A, Version #7 (SOP based on EPA 300.0). The data reported herein meets any laboratory specifications referenced in the sampling QAPP titled "*FINAL\_2018 GW Sampling Plan4\_27\_2018.pdf*" and the requirements referenced in CRL SOP AIG045A, Version #7 (SOP based on EPA 300.0) except for those listed in the QC section below.

### Quality Control

#### Matrix Spike (MS)

The sulfate matrix spike recoveries for samples 1805005-35 (C8a, 76 %), 1805007-08 (D7a, 47 %), 1805007-18 (D11a, 76 %), 1805007-28 (E4a, 56 %), and 1805007-44 (E9b, 19 %) were below the acceptance criteria (80 – 120 %). The chloride matrix spike recoveries for samples 1805007-08 (D7a, 72 %), 1805007-18 (D11a, 73 %) and 1805007-44 (E9b, 62 %) were also below the acceptance criteria (80 – 120 %). The results were qualified "L" (The identification of the analyte is acceptable; the reported value may be biased low. The actual value is expected to be greater than the reported value).

#### Duplicate (DUP)

The sulfate (12 %) and chloride (14 %) %RPD for sample 1805005-15 (B2b) were above the acceptance limit (< 9%). The results were qualified "J" (The identification of the analyte is acceptable; the reported value is an estimate).

#### Continuing Calibration Blank (CCB)

A CCB result (0.08 mg/L) for sulfate was above the MDL (0.07 mg/L). A CCB result (0.36 mg/L) for chloride was also above the MDL (0.05 mg/L). Sulfate and chloride were below the MDL in the other blanks. The blank contamination is most likely due to carryover from the high levels of sulfate in the samples. Sample results were not affected by the blank contamination because they were non-detect or more than ten times the CCB result, no qualifiers were necessary.

All other quality control audits were within CRL limits or did not result in qualification of the data.



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77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
Jun-04-18 13:40



1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-02      Sampled: Apr-30-18 07:32      Matrix: Water

Sample Name: A1b      Sample Location/Comments: 1st Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-07-18 07:32	pH = 5
TKN DA	28	May-28-18 07:32	pH = 2
TOC	28	May-28-18 07:32	pH = 2
Total Phosphorus DA	28	May-28-18 07:32	pH = 2

Sample ID: 1805005-03      Sampled: Apr-30-18 08:15      Matrix: Water

Sample Name: A2a      Sample Location/Comments: 22nd Avenue North

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 08:15	pH = 2
Anions by IC	28	May-28-18 08:15	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 08:15	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 08:15	pH = 2
Solids, TDS	7	May-07-18 08:15	pH = 6
TKN DA	28	May-28-18 08:15	pH = 2
TOC	28	May-28-18 08:15	pH = 2
Total Phosphorus DA	28	May-28-18 08:15	pH = 2

Sample ID: 1805005-04      Sampled: Apr-30-18 08:24      Matrix: Water

Sample Name: A2b      Sample Location/Comments: 22nd Avenue North

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 08:24	pH = 2
Anions by IC	28	May-28-18 08:24	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 08:24	pH = 5
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 08:24	pH = 2
Solids, TDS	7	May-07-18 08:24	pH = 6
TKN DA	28	May-28-18 08:24	pH = 2
TOC	28	May-28-18 08:24	pH = 2
Total Phosphorus DA	28	May-28-18 08:24	pH = 2



1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-05      Sampled: Apr-30-18 09:06      Matrix: Water      QC Source Sample MS/MSD

Sample Name: A3a      Sample Location/Comments: 2nd Street

Sample Comments: MS/MSD

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:06	pH = 2
Anions by IC	28	May-28-18 09:06	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:06	pH = 2
Solids, TDS	7	May-07-18 09:06	pH = 6
TKN DA	28	May-28-18 09:06	pH = 2
TOC	28	May-28-18 09:06	pH = 2
Total Phosphorus DA	28	May-28-18 09:06	pH = 2

Sample ID: 1805005-06      Sampled: Apr-30-18 09:14      Matrix: Water

Sample Name: A3b      Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:14	pH = 2
Anions by IC	28	May-28-18 09:14	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:14	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:14	pH = 2
Solids, TDS	7	May-07-18 09:14	pH = 6
TKN DA	28	May-28-18 09:14	pH = 2
TOC	28	May-28-18 09:14	pH = 2
Total Phosphorus DA	28	May-28-18 09:14	pH = 2

Sample ID: 1805005-07      Sampled: Apr-30-18 09:38      Matrix: Water

Sample Name: A4 Equip      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:38	pH = 2
Anions by IC	28	May-28-18 09:38	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 09:38	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:38	pH = 2
Solids, TDS	7	May-07-18 09:38	pH = 5
TKN DA	28	May-28-18 09:38	pH = 2
TOC	28	May-28-18 09:38	pH = 2

**WORK ORDER**

Printed: 5/3/2018 3:33:25PM

**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> [none]
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**Sample ID:** 1805005-07      **Sampled:** Apr-30-18 09:38      **Matrix:** Water

**Sample Name:** A4 Equip      **Sample Location/Comments:** Cranberry Rock Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 09:38	pH = 2

**Sample ID:** 1805005-08      **Sampled:** Apr-30-18 09:06      **Matrix:** Water

**Sample Name:** A3a (Dup)      **Sample Location/Comments:** 2nd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:06	pH = 2
Anions by IC	28	May-28-18 09:06	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:06	pH = 2
Solids, TDS	7	May-07-18 09:06	pH = 6
TKN DA	28	May-28-18 09:06	pH = 2
TOC	28	May-28-18 09:06	pH = 2
Total Phosphorus DA	28	May-28-18 09:06	pH = 2

**Sample ID:** 1805005-09      **Sampled:** Apr-30-18 09:49      **Matrix:** Water

**Sample Name:** FBI      **Sample Location/Comments:** Cranberry Rock Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:49	pH = 2
Anions by IC	28	May-28-18 09:49	pH = 4
Metals ICP-AES (w)	180	Oct-27-18 09:49	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:49	pH = 2
Solids, TDS	7	May-07-18 09:49	pH = 4
TKN DA	28	May-28-18 09:49	pH = 2
TOC	28	May-28-18 09:49	pH = 2
Total Phosphorus DA	28	May-28-18 09:49	pH = 2

**Sample ID:** 1805005-10      **Sampled:** Apr-30-18 09:58      **Matrix:** Water

**Sample Name:** A4a      **Sample Location/Comments:** Cranberry Rock Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:58	pH = 2
Anions by IC	28	May-28-18 09:58	pH = 6

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## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
 Project: Central Sands

Project Manager: Angela Ockrassa Davis  
 Project Number: [none]

Sample ID: 1805005-10      Sampled: Apr-30-18 09:58      Matrix: Water

Sample Name: A4a      Sample Location/Comments: Cranberry Rock Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-27-18 09:58	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:58	pH = 2
Solids, TDS	7	May-07-18 09:58	pH = 6
TKN DA	28	May-28-18 09:58	pH = 2
TOC	28	May-28-18 09:58	pH = 2
Total Phosphorus DA	28	May-28-18 09:58	pH = 2

Sample ID: 1805005-11      Sampled: Apr-30-18 10:09      Matrix: Water

Sample Name: A4b      Sample Location/Comments: Cranberry Rock Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:09	pH = 2
Anions by IC	28	May-28-18 10:09	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:09	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:09	pH = 2
Solids, TDS	7	May-07-18 10:09	pH = 5
TKN DA	28	May-28-18 10:09	pH = 2
TOC	28	May-28-18 10:09	pH = 2
Total Phosphorus DA	28	May-28-18 10:09	pH = 2

Sample ID: 1805005-12      Sampled: Apr-30-18 10:51      Matrix: Water

Sample Name: B1a      Sample Location/Comments: 20th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:51	pH = 3
Anions by IC	28	May-28-18 10:51	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:51	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:51	pH = 3
Solids, TDS	7	May-07-18 10:51	pH = 5
TKN DA	28	May-28-18 10:51	pH = 3
TOC	28	May-28-18 10:51	pH = 3
Total Phosphorus DA	28	May-28-18 10:51	pH = 3

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-13      Sampled: Apr-30-18 10:58      Matrix: Water

Sample Name: B1b      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:58	pH = 2
Anions by IC	28	May-28-18 10:58	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:58	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:58	pH = 2
Solids, TDS	7	May-07-18 10:58	pH = 5
TKN DA	28	May-28-18 10:58	pH = 2
TOC	28	May-28-18 10:58	pH = 2
Total Phosphorus DA	28	May-28-18 10:58	pH = 2

Sample ID: 1805005-14      Sampled: Apr-30-18 11:40      Matrix: Water

Sample Name: B2a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 11:40	pH = 2
Anions by IC	28	May-28-18 11:40	pH = 7
Metals ICP-AES (w)	180	Oct-27-18 11:40	pH = 4
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 11:40	pH = 2
Solids, TDS	7	May-07-18 11:40	pH = 7
TKN DA	28	May-28-18 11:40	pH = 2
TOC	28	May-28-18 11:40	pH = 2
Total Phosphorus DA	28	May-28-18 11:40	pH = 2

Sample ID: 1805005-15      Sampled: Apr-30-18 11:48      Matrix: Water

Sample Name: B2b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 11:48	pH = 2
Anions by IC	28	May-28-18 11:48	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 11:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 11:48	pH = 2
Solids, TDS	7	May-07-18 11:48	pH = 5
TKN DA	28	May-28-18 11:48	pH = 2
TOC	28	May-28-18 11:48	pH = 2

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## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-15      Sampled: Apr-30-18 11:48      Matrix: Water

Sample Name: B2b

Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 11:48	pH = 2

Sample ID: 1805005-16      Sampled: Apr-30-18 12:29      Matrix: Water

Sample Name: B3a

Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 12:29	pH = 2
Anions by IC	28	May-28-18 12:29	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 12:29	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 12:29	pH = 2
Solids, TDS	7	May-07-18 12:29	pH = 6
TKN DA	28	May-28-18 12:29	pH = 2
TOC	28	May-28-18 12:29	pH = 2
Total Phosphorus DA	28	May-28-18 12:29	pH = 2

Sample ID: 1805005-17      Sampled: Apr-30-18 12:36      Matrix: Water

Sample Name: B3b

Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 12:36	pH = 2
Anions by IC	28	May-28-18 12:36	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 12:36	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 12:36	pH = 2
Solids, TDS	7	May-07-18 12:36	pH = 5
TKN DA	28	May-28-18 12:36	pH = 2
TOC	28	May-28-18 12:36	pH = 2
Total Phosphorus DA	28	May-28-18 12:36	pH = 2

Sample ID: 1805005-18      Sampled: Apr-30-18 13:10      Matrix: Water

Sample Name: B4a

Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 13:10	pH = 2
Anions by IC	28	May-28-18 13:10	pH = 5

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**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> [none]
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**Sample ID:** 1805005-18      **Sampled:** Apr-30-18 13:10      **Matrix:** Water

**Sample Name:** B4a      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-27-18 13:10	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 13:10	pH = 2
Solids, TDS	7	May-07-18 13:10	pH = 5
TKN DA	28	May-28-18 13:10	pH = 2
TOC	28	May-28-18 13:10	pH = 2
Total Phosphorus DA	28	May-28-18 13:10	pH = 2

**Sample ID:** 1805005-19      **Sampled:** Apr-30-18 13:41      **Matrix:** Water

**Sample Name:** B4b      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 13:41	pH = 2
Anions by IC	28	May-28-18 13:41	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 13:41	pH = 4
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 13:41	pH = 2
Solids, TDS	7	May-07-18 13:41	pH = 5
TKN DA	28	May-28-18 13:41	pH = 2
TOC	28	May-28-18 13:41	pH = 2
Total Phosphorus DA	28	May-28-18 13:41	pH = 2

**Sample ID:** 1805005-20      **Sampled:** Apr-30-18 15:02      **Matrix:** Water

**Sample Name:** C1a      **Sample Location/Comments:** 2nd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 15:02	pH = 2
Anions by IC	28	May-28-18 15:02	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 15:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 15:02	pH = 2
Solids, TDS	7	May-07-18 15:02	pH = 5
TKN DA	28	May-28-18 15:02	pH = 2
TOC	28	May-28-18 15:02	pH = 2
Total Phosphorus DA	28	May-28-18 15:02	pH = 2



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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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Sample ID: 1805005-21      Sampled: Apr-30-18 15:27      Matrix: Water

Sample Name: C1b      Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 15:27	pH = 2
Anions by IC	28	May-28-18 15:27	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 15:27	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 15:27	pH = 2
Solids, TDS	7	May-07-18 15:27	pH = 5
TKN DA	28	May-28-18 15:27	pH = 2
TOC	28	May-28-18 15:27	pH = 2
Total Phosphorus DA	28	May-28-18 15:27	pH = 2

Sample ID: 1805005-22      Sampled: Apr-30-18 16:06      Matrix: Water

Sample Name: C2a      Sample Location/Comments: Nelson Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 16:06	pH = 2
Anions by IC	28	May-28-18 16:06	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 16:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 16:06	pH = 2
Solids, TDS	7	May-07-18 16:06	pH = 5
TKN DA	28	May-28-18 16:06	pH = 2
TOC	28	May-28-18 16:06	pH = 2
Total Phosphorus DA	28	May-28-18 16:06	pH = 2

Sample ID: 1805005-23      Sampled: Apr-30-18 16:14      Matrix: Water

Sample Name: C2b      Sample Location/Comments: Nelson Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 16:14	pH = 2
Anions by IC	28	May-28-18 16:14	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 16:14	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 16:14	pH = 2
Solids, TDS	7	May-07-18 16:14	pH = 5
TKN DA	28	May-28-18 16:14	pH = 2
TOC	28	May-28-18 16:14	pH = 2

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**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> [none]
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**Sample ID:** 1805005-23      **Sampled:** Apr-30-18 16:14      **Matrix:** Water

**Sample Name:** C2b      **Sample Location/Comments:** Nelson Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 16:14	pH = 2

**Sample ID:** 1805005-24      **Sampled:** Apr-30-18 14:16      **Matrix:** Water

**Sample Name:** C3a      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 14:16	pH = 2
Anions by IC	28	May-28-18 14:16	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 14:16	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 14:16	pH = 2
Solids, TDS	7	May-07-18 14:16	pH = 5
TKN DA	28	May-28-18 14:16	pH = 2
TOC	28	May-28-18 14:16	pH = 2
Total Phosphorus DA	28	May-28-18 14:16	pH = 2

**Sample ID:** 1805005-25      **Sampled:** Apr-30-18 14:26      **Matrix:** Water

**Sample Name:** C3b      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 14:26	pH = 2
Anions by IC	28	May-28-18 14:26	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 14:26	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 14:26	pH = 2
Solids, TDS	7	May-07-18 14:26	pH = 5
TKN DA	28	May-28-18 14:26	pH = 2
TOC	28	May-28-18 14:26	pH = 2
Total Phosphorus DA	28	May-28-18 14:26	pH = 2

**Sample ID:** 1805005-26      **Sampled:** May-01-18 06:29      **Matrix:** Water

**Sample Name:** C5Aa      **Sample Location/Comments:** CR G (Nelson Road)

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 06:29	pH = 2
Anions by IC	28	May-29-18 06:29	pH = 5

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## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-26      Sampled: May-01-18 06:29      Matrix: Water

Sample Name: C5Aa      Sample Location/Comments: CR G (Nelson Road)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 06:29	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 06:29	pH = 2
Solids, TDS	7	May-08-18 06:29	pH = 5
TKN DA	28	May-29-18 06:29	pH = 2
TOC	28	May-29-18 06:29	pH = 2
Total Phosphorus DA	28	May-29-18 06:29	pH = 2

Sample ID: 1805005-27      Sampled: May-01-18 06:43      Matrix: Water

Sample Name: C5Ab      Sample Location/Comments: CR G (Nelson Road)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 06:43	pH = 2
Anions by IC	28	May-29-18 06:43	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 06:43	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 06:43	pH = 2
Solids, TDS	7	May-08-18 06:43	pH = 5
TKN DA	28	May-29-18 06:43	pH = 2
TOC	28	May-29-18 06:43	pH = 2
Total Phosphorus DA	28	May-29-18 06:43	pH = 2

Sample ID: 1805005-28      Sampled: May-01-18 07:06      Matrix: Water

Sample Name: C6a      Sample Location/Comments: CR G (Nelson Road)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:06	pH = 2
Anions by IC	28	May-29-18 07:06	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 07:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:06	pH = 2
Solids, TDS	7	May-08-18 07:06	pH = 6
TKN DA	28	May-29-18 07:06	pH = 2
TOC	28	May-29-18 07:06	pH = 2
Total Phosphorus DA	28	May-29-18 07:06	pH = 2

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## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-29      Sampled: May-01-18 07:15      Matrix: Water

Sample Name: C6b      Sample Location/Comments: CR G (Nelson Road)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:15	pH = 3
Anions by IC	28	May-29-18 07:15	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 07:15	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:15	pH = 3
Solids, TDS	7	May-08-18 07:15	pH = 5
TKN DA	28	May-29-18 07:15	pH = 3
TOC	28	May-29-18 07:15	pH = 3
Total Phosphorus DA	28	May-29-18 07:15	pH = 3

Sample ID: 1805005-30      Sampled: May-01-18 07:48      Matrix: Water

Sample Name: C7a      Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:48	pH = 2
Anions by IC	28	May-29-18 07:48	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 07:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:48	pH = 2
Solids, TDS	7	May-08-18 07:48	pH = 6
TKN DA	28	May-29-18 07:48	pH = 2
TOC	28	May-29-18 07:48	pH = 2
Total Phosphorus DA	28	May-29-18 07:48	pH = 2

Sample ID: 1805005-31      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7b      Sample Location/Comments: 4th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:02	pH = 2
Anions by IC	28	May-29-18 08:02	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:02	pH = 2
Solids, TDS	7	May-08-18 08:02	pH = 5
TKN DA	28	May-29-18 08:02	pH = 2
TOC	28	May-29-18 08:02	pH = 2

WORK ORDER

Printed: 5/3/2018 3:33:25PM

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-31      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 08:02	pH = 2

Sample ID: 1805005-32      Sampled: May-01-18 07:39      Matrix: Water

Sample Name: FB2      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:39	pH = 2
Anions by IC	28	May-29-18 07:39	pH = 4
Metals ICP-AES (w)	180	Oct-28-18 07:39	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:39	pH = 2
Solids, TDS	7	May-08-18 07:39	pH = 4
TKN DA	28	May-29-18 07:39	pH = 2
TOC	28	May-29-18 07:39	pH = 2
Total Phosphorus DA	28	May-29-18 07:39	pH = 2

Sample ID: 1805005-33      Sampled: May-01-18 07:38      Matrix: Water

Sample Name: C7 equip      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:38	pH = 2
Anions by IC	28	May-29-18 07:38	pH = 4
Metals ICP-AES (w)	180	Oct-28-18 07:38	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:38	pH = 2
Solids, TDS	7	May-08-18 07:38	pH = 4
TKN DA	28	May-29-18 07:38	pH = 2
TOC	28	May-29-18 07:38	pH = 2
Total Phosphorus DA	28	May-29-18 07:38	pH = 2

Sample ID: 1805005-34      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7 Dup      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:02	pH = 2
Anions by IC	28	May-29-18 08:02	pH = 5

1805005

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-34      **Sampled:** May-01-18 08:02      **Matrix:** Water

**Sample Name:** C7 Dup      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 08:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:02	pH = 2
Solids, TDS	7	May-08-18 08:02	pH = 5
TKN DA	28	May-29-18 08:02	pH = 2
TOC	28	May-29-18 08:02	pH = 2
Total Phosphorus DA	28	May-29-18 08:02	pH = 2

**Sample ID:** 1805005-35      **Sampled:** May-01-18 08:35      **Matrix:** Water

**Sample Name:** C8a      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:35	pH = 2
Anions by IC	28	May-29-18 08:35	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:35	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:35	pH = 2
Solids, TDS	7	May-08-18 08:35	pH = 5
TKN DA	28	May-29-18 08:35	pH = 2
TOC	28	May-29-18 08:35	pH = 2
Total Phosphorus DA	28	May-29-18 08:35	pH = 2

**Sample ID:** 1805005-36      **Sampled:** May-01-18 08:42      **Matrix:** Water

**Sample Name:** C8b      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:42	pH = 2
Anions by IC	28	May-29-18 08:42	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:42	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:42	pH = 2
Solids, TDS	7	May-08-18 08:42	pH = 5
TKN DA	28	May-29-18 08:42	pH = 2
TOC	28	May-29-18 08:42	pH = 2
Total Phosphorus DA	28	May-29-18 08:42	pH = 2



1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-37      Sampled: May-01-18 10:00      Matrix: Water

Sample Name: C9a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 10:00	pH = 2
Anions by IC	28	May-29-18 10:00	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 10:00	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 10:00	pH = 2
Solids, TDS	7	May-08-18 10:00	pH = 5
TKN DA	28	May-29-18 10:00	pH = 2
TOC	28	May-29-18 10:00	pH = 2
Total Phosphorus DA	28	May-29-18 10:00	pH = 2

Sample ID: 1805005-38      Sampled: May-01-18 10:21      Matrix: Water

Sample Name: C9h      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 10:21	pH = 2
Anions by IC	28	May-29-18 10:21	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 10:21	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 10:21	pH = 2
Solids, TDS	7	May-08-18 10:21	pH = 5
TKN DA	28	May-29-18 10:21	pH = 2
TOC	28	May-29-18 10:21	pH = 2
Total Phosphorus DA	28	May-29-18 10:21	pH = 2

Sample ID: 1805005-39      Sampled: May-01-18 11:05      Matrix: Water

Sample Name: C10a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:05	pH = 2
Anions by IC	28	May-29-18 11:05	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 11:05	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:05	pH = 2
Solids, TDS	7	May-08-18 11:05	pH = 6
TKN DA	28	May-29-18 11:05	pH = 2
TOC	28	May-29-18 11:05	pH = 2

1805005

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> [none]
---	--

**Sample ID:** 1805005-39      **Sampled:** May-01-18 11:05      **Matrix:** Water

**Sample Name:** C10a      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 11:05	pH = 2

**Sample ID:** 1805005-40      **Sampled:** May-01-18 11:12      **Matrix:** Water

**Sample Name:** C10b      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:12	pH = 2
Anions by IC	28	May-29-18 11:12	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 11:12	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:12	pH = 2
Solids, TDS	7	May-08-18 11:12	pH = 5
TKN DA	28	May-29-18 11:12	pH = 2
TOC	28	May-29-18 11:12	pH = 2
Total Phosphorus DA	28	May-29-18 11:12	pH = 2

**Sample ID:** 1805005-41      **Sampled:** May-01-18 11:46      **Matrix:** Water

**Sample Name:** C11a      **Sample Location/Comments:** 20th Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:46	pH = 3
Anions by IC	28	May-29-18 11:46	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 11:46	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:46	pH = 3
Solids, TDS	7	May-08-18 11:46	pH = 6
TKN DA	28	May-29-18 11:46	pH = 3
TOC	28	May-29-18 11:46	pH = 3
Total Phosphorus DA	28	May-29-18 11:46	pH = 3

**Sample ID:** 1805005-42      **Sampled:** May-01-18 11:52      **Matrix:** Water

**Sample Name:** C11b      **Sample Location/Comments:** 20th Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:52	pH = 2
Anions by IC	28	May-29-18 11:52	pH = 5

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-42      Sampled: May-01-18 11:52      Matrix: Water

Sample Name: C11b      Sample Location/Comments: 20th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 11:52	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:52	pH = 2
Solids, TDS	7	May-08-18 11:52	pH = 5
TKN DA	28	May-29-18 11:52	pH = 2
TOC	28	May-29-18 11:52	pH = 2
Total Phosphorus DA	28	May-29-18 11:52	pH = 2

Sample ID: 1805005-43      Sampled: May-01-18 12:41      Matrix: Water

Sample Name: C12a      Sample Location/Comments: 19th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 12:41	pH = 2
Anions by IC	28	May-29-18 12:41	pH = 7
Metals ICP-AES (w)	180	Oct-28-18 12:41	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 12:41	pH = 2
Solids, TDS	7	May-08-18 12:41	pH = 7
TKN DA	28	May-29-18 12:41	pH = 2
TOC	28	May-29-18 12:41	pH = 2
Total Phosphorus DA	28	May-29-18 12:41	pH = 2

Sample ID: 1805005-44      Sampled: May-01-18 12:47      Matrix: Water

Sample Name: C12b      Sample Location/Comments: 19th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 12:47	pH = 2
Anions by IC	28	May-29-18 12:47	pH = 7
Metals ICP-AES (w)	180	Oct-28-18 12:47	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 12:47	pH = 2
Solids, TDS	7	May-08-18 12:47	pH = 7
TKN DA	28	May-29-18 12:47	pH = 2
TOC	28	May-29-18 12:47	pH = 2
Total Phosphorus DA	28	May-29-18 12:47	pH = 2

WORK ORDER

Printed: 5/3/2018 3:33:25PM

1805005

US EPA Region 5 Chicago Regional Laboratory

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> [none]
---	--

**Sample ID:** 1805005-45      **Sampled:** May-01-18 13:30      **Matrix:** Water

**Sample Name:** C13a      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 13:30	pH = 3
Anions by IC	28	May-29-18 13:30	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 13:30	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 13:30	pH = 3
Solids, TDS	7	May-08-18 13:30	pH = 6
TKN DA	28	May-29-18 13:30	pH = 3
TOC	28	May-29-18 13:30	pH = 3
Total Phosphorus DA	28	May-29-18 13:30	pH = 3

**Sample ID:** 1805005-46      **Sampled:** May-01-18 13:39      **Matrix:** Water

**Sample Name:** C13b      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 13:39	pH = 2
Anions by IC	28	May-29-18 13:39	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 13:39	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 13:39	pH = 2
Solids, TDS	7	May-08-18 13:39	pH = 5
TKN DA	28	May-29-18 13:39	pH = 2
TOC	28	May-29-18 13:39	pH = 2
Total Phosphorus DA	28	May-29-18 13:39	pH = 2

**Sample ID:** 1805005-47      **Sampled:** May-01-18 14:19      **Matrix:** Water

**Sample Name:** D1a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 14:19	pH = 2
Anions by IC	28	May-29-18 14:19	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 14:19	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 14:19	pH = 2
Solids, TDS	7	May-08-18 14:19	pH = 6
TKN DA	28	May-29-18 14:19	pH = 2
TOC	28	May-29-18 14:19	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-47      Sampled: May-01-18 14:19      Matrix: Water

Sample Name: D1a

Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 14:19	pH = 2

Sample ID: 1805005-48      Sampled: May-01-18 14:26      Matrix: Water

Sample Name: D1b

Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 14:26	pH = 3
Anions by IC	28	May-29-18 14:26	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 14:26	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 14:26	pH = 3
Solids, TDS	7	May-08-18 14:26	pH = 5
TKN DA	28	May-29-18 14:26	pH = 3
TOC	28	May-29-18 14:26	pH = 3
Total Phosphorus DA	28	May-29-18 14:26	pH = 3

Sample ID: 1805005-49      Sampled: May-01-18 15:00      Matrix: Water

Sample Name: D2a

Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:00	pH = 3
Anions by IC	28	May-29-18 15:00	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:00	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:00	pH = 3
Solids, TDS	7	May-08-18 15:00	pH = 6
TKN DA	28	May-29-18 15:00	pH = 3
TOC	28	May-29-18 15:00	pH = 3
Total Phosphorus DA	28	May-29-18 15:00	pH = 3

Sample ID: 1805005-50      Sampled: May-01-18 15:06      Matrix: Water

Sample Name: D2b

Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:06	pH = 2
Anions by IC	28	May-29-18 15:06	pH = 6

**WORK ORDER**

Printed: 5/3/2018 3:33:25PM

**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-50      **Sampled:** May-01-18 15:06      **Matrix:** Water

**Sample Name:** D2b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 15:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:06	pH = 2
Solids, TDS	7	May-08-18 15:06	pH = 6
TKN DA	28	May-29-18 15:06	pH = 2
TOC	28	May-29-18 15:06	pH = 2
Total Phosphorus DA	28	May-29-18 15:06	pH = 2

**Sample ID:** 1805005-51      **Sampled:** May-01-18 15:41      **Matrix:** Water

**Sample Name:** D3a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:41	pH = 2
Anions by IC	28	May-29-18 15:41	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:41	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:41	pH = 2
Solids, TDS	7	May-08-18 15:41	pH = 6
TKN DA	28	May-29-18 15:41	pH = 2
TOC	28	May-29-18 15:41	pH = 2
Total Phosphorus DA	28	May-29-18 15:41	pH = 2

**Sample ID:** 1805005-52      **Sampled:** May-01-18 15:48      **Matrix:** Water

**Sample Name:** D3b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:48	pH = 2
Anions by IC	28	May-29-18 15:48	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 15:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:48	pH = 2
Solids, TDS	7	May-08-18 15:48	pH = 5
TKN DA	28	May-29-18 15:48	pH = 2
TOC	28	May-29-18 15:48	pH = 2
Total Phosphorus DA	28	May-29-18 15:48	pH = 2



1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-53      Sampled: May-01-18 16:19      Matrix: Water

Sample Name: D4a

Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 16:19	pH = 2
Anions by IC	28	May-29-18 16:19	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 16:19	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 16:19	pH = 2
Solids, TDS	7	May-08-18 16:19	pH = 6
TKN DA	28	May-29-18 16:19	pH = 2
TOC	28	May-29-18 16:19	pH = 2
Total Phosphorus DA	28	May-29-18 16:19	pH = 2

Sample ID: 1805005-54      Sampled: May-01-18 16:26      Matrix: Water

Sample Name: D4b

Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 16:26	pH = 2
Anions by IC	28	May-29-18 16:26	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 16:26	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 16:26	pH = 2
Solids, TDS	7	May-08-18 16:26	pH = 5
TKN DA	28	May-29-18 16:26	pH = 2
TOC	28	May-29-18 16:26	pH = 2
Total Phosphorus DA	28	May-29-18 16:26	pH = 2

WORK ORDER MEMO: NCR 14118

PROJECT COMMENTS: Anions: Chloride, fluoride, bromide, sulfite.  
Full List metals

REVIEWED

By Amanda Wroble at 3:35 pm, May 03, 2018

Reviewed By \_\_\_\_\_

Date \_\_\_\_\_



**Environmental Protection Agency Region 5**  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
 Phone:(312)353-8370 Fax:(312)886-2591

**WORK ORDER**

Printed: 5/7/2018 9:53:28AM

**1805007**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

<b>Report To:</b>	Cheryl Burdett	77 West Jackson Boulevard	Phone: (312) 886-1463
	Water Division, WECA Region 5	Chicago, IL 60604	Fax: (312) 886-2001

Date Due: Jun-04-18 15:00 (30 day TAT)  
 Received By: Robert Snyder Date Received: May-04-18 10:00  
 Logged In By: Robert Snyder Date Logged In: May-07-18 07:38

<b>Samples Received at:</b>	<b>Work Order Comments:</b>
Sample tags/labels Yes	Copy/Relog from 1805005. Anions: Chloride and nitrate as NO3
Seals Intact Yes	Full List metals
Received on ice Yes	pH paper used in SC 16H2601
Paperwork Included Yes	

**Sample ID:** 1805007-01      **Sampled:** May-02-18 06:38      **Matrix:** Water  
**Sample Name:** D5a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 06:38	pH = 1
Anions by IC	28	May-30-18 06:38	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 06:38	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 06:38	pH = 1
Solids, TDS	7	May-09-18 06:38	pH = 6
TKN DA	28	May-30-18 06:38	pH = 1
TOC	28	May-30-18 06:38	pH = 1
Total Phosphorus DA	28	May-30-18 06:38	pH = 1

**Sample ID:** 1805007-02      **Sampled:** May-02-18 06:46      **Matrix:** Water  
**Sample Name:** D5b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 06:46	pH = 1
Anions by IC	28	May-30-18 06:46	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 06:46	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 06:46	pH = 1

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-02      Sampled: May-02-18 06:46      Matrix: Water

Sample Name: D5b      Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-09-18 06:46	pH = 5
TKN DA	28	May-30-18 06:46	pH = 1
TOC	28	May-30-18 06:46	pH = 1
Total Phosphorus DA	28	May-30-18 06:46	pH = 1

Sample ID: 1805007-03      Sampled: May-02-18 07:17      Matrix: Water

Sample Name: D6a      Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 07:17	pH = 1
Anions by IC	28	May-30-18 07:17	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 07:17	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 07:17	pH = 1
Solids, TDS	7	May-09-18 07:17	pH = 6
TKN DA	28	May-30-18 07:17	pH = 1
TOC	28	May-30-18 07:17	pH = 1
Total Phosphorus DA	28	May-30-18 07:17	pH = 1

Sample ID: 1805007-04      Sampled: May-02-18 07:29      Matrix: Water

Sample Name: D6b      Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 07:29	pH = 1
Anions by IC	28	May-30-18 07:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 07:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 07:29	pH = 1
Solids, TDS	7	May-09-18 07:29	pH = 6
TKN DA	28	May-30-18 07:29	pH = 1
TOC	28	May-30-18 07:29	pH = 1
Total Phosphorus DA	28	May-30-18 07:29	pH = 1

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-05 Sampled: May-02-18 08:01 Matrix: Water

Sample Name: D7 equip Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:01	pH = 1
Anions by IC	28	May-30-18 08:01	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 08:01	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:01	pH = 1
Solids, TDS	7	May-09-18 08:01	pH = 5
TKN DA	28	May-30-18 08:01	pH = 1
TOC	28	May-30-18 08:01	pH = 1
Total Phosphorus DA	28	May-30-18 08:01	pH = 1

Sample ID: 1805007-06 Sampled: May-02-18 08:03 Matrix: Water

Sample Name: FB3 Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:03	pH = 1
Anions by IC	28	May-30-18 08:03	pH = 4
Metals ICP-AES (w)	180	Oct-29-18 08:03	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:03	pH = 1
Solids, TDS	7	May-09-18 08:03	pH = 4
TKN DA	28	May-30-18 08:03	pH = 1
TOC	28	May-30-18 08:03	pH = 1
Total Phosphorus DA	28	May-30-18 08:03	pH = 1

Sample ID: 1805007-07 Sampled: May-02-18 08:12 Matrix: Water

Sample Name: D7a Dup Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:12	pH = 1
Anions by IC	28	May-30-18 08:12	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:12	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:12	pH = 1
Solids, TDS	7	May-09-18 08:12	pH = 6
TKN DA	28	May-30-18 08:12	pH = 1
TOC	28	May-30-18 08:12	pH = 1

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-07      Sampled: May-02-18 08:12      Matrix: Water  
 Sample Name: D7a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 08:12	pH = 1

Sample ID: 1805007-08      Sampled: May-02-18 08:12      Matrix: Water      OC Source Sample MS/MSD  
 Sample Name: D7a      Sample Location/Comments: 23rd Avenue

Sample Comments: MS/MSD

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:12	pH = 1
Anions by IC	28	May-30-18 08:12	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:12	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:12	pH = 1
Solids, TDS	7	May-09-18 08:12	pH = 6
TKN DA	28	May-30-18 08:12	pH = 1
TOC	28	May-30-18 08:12	pH = 1
Total Phosphorus DA	28	May-30-18 08:12	pH = 1

Sample ID: 1805007-09      Sampled: May-02-18 08:19      Matrix: Water  
 Sample Name: D7b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:19	pH = 1
Anions by IC	28	May-30-18 08:19	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 08:19	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:19	pH = 1
Solids, TDS	7	May-09-18 08:19	pH = 5
TKN DA	28	May-30-18 08:19	pH = 1
TOC	28	May-30-18 08:19	pH = 1
Total Phosphorus DA	28	May-30-18 08:19	pH = 1

Sample ID: 1805007-10      Sampled: May-02-18 08:55      Matrix: Water  
 Sample Name: D8a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:55	pH = 1
Anions by IC	28	May-30-18 08:55	pH = 6

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-10      Sampled: May-02-18 08:55      Matrix: Water

Sample Name: D8a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 08:55	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:55	pH = 1
Solids, TDS	7	May-09-18 08:55	pH = 6
TKN DA	28	May-30-18 08:55	pH = 1
TOC	28	May-30-18 08:55	pH = 1
Total Phosphorus DA	28	May-30-18 08:55	pH = 1

Sample ID: 1805007-11      Sampled: May-02-18 09:11      Matrix: Water

Sample Name: D8b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:11	pH = 1
Anions by IC	28	May-30-18 09:11	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:11	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:11	pH = 1
Solids, TDS	7	May-09-18 09:11	pH = 6
TKN DA	28	May-30-18 09:11	pH = 1
TOC	28	May-30-18 09:11	pH = 1
Total Phosphorus DA	28	May-30-18 09:11	pH = 1

Sample ID: 1805007-12      Sampled: May-02-18 09:45      Matrix: Water

Sample Name: D9a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:45	pH = 1
Anions by IC	28	May-30-18 09:45	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:45	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:45	pH = 1
Solids, TDS	7	May-09-18 09:45	pH = 6
TKN DA	28	May-30-18 09:45	pH = 1
TOC	28	May-30-18 09:45	pH = 1
Total Phosphorus DA	28	May-30-18 09:45	pH = 1



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## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-13      Sampled: May-02-18 09:54      Matrix: Water

Sample Name: D9b      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:54	pH = 1
Anions by IC	28	May-30-18 09:54	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:54	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:54	pH = 1
Solids, TDS	7	May-09-18 09:54	pH = 6
TKN DA	28	May-30-18 09:54	pH = 1
TOC	28	May-30-18 09:54	pH = 1
Total Phosphorus DA	28	May-30-18 09:54	pH = 1

Sample ID: 1805007-14      Sampled: May-02-18 10:29      Matrix: Water

Sample Name: D10a      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:29	pH = 1
Anions by IC	28	May-30-18 10:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 10:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:29	pH = 1
Solids, TDS	7	May-09-18 10:29	pH = 6
TKN DA	28	May-30-18 10:29	pH = 1
TOC	28	May-30-18 10:29	pH = 1
Total Phosphorus DA	28	May-30-18 10:29	pH = 1

Sample ID: 1805007-15      Sampled: May-02-18 10:29      Matrix: Water

Sample Name: D10a Dup      Sample Location/Comments: 23rd Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:29	pH = 1
Anions by IC	28	May-30-18 10:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 10:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:29	pH = 1
Solids, TDS	7	May-09-18 10:29	pH = 6
TKN DA	28	May-30-18 10:29	pH = 1
TOC	28	May-30-18 10:29	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-15      Sampled: May-02-18 10:29      Matrix: Water

Sample Name: D10a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 10:29	pH = 1

Sample ID: 1805007-16      Sampled: May-02-18 10:41      Matrix: Water

Sample Name: D10b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:41	pH = 1
Anions by IC	28	May-30-18 10:41	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 10:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:41	pH = 1
Solids, TDS	7	May-09-18 10:41	pH = 5
TKN DA	28	May-30-18 10:41	pH = 1
TOC	28	May-30-18 10:41	pH = 1
Total Phosphorus DA	28	May-30-18 10:41	pH = 1

Sample ID: 1805007-17      Sampled: May-02-18 10:41      Matrix: Water

Sample Name: D10b Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:41	pH = 1
Anions by IC	28	May-30-18 10:41	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 10:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:41	pH = 1
Solids, TDS	7	May-09-18 10:41	pH = 5
TKN DA	28	May-30-18 10:41	pH = 1
TOC	28	May-30-18 10:41	pH = 1
Total Phosphorus DA	28	May-30-18 10:41	pH = 1

Sample ID: 1805007-18      Sampled: May-02-18 11:19      Matrix: Water

Sample Name: D11a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 11:19	pH = 1
Anions by IC	28	May-30-18 11:19	pH = 6

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US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b>	Project Manager: <b>Angela Ockrassa Davis</b>
Project: <b>Central Sands</b>	Project Number: <b>CB022018</b>

Sample ID: 1805007-18      Sampled: May-02-18 11:19      Matrix: Water  
 Sample Name: D11a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 11:19	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 11:19	pH = 1
Solids, TDS	7	May-09-18 11:19	pH = 6
TKN DA	28	May-30-18 11:19	pH = 1
TOC	28	May-30-18 11:19	pH = 1
Total Phosphorus DA	28	May-30-18 11:19	pH = 1

Sample ID: 1805007-19      Sampled: May-02-18 11:42      Matrix: Water  
 Sample Name: D11b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 11:42	pH = 1
Anions by IC	28	May-30-18 11:42	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 11:42	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 11:42	pH = 1
Solids, TDS	7	May-09-18 11:42	pH = 5
TKN DA	28	May-30-18 11:42	pH = 1
TOC	28	May-30-18 11:42	pH = 1
Total Phosphorus DA	28	May-30-18 11:42	pH = 1

Sample ID: 1805007-20      Sampled: May-02-18 12:41      Matrix: Water  
 Sample Name: E1a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 12:41	pH = 1
Anions by IC	28	May-30-18 12:41	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 12:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 12:41	pH = 1
Solids, TDS	7	May-09-18 12:41	pH = 6
TKN DA	28	May-30-18 12:41	pH = 1
TOC	28	May-30-18 12:41	pH = 1
Total Phosphorus DA	28	May-30-18 12:41	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b>	Project Manager: <b>Angela Ockrassa Davis</b>
Project: <b>Central Sands</b>	Project Number: <b>CB022018</b>

Sample ID: 1805007-21      Sampled: May-02-18 12:58      Matrix: Water  
 Sample Name: E1b      Sample Location/Comments: 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 12:58	pH = 1
Anions by IC	28	May-30-18 12:58	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 12:58	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 12:58	pH = 1
Solids, TDS	7	May-09-18 12:58	pH = 6
TKN DA	28	May-30-18 12:58	pH = 1
TOC	28	May-30-18 12:58	pH = 1
Total Phosphorus DA	28	May-30-18 12:58	pH = 1

Sample ID: 1805007-22      Sampled: May-02-18 13:28      Matrix: Water  
 Sample Name: E2a      Sample Location/Comments: Porter Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:28	pH = 1
Anions by IC	28	May-30-18 13:28	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 13:28	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:28	pH = 1
Solids, TDS	7	May-09-18 13:28	pH = 6
TKN DA	28	May-30-18 13:28	pH = 1
TOC	28	May-30-18 13:28	pH = 1
Total Phosphorus DA	28	May-30-18 13:28	pH = 1

Sample ID: 1805007-23      Sampled: May-02-18 13:37      Matrix: Water  
 Sample Name: E2b      Sample Location/Comments: Porter Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:37	pH = 1
Anions by IC	28	May-30-18 13:37	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 13:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:37	pH = 1
Solids, TDS	7	May-09-18 13:37	pH = 5
TKN DA	28	May-30-18 13:37	pH = 1
TOC	28	May-30-18 13:37	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-23      Sampled: May-02-18 13:37      Matrix: Water  
 Sample Name: E2b      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 13:37	pH = 1

Sample ID: 1805007-24      Sampled: May-02-18 13:28      Matrix: Water  
 Sample Name: E2a Dup      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:28	pH = 1
Anions by IC	28	May-30-18 13:28	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 13:28	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:28	pH = 1
Solids, TDS	7	May-09-18 13:28	pH = 6
TKN DA	28	May-30-18 13:28	pH = 1
TOC	28	May-30-18 13:28	pH = 1
Total Phosphorus DA	28	May-30-18 13:28	pH = 1

Sample ID: 1805007-25      Sampled: May-02-18 13:37      Matrix: Water  
 Sample Name: E2b Dup      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:37	pH = 1
Anions by IC	28	May-30-18 13:37	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 13:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:37	pH = 1
Solids, TDS	7	May-09-18 13:37	pH = 5
TKN DA	28	May-30-18 13:37	pH = 1
TOC	28	May-30-18 13:37	pH = 1
Total Phosphorus DA	28	May-30-18 13:37	pH = 1

Sample ID: 1805007-26      Sampled: May-02-18 14:03      Matrix: Water  
 Sample Name: E3a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:03	pH = 1
Anions by IC	28	May-30-18 14:03	pH = 6

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-26      Sampled: May-02-18 14:03      Matrix: Water

Sample Name: E3a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 14:03	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:03	pH = 1
Solids, TDS	7	May-09-18 14:03	pH = 6
TKN DA	28	May-30-18 14:03	pH = 1
TOC	28	May-30-18 14:03	pH = 1
Total Phosphorus DA	28	May-30-18 14:03	pH = 1

Sample ID: 1805007-27      Sampled: May-02-18 14:09      Matrix: Water

Sample Name: E3b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:09	pH = 1
Anions by IC	28	May-30-18 14:09	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:09	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:09	pH = 1
Solids, TDS	7	May-09-18 14:09	pH = 6
TKN DA	28	May-30-18 14:09	pH = 1
TOC	28	May-30-18 14:09	pH = 1
Total Phosphorus DA	28	May-30-18 14:09	pH = 1

Sample ID: 1805007-28      Sampled: May-02-18 14:37      Matrix: Water

Sample Name: E4a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:37	pH = 1
Anions by IC	28	May-30-18 14:37	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:37	pH = 1
Solids, TDS	7	May-09-18 14:37	pH = 6
TKN DA	28	May-30-18 14:37	pH = 1
TOC	28	May-30-18 14:37	pH = 1
Total Phosphorus DA	28	May-30-18 14:37	pH = 1

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b>	Project Manager: <b>Angela Ockrassa Davis</b>
Project: <b>Central Sands</b>	Project Number: <b>CB022018</b>

Sample ID: 1805007-29      Sampled: May-02-18 14:43      Matrix: Water  
 Sample Name: E4h      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:43	pH = 1
Anions by IC	28	May-30-18 14:43	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:43	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:43	pH = 1
Solids, TDS	7	May-09-18 14:43	pH = 6
TKN DA	28	May-30-18 14:43	pH = 1
TOC	28	May-30-18 14:43	pH = 1
Total Phosphorus DA	28	May-30-18 14:43	pH = 1

Sample ID: 1805007-30      Sampled: May-02-18 15:08      Matrix: Water  
 Sample Name: E5a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:08	pH = 1
Anions by IC	28	May-30-18 15:08	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:08	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:08	pH = 1
Solids, TDS	7	May-09-18 15:08	pH = 6
TKN DA	28	May-30-18 15:08	pH = 1
TOC	28	May-30-18 15:08	pH = 1
Total Phosphorus DA	28	May-30-18 15:08	pH = 1

Sample ID: 1805007-31      Sampled: May-02-18 15:13      Matrix: Water  
 Sample Name: E5b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:13	pH = 1
Anions by IC	28	May-30-18 15:13	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:13	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:13	pH = 1
Solids, TDS	7	May-09-18 15:13	pH = 6
TKN DA	28	May-30-18 15:13	pH = 1
TOC	28	May-30-18 15:13	pH = 1



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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-31      Sampled: May-02-18 15:13      Matrix: Water  
 Sample Name: E5b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 15:13	pH = 1

Sample ID: 1805007-32      Sampled: May-02-18 15:38      Matrix: Water  
 Sample Name: E6a      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:38	pH = 1
Anions by IC	28	May-30-18 15:38	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:38	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:38	pH = 1
Solids, TDS	7	May-09-18 15:38	pH = 6
TKN DA	28	May-30-18 15:38	pH = 1
TOC	28	May-30-18 15:38	pH = 1
Total Phosphorus DA	28	May-30-18 15:38	pH = 1

Sample ID: 1805007-33      Sampled: May-02-18 15:44      Matrix: Water  
 Sample Name: E6b      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:44	pH = 1
Anions by IC	28	May-30-18 15:44	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:44	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:44	pH = 1
Solids, TDS	7	May-09-18 15:44	pH = 6
TKN DA	28	May-30-18 15:44	pH = 1
TOC	28	May-30-18 15:44	pH = 1
Total Phosphorus DA	28	May-30-18 15:44	pH = 1

Sample ID: 1805007-34      Sampled: May-02-18 16:09      Matrix: Water  
 Sample Name: E7a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 16:09	pH = 1
Anions by IC	28	May-30-18 16:09	pH = 5

1805007

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
 Project: Central Sands

Project Manager: Angela Ockrassa Davis  
 Project Number: CB022018

Sample ID: 1805007-34      Sampled: May-02-18 16:09      Matrix: Water

Sample Name: E7a      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 16:09	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 16:09	pH = 1
Solids, TDS	7	May-09-18 16:09	pH = 5
TKN DA	28	May-30-18 16:09	pH = 1
TOC	28	May-30-18 16:09	pH = 1
Total Phosphorus DA	28	May-30-18 16:09	pH = 1

Sample ID: 1805007-35      Sampled: May-02-18 16:35      Matrix: Water

Sample Name: E7b      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 16:35	pH = 1
Anions by IC	28	May-30-18 16:35	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 16:35	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 16:35	pH = 1
Solids, TDS	7	May-09-18 16:35	pH = 5
TKN DA	28	May-30-18 16:35	pH = 1
TOC	28	May-30-18 16:35	pH = 1
Total Phosphorus DA	28	May-30-18 16:35	pH = 1

Sample ID: 1805007-36      Sampled: May-03-18 08:40      Matrix: Water

Sample Name: E8a      Sample Location/Comments: 7th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 08:40	pH = 1
Anions by IC	28	May-31-18 08:40	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 08:40	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 08:40	pH = 1
Solids, TDS	7	May-10-18 08:40	pH = 5
TKN DA	28	May-31-18 08:40	pH = 1
TOC	28	May-31-18 08:40	pH = 1
Total Phosphorus DA	28	May-31-18 08:40	pH = 1

WORK ORDER

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1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805007-37      Sampled: May-03-18 08:48      Matrix: Water

Sample Name: E8b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 08:48	pH = 1
Anions by IC	28	May-31-18 08:48	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 08:48	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 08:48	pH = 1
Solids, TDS	7	May-10-18 08:48	pH = 6
TKN DA	28	May-31-18 08:48	pH = 1
TOC	28	May-31-18 08:48	pH = 1
Total Phosphorus DA	28	May-31-18 08:48	pH = 1

Sample ID: 1805007-38      Sampled: May-03-18 07:15      Matrix: Water

Sample Name: E10a      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:15	pH = 1
Anions by IC	28	May-31-18 07:15	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:15	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:15	pH = 1
Solids, TDS	7	May-10-18 07:15	pH = 6
TKN DA	28	May-31-18 07:15	pH = 1
TOC	28	May-31-18 07:15	pH = 1
Total Phosphorus DA	28	May-31-18 07:15	pH = 1

Sample ID: 1805007-39      Sampled: May-03-18 07:15      Matrix: Water

Sample Name: E10a Dup      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:15	pH = 1
Anions by IC	28	May-31-18 07:15	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:15	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:15	pH = 1
Solids, TDS	7	May-10-18 07:15	pH = 6
TKN DA	28	May-31-18 07:15	pH = 1
TOC	28	May-31-18 07:15	pH = 1

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b>	Project Manager: <b>Angela Ockrassa Davis</b>
Project: <b>Central Sands</b>	Project Number: <b>CB022018</b>

Sample ID: 1805007-39      Sampled: May-03-18 07:15      Matrix: Water  
 Sample Name: E10a Dup      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-31-18 07:15	pH = 1

Sample ID: 1805007-40      Sampled: May-03-18 07:27      Matrix: Water  
 Sample Name: E10b      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:27	pH = 1
Anions by IC	28	May-31-18 07:27	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:27	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:27	pH = 1
Solids, TDS	7	May-10-18 07:27	pH = 6
TKN DA	28	May-31-18 07:27	pH = 1
TOC	28	May-31-18 07:27	pH = 1
Total Phosphorus DA	28	May-31-18 07:27	pH = 1

Sample ID: 1805007-41      Sampled: May-03-18 07:36      Matrix: Water  
 Sample Name: FB4      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:36	pH = 1
Anions by IC	28	May-31-18 07:36	pH = 4
Metals ICP-AES (w)	180	Oct-30-18 07:36	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:36	pH = 1
Solids, TDS	7	May-10-18 07:36	pH = 4
TKN DA	28	May-31-18 07:36	pH = 1
TOC	28	May-31-18 07:36	pH = 1
Total Phosphorus DA	28	May-31-18 07:36	pH = 1

Sample ID: 1805007-42      Sampled: May-03-18 07:13      Matrix: Water  
 Sample Name: E10 Equip      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:13	pH = 1
Anions by IC	28	May-31-18 07:13	pH = 4

WORK ORDER

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1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project Manager: Angela Ockrassa Davis  
 Project: Central Sands Project Number: CB022018

Sample ID: 1805007-42 Sampled: May-03-18 07:13 Matrix: Water  
 Sample Name: E10 Equip Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-30-18 07:13	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:13	pH = 1
Solids, TDS	7	May-10-18 07:13	pH = 4
TKN DA	28	May-31-18 07:13	pH = 1
TOC	28	May-31-18 07:13	pH = 1
Total Phosphorus DA	28	May-31-18 07:13	pH = 1

Sample ID: 1805007-43 Sampled: May-03-18 09:53 Matrix: Water  
 Sample Name: E9a Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 09:53	pH = 1
Anions by IC	28	May-31-18 09:53	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 09:53	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 09:53	pH = 1
Solids, TDS	7	May-10-18 09:53	pH = 5
TKN DA	28	May-31-18 09:53	pH = 1
TOC	28	May-31-18 09:53	pH = 1
Total Phosphorus DA	28	May-31-18 09:53	pH = 1

Sample ID: 1805007-44 Sampled: May-03-18 10:02 Matrix: Water  
 Sample Name: E9b Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 10:02	pH = 1
Anions by IC	28	May-31-18 10:02	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 10:02	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 10:02	pH = 1
Solids, TDS	7	May-10-18 10:02	pH = 5
TKN DA	28	May-31-18 10:02	pH = 1
TOC	28	May-31-18 10:02	pH = 1
Total Phosphorus DA	28	May-31-18 10:02	pH = 1

WORK ORDER

Printed: 5/7/2018 9:53:28AM

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

PROJECT COMMENTS: Anions: Chloride, fluoride, bromide, sulfate.  
Full List metals

**REVIEWED**

By Robert Thompson at 9:54 am, May 07, 2018

Reviewed By

Date



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312) 353-8370 Fax: (312) 886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-04-18 13:40
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## Anions by Ion Chromatography, EPA 300.0 (modified) US EPA Region 5 Chicago Regional Laboratory

**A1a (1805005-01) Matrix: Water Sampled: Apr-30-18 07:19 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.06		0.01	0.02	mg/L	1	B18E016	May-08-18	May-11-18
Chloride	4.61		0.05	0.12	"	"	"	"	"
Sulfate as SO4	7.02		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**A1b (1805005-02) Matrix: Water Sampled: Apr-30-18 07:32 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.03		0.01	0.02	mg/L	1	B18E016	May-08-18	May-08-18
Chloride	1.16		0.05	0.12	"	"	"	"	"
Sulfate as SO4	5.98		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**A2a (1805005-03) Matrix: Water Sampled: Apr-30-18 08:15 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.04		0.01	0.02	mg/L	1	B18E016	May-08-18	May-08-18
Chloride	1.21		0.05	0.12	"	"	"	"	"
Sulfate as SO4	9.84		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**A2b (1805005-04) Matrix: Water Sampled: Apr-30-18 08:24 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.06		0.01	0.02	mg/L	1	B18E016	May-08-18	May-08-18
Chloride	0.85		0.05	0.12	"	"	"	"	"
Sulfate as SO4	5.01		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**A3a (1805005-05) Matrix: Water Sampled: Apr-30-18 09:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.08		0.01	0.02	mg/L	1	B18E016	May-08-18	May-08-18
Chloride	0.75		0.05	0.12	"	"	"	"	"
Sulfate as SO4	8.79		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"





**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-04-18 13:40
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**Anions by Ion Chromatography, EPA 300.0 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**A3b (1805005-06) Matrix: Water Sampled: Apr-30-18 09:14 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.03		0.01	0.02	mg/L	1	B18E016	May-08-18	May-08-18
Chloride	0.77		0.05	0.12	"	"	"	"	"
Sulfate as SO4	6.44		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**A4 Equip (1805005-07) Matrix: Water Sampled: Apr-30-18 09:38 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.04		0.01	0.02	mg/L	1	B18E016	May-08-18	May-10-18
Chloride	1.00		0.05	0.12	"	"	"	"	"
Sulfate as SO4	5.18		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**A3a (Dup) (1805005-08) Matrix: Water Sampled: Apr-30-18 09:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.08		0.01	0.02	mg/L	1	B18E016	May-08-18	May-10-18
Chloride	0.76		0.05	0.12	"	"	"	"	"
Sulfate as SO4	7.98		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**FBI (1805005-09) Matrix: Water Sampled: Apr-30-18 09:49 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	U		0.01	0.02	mg/L	1	B18E016	May-08-18	May-10-18
Chloride	U		0.05	0.12	"	"	"	"	"
Sulfate as SO4	U		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**A4a (1805005-10) Matrix: Water Sampled: Apr-30-18 09:58 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.07		0.01	0.02	mg/L	1	B18E016	May-08-18	May-10-18
Chloride	1.01		0.05	0.12	"	"	"	"	"
Sulfate as SO4	26.5		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> Jun-04-18 13:40
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**Anions by Ion Chromatography, EPA 300.0 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**A4b (1805005-11) Matrix: Water Sampled: Apr-30-18 10:09 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.06		0.01	0.02	mg/L	1	B18E016	May-08-18	May-10-18
Chloride	0.53		0.05	0.12	"	"	"	"	"
Sulfate as SO4	10.7		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**B1a (1805005-12) Matrix: Water Sampled: Apr-30-18 10:51 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.08		0.01	0.02	mg/L	1	B18E016	May-08-18	May-10-18
Chloride	0.71		0.05	0.12	"	"	"	"	"
Sulfate as SO4	8.18		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**B1b (1805005-13) Matrix: Water Sampled: Apr-30-18 10:58 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.09		0.01	0.02	mg/L	1	B18E016	May-08-18	May-10-18
Chloride	1.10		0.05	0.12	"	"	"	"	"
Sulfate as SO4	7.87		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**B2a (1805005-14) Matrix: Water Sampled: Apr-30-18 11:40 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.08		0.01	0.02	mg/L	1	B18E016	May-08-18	May-10-18
Chloride	2.77		0.05	0.12	"	"	"	"	"
Sulfate as SO4	8.81		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**B2b (1805005-15) Matrix: Water Sampled: Apr-30-18 11:48 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.04		0.01	0.02	mg/L	1	B18E016	May-08-18	May-10-18
Chloride	0.50	J	0.05	0.12	"	"	"	"	"
Sulfate as SO4	5.10	J	0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312) 353-8370 Fax: (312) 886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-04-18 13:40
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## Anions by Ion Chromatography, EPA 300.0 (modified) US EPA Region 5 Chicago Regional Laboratory

**B3a (1805005-16)      Matrix: Water      Sampled: Apr-30-18 12:29      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.05		0.01	0.02	mg/L	1	B18E016	May-08-18	May-10-18
Chloride	19.5		0.05	0.12	"	"	"	"	"
Sulfate as SO4	26.3		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**B3b (1805005-17)      Matrix: Water      Sampled: Apr-30-18 12:36      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.05		0.01	0.02	mg/L	1	B18E016	May-08-18	May-10-18
Chloride	2.09		0.05	0.12	"	"	"	"	"
Sulfate as SO4	6.72		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**B4a (1805005-18)      Matrix: Water      Sampled: Apr-30-18 13:10      Received: May-02-18 09:55**

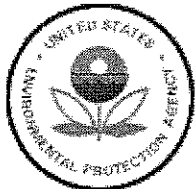
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.03		0.01	0.02	mg/L	1	B18E016	May-08-18	May-10-18
Chloride	35.0		0.05	0.12	"	"	"	"	"
Sulfate as SO4	66.3		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**B4b (1805005-19)      Matrix: Water      Sampled: Apr-30-18 13:41      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.10		0.01	0.02	mg/L	1	B18E016	May-08-18	May-10-18
Chloride	26.7		0.05	0.12	"	"	"	"	"
Sulfate as SO4	112		0.14	0.25	"	2	"	"	May-18-18
Bromide	U		0.03	0.12	"	1	"	"	May-10-18

**C1a (1805005-20)      Matrix: Water      Sampled: Apr-30-18 15:02      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.03		0.01	0.02	mg/L	1	B18E016	May-08-18	May-10-18
Chloride	0.73		0.05	0.12	"	"	"	"	"
Sulfate as SO4	7.79		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-04-18 13:40
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**Anions by Ion Chromatography, EPA 300.0 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**C1b (1805005-21) Matrix: Water Sampled: Apr-30-18 15:27 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.03		0.01	0.02	mg/L	1	B18E016	May-08-18	May-10-18
Chloride	0.70		0.05	0.12	"	"	"	"	"
Sulfate as SO4	6.53		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**C2a (1805005-22) Matrix: Water Sampled: Apr-30-18 16:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.03		0.01	0.02	mg/L	1	B18E016	May-08-18	May-10-18
Chloride	34.4		0.05	0.12	"	"	"	"	"
Sulfate as SO4	29.2		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**C2b (1805005-23) Matrix: Water Sampled: Apr-30-18 16:14 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.04		0.01	0.02	mg/L	1	B18E016	May-08-18	May-10-18
Chloride	3.33		0.05	0.12	"	"	"	"	"
Sulfate as SO4	15.7		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**C3a (1805005-24) Matrix: Water Sampled: Apr-30-18 14:16 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.03		0.01	0.02	mg/L	1	B18E016	May-08-18	May-10-18
Chloride	30.0		0.05	0.12	"	"	"	"	"
Sulfate as SO4	40.9		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**C3b (1805005-25) Matrix: Water Sampled: Apr-30-18 14:26 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.03		0.01	0.02	mg/L	1	B18E016	May-08-18	May-10-18
Chloride	5.75		0.05	0.12	"	"	"	"	"
Sulfate as SO4	11.5		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"



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## Anions by Ion Chromatography, EPA 300.0 (modified) US EPA Region 5 Chicago Regional Laboratory

**C5Aa (1805005-26) Matrix: Water Sampled: May-01-18 06:29 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.03		0.01	0.02	mg/L	1	B18E016	May-08-18	May-10-18
Chloride	38.8		0.05	0.12	"	"	"	"	"
Sulfate as SO4	90.4		0.14	0.25	"	2	"	"	May-18-18
Bromide	0.12		0.03	0.12	"	1	"	"	May-10-18

**C5Ab (1805005-27) Matrix: Water Sampled: May-01-18 06:43 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.04		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	50.5		0.05	0.12	"	"	"	"	"
Sulfate as SO4	101		0.14	0.25	"	2	"	"	May-18-18
Bromide	0.14		0.03	0.12	"	1	"	"	May-09-18

**C6a (1805005-28) Matrix: Water Sampled: May-01-18 07:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.03		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	43.5		0.05	0.12	"	"	"	"	"
Sulfate as SO4	54.7		0.07	0.12	"	"	"	"	"
Bromide	0.16		0.03	0.12	"	"	"	"	"

**C6b (1805005-29) Matrix: Water Sampled: May-01-18 07:15 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.09		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	29.5		0.05	0.12	"	"	"	"	"
Sulfate as SO4	88.9		0.14	0.25	"	2	"	"	May-18-18
Bromide	0.17		0.03	0.12	"	1	"	"	May-09-18

**C7a (1805005-30) Matrix: Water Sampled: May-01-18 07:48 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.03		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	33.6		0.05	0.12	"	"	"	"	"
Sulfate as SO4	52.5		0.07	0.12	"	"	"	"	"
Bromide	0.13		0.03	0.12	"	"	"	"	"



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### Anions by Ion Chromatography, EPA 300.0 (modified) US EPA Region 5 Chicago Regional Laboratory

**C7b (1805005-31) Matrix: Water Sampled: May-01-18 08:02 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.04		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	35.9		0.05	0.12	"	"	"	"	"
Sulfate as SO4	95.2		0.14	0.25	"	2	"	"	May-18-18
Bromide	0.15		0.03	0.12	"	1	"	"	May-09-18

**FB2 (1805005-32) Matrix: Water Sampled: May-01-18 07:39 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	U		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	U		0.05	0.12	"	"	"	"	"
Sulfate as SO4	U		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**C7 equip (1805005-33) Matrix: Water Sampled: May-01-18 07:38 Received: May-02-18 09:55**

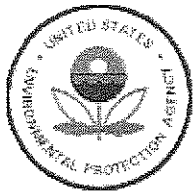
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.02		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	0.73		0.05	0.12	"	"	"	"	"
Sulfate as SO4	1.05		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**C7b Dup (1805005-34) Matrix: Water Sampled: May-01-18 08:02 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.04		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	37.3		0.05	0.12	"	"	"	"	"
Sulfate as SO4	93.7		0.14	0.25	"	2	"	"	May-18-18
Bromide	0.15		0.03	0.12	"	1	"	"	May-09-18

**C8a (1805005-35) Matrix: Water Sampled: May-01-18 08:35 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.05		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	15.9		0.05	0.12	"	"	"	"	"
Sulfate as SO4	44.5	L	0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"



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**Anions by Ion Chromatography, EPA 300.0 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**C8b (1805005-36) Matrix: Water Sampled: May-01-18 08:42 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.04		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	1.84		0.05	0.12	"	"	"	"	"
Sulfate as SO4	15.9		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**C9a (1805005-37) Matrix: Water Sampled: May-01-18 10:00 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.05		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	3.66		0.05	0.12	"	"	"	"	"
Sulfate as SO4	16.4		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**C9b (1805005-38) Matrix: Water Sampled: May-01-18 10:21 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	U		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	0.56		0.05	0.12	"	"	"	"	"
Sulfate as SO4	6.69		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**C10a (1805005-39) Matrix: Water Sampled: May-01-18 11:05 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.05		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	6.93		0.05	0.12	"	"	"	"	"
Sulfate as SO4	3.35		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**C10b (1805005-40) Matrix: Water Sampled: May-01-18 11:12 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.07		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	31.3		0.05	0.12	"	"	"	"	"
Sulfate as SO4	2.03		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"





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## Anions by Ion Chromatography, EPA 300.0 (modified) US EPA Region 5 Chicago Regional Laboratory

**C11a (1805005-41) Matrix: Water Sampled: May-01-18 11:46 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.04		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	0.78		0.05	0.12	"	"	"	"	"
Sulfate as SO4	8.99		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**C11b (1805005-42) Matrix: Water Sampled: May-01-18 11:52 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.10		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	0.92		0.05	0.12	"	"	"	"	"
Sulfate as SO4	6.69		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**C12a (1805005-43) Matrix: Water Sampled: May-01-18 12:41 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.09		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	1.68		0.05	0.12	"	"	"	"	"
Sulfate as SO4	0.91		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**C12b (1805005-44) Matrix: Water Sampled: May-01-18 12:47 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.07		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	1.34		0.05	0.12	"	"	"	"	"
Sulfate as SO4	0.93		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**C13a (1805005-45) Matrix: Water Sampled: May-01-18 13:30 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.08		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	0.60		0.05	0.12	"	"	"	"	"
Sulfate as SO4	6.46		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"



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**Anions by Ion Chromatography, EPA 300.0 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**CI3b (1805005-46) Matrix: Water Sampled: May-01-18 13:39 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.11		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	1.27		0.05	0.12	"	"	"	"	"
Sulfate as SO4	7.34		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**D1a (1805005-47) Matrix: Water Sampled: May-01-18 14:19 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.07		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	0.53		0.05	0.12	"	"	"	"	"
Sulfate as SO4	7.67		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**D1b (1805005-48) Matrix: Water Sampled: May-01-18 14:26 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.07		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	0.83		0.05	0.12	"	"	"	"	"
Sulfate as SO4	4.92		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**D2a (1805005-49) Matrix: Water Sampled: May-01-18 15:00 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.06		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	17.3		0.05	0.12	"	"	"	"	"
Sulfate as SO4	44.3		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**D2b (1805005-50) Matrix: Water Sampled: May-01-18 15:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.11		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	38.8		0.05	0.12	"	"	"	"	"
Sulfate as SO4	90.1		0.14	0.25	"	2	"	"	May-18-18
Bromide	0.13		0.03	0.12	"	1	"	"	May-09-18



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
Jun-04-18 13:40

## Anions by Ion Chromatography, EPA 300.0 (modified) US EPA Region 5 Chicago Regional Laboratory

**D3a (1805005-51)**

**Matrix: Water      Sampled: May-01-18 15:41      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.06		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	31.5		0.05	0.12	"	"	"	"	"
Sulfate as SO4	25.5		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**D3b (1805005-52)**

**Matrix: Water      Sampled: May-01-18 15:48      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.05		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	34.4		0.05	0.12	"	"	"	"	"
Sulfate as SO4	2.55		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**D4a (1805005-53)**

**Matrix: Water      Sampled: May-01-18 16:19      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.04		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	29.4		0.05	0.12	"	"	"	"	"
Sulfate as SO4	25.1		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**D4b (1805005-54)**

**Matrix: Water      Sampled: May-01-18 16:26      Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.05		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	63.7		0.05	0.12	"	"	"	"	"
Sulfate as SO4	93.0		0.14	0.25	"	2	"	"	May-18-18
Bromide	0.15		0.03	0.12	"	1	"	"	May-09-18

**D5a (1805007-01)**

**Matrix: Water      Sampled: May-02-18 06:38      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.05		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	1.67		0.05	0.12	"	"	"	"	"
Sulfate as SO4	10.3		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"



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**Anions by Ion Chromatography, EPA 300.0 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**D5b (1805007-02) Matrix: Water Sampled: May-02-18 06:46 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.04		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	0.79		0.05	0.12	"	"	"	"	"
Sulfate as SO4	6.65		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**D6a (1805007-03) Matrix: Water Sampled: May-02-18 07:17 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	U		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	45.7		0.05	0.12	"	"	"	"	"
Sulfate as SO4	96.9		0.14	0.25	"	2	"	"	May-18-18
Bromide	0.13		0.03	0.12	"	1	"	"	May-09-18

**D6b (1805007-04) Matrix: Water Sampled: May-02-18 07:29 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.04		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	27.9		0.05	0.12	"	"	"	"	"
Sulfate as SO4	67.0		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**D7 equip (1805007-05) Matrix: Water Sampled: May-02-18 08:01 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.05		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	2.07		0.05	0.12	"	"	"	"	"
Sulfate as SO4	1.27		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**FB3 (1805007-06) Matrix: Water Sampled: May-02-18 08:03 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	U		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	U		0.05	0.12	"	"	"	"	"
Sulfate as SO4	U		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Water Division, WECA Region 5  
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Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
Jun-04-18 13:40

## Anions by Ion Chromatography, EPA 300.0 (modified) US EPA Region 5 Chicago Regional Laboratory

**D7a Dup (1805007-07)**

**Matrix: Water      Sampled: May-02-18 08:12      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	U		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	47.0		0.05	0.12	"	"	"	"	"
Sulfate as SO4	68.5		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**D7a (1805007-08)**

**Matrix: Water      Sampled: May-02-18 08:12      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	U		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	46.8	L	0.05	0.12	"	"	"	"	"
Sulfate as SO4	68.7	L	0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**D7b (1805007-09)**

**Matrix: Water      Sampled: May-02-18 08:19      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.05		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	41.2		0.05	0.12	"	"	"	"	"
Sulfate as SO4	112		0.14	0.25	"	2	"	"	May-18-18
Bromide	U		0.03	0.12	"	1	"	"	May-09-18

**D8a (1805007-10)**

**Matrix: Water      Sampled: May-02-18 08:55      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.03		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	50.6		0.05	0.12	"	"	"	"	"
Sulfate as SO4	88.8		0.07	0.12	"	"	"	"	"
Bromide	0.15		0.03	0.12	"	"	"	"	"

**D8b (1805007-11)**

**Matrix: Water      Sampled: May-02-18 09:11      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.05		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	66.2		0.05	0.12	"	"	"	"	"
Sulfate as SO4	86.4		0.14	0.25	"	2	"	"	May-18-18
Bromide	0.14		0.03	0.12	"	1	"	"	May-09-18



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-04-18 13:40
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**Anions by Ion Chromatography, EPA 300.0 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**D9a (1805007-12) Matrix: Water Sampled: May-02-18 09:45 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.03		0.01	0.02	mg/L	1	B18E016	May-08-18	May-09-18
Chloride	41.4		0.05	0.12	"	"	"	"	"
Sulfate as SO4	71.0		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**D9b (1805007-13) Matrix: Water Sampled: May-02-18 09:54 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.06		0.01	0.02	mg/L	1	B18E016	May-08-18	May-18-18
Chloride	4.86		0.05	0.12	"	"	"	"	"
Sulfate as SO4	10.3		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**D10a (1805007-14) Matrix: Water Sampled: May-02-18 10:29 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.04		0.01	0.02	mg/L	1	B18E016	May-08-18	May-18-18
Chloride	22.8		0.05	0.12	"	"	"	"	"
Sulfate as SO4	28.9		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**D10a Dup (1805007-15) Matrix: Water Sampled: May-02-18 10:29 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.03		0.01	0.02	mg/L	1	B18E016	May-08-18	May-18-18
Chloride	22.9		0.05	0.12	"	"	"	"	"
Sulfate as SO4	29.8		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**D10b (1805007-16) Matrix: Water Sampled: May-02-18 10:41 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.04		0.01	0.02	mg/L	1	B18E016	May-08-18	May-18-18
Chloride	21.6		0.05	0.12	"	"	"	"	"
Sulfate as SO4	31.6		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"



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## Anions by Ion Chromatography, EPA 300.0 (modified) US EPA Region 5 Chicago Regional Laboratory

**D10b Dup (1805007-17)      Matrix: Water      Sampled: May-02-18 10:41      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.05		0.01	0.02	mg/L	1	B18E016	May-08-18	May-18-18
Chloride	20.6		0.05	0.12	"	"	"	"	"
Sulfate as SO4	31.5		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**D11a (1805007-18)      Matrix: Water      Sampled: May-02-18 11:19      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.03		0.01	0.02	mg/L	1	B18E016	May-08-18	May-18-18
Chloride	22.5	L	0.05	0.12	"	"	"	"	"
Sulfate as SO4	21.4	L	0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**D11b (1805007-19)      Matrix: Water      Sampled: May-02-18 11:42      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.02		0.01	0.02	mg/L	1	B18E016	May-08-18	May-18-18
Chloride	34.9	L	0.05	0.12	"	"	"	"	"
Sulfate as SO4	60.6	L	0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**E1a (1805007-20)      Matrix: Water      Sampled: May-02-18 12:41      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.03		0.01	0.02	mg/L	1	B18E016	May-08-18	May-18-18
Chloride	33.2		0.05	0.12	"	"	"	"	"
Sulfate as SO4	76.3		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**E1b (1805007-21)      Matrix: Water      Sampled: May-02-18 12:58      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.06		0.01	0.02	mg/L	1	B18E016	May-08-18	May-18-18
Chloride	27.3		0.05	0.12	"	"	"	"	"
Sulfate as SO4	38.0		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"





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## Anions by Ion Chromatography, EPA 300.0 (modified) US EPA Region 5 Chicago Regional Laboratory

**E2a (1805007-22)      Matrix: Water      Sampled: May-02-18 13:28      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.05		0.01	0.02	mg/L	1	B18E016	May-08-18	May-18-18
Chloride	29.0		0.05	0.12	"	"	"	"	"
Sulfate as SO4	8.54		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**E2b (1805007-23)      Matrix: Water      Sampled: May-02-18 13:37      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.08		0.01	0.02	mg/L	1	B18E016	May-08-18	May-18-18
Chloride	1.76		0.05	0.12	"	"	"	"	"
Sulfate as SO4	13.0		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**E2a Dup (1805007-24)      Matrix: Water      Sampled: May-02-18 13:28      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.05		0.01	0.02	mg/L	1	B18E016	May-08-18	May-18-18
Chloride	27.6		0.05	0.12	"	"	"	"	"
Sulfate as SO4	8.29		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**E2b Dup (1805007-25)      Matrix: Water      Sampled: May-02-18 13:37      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.07		0.01	0.02	mg/L	1	B18E016	May-08-18	May-18-18
Chloride	1.59		0.05	0.12	"	"	"	"	"
Sulfate as SO4	12.6		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**E3a (1805007-26)      Matrix: Water      Sampled: May-02-18 14:03      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.05		0.01	0.02	mg/L	1	B18E016	May-08-18	May-18-18
Chloride	2.01		0.05	0.12	"	"	"	"	"
Sulfate as SO4	46.7		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"



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## Anions by Ion Chromatography, EPA 300.0 (modified) US EPA Region 5 Chicago Regional Laboratory

**E3b (1805007-27)      Matrix: Water      Sampled: May-02-18 14:09      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.06		0.01	0.02	mg/L	1	B18E016	May-08-18	May-18-18
Chloride	0.97		0.05	0.12	"	"	"	"	"
Sulfate as SO4	27.4		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**E4a (1805007-28)      Matrix: Water      Sampled: May-02-18 14:37      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.04		0.01	0.02	mg/L	1	B18E016	May-08-18	May-18-18
Chloride	16.4		0.05	0.12	"	"	"	"	"
Sulfate as SO4	71.0	L	0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**E4b (1805007-29)      Matrix: Water      Sampled: May-02-18 14:43      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.05		0.01	0.02	mg/L	1	B18E016	May-08-18	May-18-18
Chloride	33.7		0.05	0.12	"	"	"	"	"
Sulfate as SO4	62.8		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**E5a (1805007-30)      Matrix: Water      Sampled: May-02-18 15:08      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.03		0.01	0.02	mg/L	1	B18E016	May-08-18	May-18-18
Chloride	30.8		0.05	0.12	"	"	"	"	"
Sulfate as SO4	69.3		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**E5b (1805007-31)      Matrix: Water      Sampled: May-02-18 15:13      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.04		0.01	0.02	mg/L	1	B18E016	May-08-18	May-19-18
Chloride	28.9		0.05	0.12	"	"	"	"	"
Sulfate as SO4	61.3		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"



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**Anions by Ion Chromatography, EPA 300.0 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**E6a (1805007-32) Matrix: Water Sampled: May-02-18 15:38 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.06		0.01	0.02	mg/L	1	B18E016	May-08-18	May-11-18
Chloride	0.48		0.05	0.12	"	"	"	"	"
Sulfate as SO4	6.00		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**E6b (1805007-33) Matrix: Water Sampled: May-02-18 15:44 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.04		0.01	0.02	mg/L	1	B18E016	May-08-18	May-11-18
Chloride	0.69		0.05	0.12	"	"	"	"	"
Sulfate as SO4	5.59		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**E7a (1805007-34) Matrix: Water Sampled: May-02-18 16:09 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.02		0.01	0.02	mg/L	1	B18E016	May-08-18	May-11-18
Chloride	33.0		0.05	0.12	"	"	"	"	"
Sulfate as SO4	41.1		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**E7b (1805007-35) Matrix: Water Sampled: May-02-18 16:35 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	U		0.01	0.02	mg/L	1	B18E016	May-08-18	May-11-18
Chloride	32.4		0.05	0.12	"	"	"	"	"
Sulfate as SO4	47.5		0.07	0.12	"	"	"	"	"
Bromide	0.15		0.03	0.12	"	"	"	"	"

**E8a (1805007-36) Matrix: Water Sampled: May-03-18 08:40 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	U		0.01	0.02	mg/L	1	B18E016	May-08-18	May-11-18
Chloride	26.9		0.05	0.12	"	"	"	"	"
Sulfate as SO4	34.6		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"



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**Anions by Ion Chromatography, EPA 300.0 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**E8b (1805007-37) Matrix: Water Sampled: May-03-18 08:48 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.05		0.01	0.02	mg/L	1	B18E016	May-08-18	May-11-18
Chloride	37.1		0.05	0.12	"	"	"	"	"
Sulfate as SO4	60.6		0.07	0.12	"	"	"	"	"
Bromide	0.14		0.03	0.12	"	"	"	"	"

**E10a (1805007-38) Matrix: Water Sampled: May-03-18 07:15 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.06		0.01	0.02	mg/L	1	B18E016	May-08-18	May-11-18
Chloride	0.58		0.05	0.12	"	"	"	"	"
Sulfate as SO4	8.54		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**E10a Dup (1805007-39) Matrix: Water Sampled: May-03-18 07:15 Received: May-04-18 10:00**

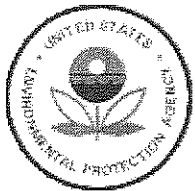
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.05		0.01	0.02	mg/L	1	B18E016	May-08-18	May-11-18
Chloride	0.57		0.05	0.12	"	"	"	"	"
Sulfate as SO4	8.23		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**E10b (1805007-40) Matrix: Water Sampled: May-03-18 07:27 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.04		0.01	0.02	mg/L	1	B18E016	May-08-18	May-11-18
Chloride	1.05		0.05	0.12	"	"	"	"	"
Sulfate as SO4	10.2		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**FB4 (1805007-41) Matrix: Water Sampled: May-03-18 07:36 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	U		0.01	0.02	mg/L	1	B18E016	May-08-18	May-11-18
Chloride	U		0.05	0.12	"	"	"	"	"
Sulfate as SO4	U		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312)353-8370 Fax: (312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jun-04-18 13:40
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## Anions by Ion Chromatography, EPA 300.0 (modified) US EPA Region 5 Chicago Regional Laboratory

**E10 Equip (1805007-42)      Matrix: Water      Sampled: May-03-18 07:13      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	U		0.01	0.02	mg/L	1	B18E016	May-08-18	May-11-18
Chloride	U		0.05	0.12	"	"	"	"	"
Sulfate as SO4	U		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**E9a (1805007-43)      Matrix: Water      Sampled: May-03-18 09:53      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.06		0.01	0.02	mg/L	1	B18E016	May-08-18	May-11-18
Chloride	31.2		0.05	0.12	"	"	"	"	"
Sulfate as SO4	64.8		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"

**E9b (1805007-44)      Matrix: Water      Sampled: May-03-18 10:02      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.05		0.01	0.02	mg/L	1	B18E016	May-08-18	May-11-18
Chloride	32.1	L	0.05	0.12	"	"	"	"	"
Sulfate as SO4	62.3	L	0.07	0.12	"	"	"	"	"
Bromide	0.16		0.03	0.12	"	"	"	"	"



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
Jun-04-18 13:40

**Notes and Definitions**

- L The identification of the analyte is acceptable; the reported value may be biased low. The actual value is expected to be greater than the reported value.
- J The identification of the analyte is acceptable; the reported value is an estimate.
- \* This Quality Control measure meets the requirements of the CRL SOP for this analyte.
- U Not Detected
- NR Not Reported
- Q QC limit Exceeded



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5 CHICAGO REGIONAL LABORATORY  
536 SOUTH CLARK STREET  
CHICAGO, ILLINOIS 60605

**Date:** 7/26/2018  
**Subject:** Review of Region 5 Data for Central Sands  
**To:** Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604  
**From:** Anna Knoebel, Chemist  
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with the EPA QA/G-8 *Guidance on Environmental Data Verification and Data Validation* and the U.S. EPA Region 5 RMD QMP, CRL performs data verification on all the data generated internally. CRL does not perform data validation or quality assessment procedures.

This report was reviewed and the information provided herein accurately represents the analysis performed.

A handwritten signature in cursive script that reads "Anna Knoebel".

---

*Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.*

**Attached are Results for: Central Sands**

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**Analyses included in this report:**

Anions by IC

Report Name: 1805005 Anions by IC FINAL Jul 26 18 0814





**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Jul-26-18 08:14
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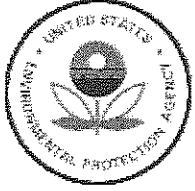
**Accredited Analyses included in this Report**



*Method: EPA 300.0 in Water*  
*Analysis: Anions by IC*

Analyte	Certifications
Fluoride	ISO/IEC 17025:2005
Chloride	ISO/IEC 17025:2005
Nitrite as NO2	ISO/IEC 17025:2005
Sulfate as SO4	ISO/IEC 17025:2005
Bromide	ISO/IEC 17025:2005
Nitrate - NO3	ISO/IEC 17025:2005
Orthophosphate as PO4	ISO/IEC 17025:2005

Analytes not listed above are not accredited by ANAB.



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	<b>Reported:</b> Jul-26-18 08:14
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## ANALYSIS CASE NARRATIVE – Anions by IC

Work order #: 1805005  
Analyst: Anna Knoebel  
Phone #: (312) 353-9467

### General Information

One water sample for Anions by IC (nitrate only) was received on May 2, 2018. The sample was analyzed past the 48-hour hold time and is qualified "UJ" (The analyte was not detected at or above the reported limit. The reported limit is an estimate).

The fluoride, chloride, sulfate, and bromide results were previously reported on June 4, 2018, but are shown on this generated report. Refer to the previous generated report for those results.

A discrepancy between CRL and University of Nebraska results was observed by the client in the Nitrate-Nitrite N result reported for 1805005-03 (A2a). The Client requested that the nitrate data be reported from the anions analysis of the sample.

**NOTE:** Documentation of this instance can be found in Qualtrax Client Contact ID 14957.

### Sample Analysis and Results

The sample was analyzed May 8, 2018 for Anions by IC in water using CRL SOP AIG045A, Version #7 (SOP based on EPA 300.0). The data reported herein meets any laboratory specifications referenced in the sampling QAPP titled "*FINAL\_2018 GW Sampling Plan4\_27\_2018.pdf*" and the requirements referenced in CRL SOP AIG045A, Version #7 (SOP based on EPA 300.0).

### Quality Control

All quality control audits were within CRL limits or did not result in qualification of the data.



1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-02      Sampled: Apr-30-18 07:32      Matrix: Water

Sample Name: A1b

Sample Location/Comments: 1st Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-07-18 07:32	pH = 5
TKN DA	28	May-28-18 07:32	pH = 2
TOC	28	May-28-18 07:32	pH = 2
Total Phosphorus DA	28	May-28-18 07:32	pH = 2

Sample ID: 1805005-03      Sampled: Apr-30-18 08:15      Matrix: Water

Sample Name: A2a

Sample Location/Comments: 22nd Avenue North

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 08:15	pH = 2
Anions by IC	28	May-28-18 08:15	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 08:15	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 08:15	pH = 2
Solids, TDS	7	May-07-18 08:15	pH = 6
TKN DA	28	May-28-18 08:15	pH = 2
TOC	28	May-28-18 08:15	pH = 2
Total Phosphorus DA	28	May-28-18 08:15	pH = 2

Sample ID: 1805005-04      Sampled: Apr-30-18 08:24      Matrix: Water

Sample Name: A2b

Sample Location/Comments: 22nd Avenue North

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 08:24	pH = 2
Anions by IC	28	May-28-18 08:24	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 08:24	pH = 5
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 08:24	pH = 2
Solids, TDS	7	May-07-18 08:24	pH = 6
TKN DA	28	May-28-18 08:24	pH = 2
TOC	28	May-28-18 08:24	pH = 2
Total Phosphorus DA	28	May-28-18 08:24	pH = 2

WORK ORDER

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-05      Sampled: Apr-30-18 09:06      Matrix: Water      OC Source Sample MS/MSD

Sample Name: A3a      Sample Location/Comments: 2nd Street

Sample Comments: MS/MSD

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:06	pH = 2
Anions by IC	28	May-28-18 09:06	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:06	pH = 2
Solids, TDS	7	May-07-18 09:06	pH = 6
TKN DA	28	May-28-18 09:06	pH = 2
TOC	28	May-28-18 09:06	pH = 2
Total Phosphorus DA	28	May-28-18 09:06	pH = 2

Sample ID: 1805005-06      Sampled: Apr-30-18 09:14      Matrix: Water

Sample Name: A3b      Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:14	pH = 2
Anions by IC	28	May-28-18 09:14	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:14	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:14	pH = 2
Solids, TDS	7	May-07-18 09:14	pH = 6
TKN DA	28	May-28-18 09:14	pH = 2
TOC	28	May-28-18 09:14	pH = 2
Total Phosphorus DA	28	May-28-18 09:14	pH = 2

Sample ID: 1805005-07      Sampled: Apr-30-18 09:38      Matrix: Water

Sample Name: A4 Equip      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:38	pH = 2
Anions by IC	28	May-28-18 09:38	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 09:38	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:38	pH = 2
Solids, TDS	7	May-07-18 09:38	pH = 5
TKN DA	28	May-28-18 09:38	pH = 2
TOC	28	May-28-18 09:38	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-07      Sampled: Apr-30-18 09:38      Matrix: Water

Sample Name: A4 Equip      Sample Location/Comments: Cranberry Rock Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 09:38	pH = 2

Sample ID: 1805005-08      Sampled: Apr-30-18 09:06      Matrix: Water

Sample Name: A3a (Dup)      Sample Location/Comments: 2nd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:06	pH = 2
Anions by IC	28	May-28-18 09:06	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:06	pH = 2
Solids, TDS	7	May-07-18 09:06	pH = 6
TKN DA	28	May-28-18 09:06	pH = 2
TOC	28	May-28-18 09:06	pH = 2
Total Phosphorus DA	28	May-28-18 09:06	pH = 2

Sample ID: 1805005-09      Sampled: Apr-30-18 09:49      Matrix: Water

Sample Name: FB1      Sample Location/Comments: Cranberry Rock Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:49	pH = 2
Anions by IC	28	May-28-18 09:49	pH = 4
Metals ICP-AES (w)	180	Oct-27-18 09:49	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:49	pH = 2
Solids, TDS	7	May-07-18 09:49	pH = 4
TKN DA	28	May-28-18 09:49	pH = 2
TOC	28	May-28-18 09:49	pH = 2
Total Phosphorus DA	28	May-28-18 09:49	pH = 2

Sample ID: 1805005-10      Sampled: Apr-30-18 09:58      Matrix: Water

Sample Name: A4a      Sample Location/Comments: Cranberry Rock Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:58	pH = 2
Anions by IC	28	May-28-18 09:58	pH = 6

**WORK ORDER**

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**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-10      **Sampled:** Apr-30-18 09:58      **Matrix:** Water

**Sample Name:** A4a      **Sample Location/Comments:** Cranberry Rock Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-27-18 09:58	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:58	pH = 2
Solids, TDS	7	May-07-18 09:58	pH = 6
TKN DA	28	May-28-18 09:58	pH = 2
TOC	28	May-28-18 09:58	pH = 2
Total Phosphorus DA	28	May-28-18 09:58	pH = 2

**Sample ID:** 1805005-11      **Sampled:** Apr-30-18 10:09      **Matrix:** Water

**Sample Name:** A4b      **Sample Location/Comments:** Cranberry Rock Road

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:09	pH = 2
Anions by IC	28	May-28-18 10:09	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:09	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:09	pH = 2
Solids, TDS	7	May-07-18 10:09	pH = 5
TKN DA	28	May-28-18 10:09	pH = 2
TOC	28	May-28-18 10:09	pH = 2
Total Phosphorus DA	28	May-28-18 10:09	pH = 2

**Sample ID:** 1805005-12      **Sampled:** Apr-30-18 10:51      **Matrix:** Water

**Sample Name:** B1a      **Sample Location/Comments:** 20th Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:51	pH = 3
Anions by IC	28	May-28-18 10:51	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:51	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:51	pH = 3
Solids, TDS	7	May-07-18 10:51	pH = 5
TKN DA	28	May-28-18 10:51	pH = 3
TOC	28	May-28-18 10:51	pH = 3
Total Phosphorus DA	28	May-28-18 10:51	pH = 3



1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-13      Sampled: Apr-30-18 10:58      Matrix: Water

Sample Name: B1b      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:58	pH = 2
Anions by IC	28	May-28-18 10:58	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:58	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:58	pH = 2
Solids, TDS	7	May-07-18 10:58	pH = 5
TKN DA	28	May-28-18 10:58	pH = 2
TOC	28	May-28-18 10:58	pH = 2
Total Phosphorus DA	28	May-28-18 10:58	pH = 2

Sample ID: 1805005-14      Sampled: Apr-30-18 11:40      Matrix: Water

Sample Name: B2a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 11:40	pH = 2
Anions by IC	28	May-28-18 11:40	pH = 7
Metals ICP-AES (w)	180	Oct-27-18 11:40	pH = 4
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 11:40	pH = 2
Solids, TDS	7	May-07-18 11:40	pH = 7
TKN DA	28	May-28-18 11:40	pH = 2
TOC	28	May-28-18 11:40	pH = 2
Total Phosphorus DA	28	May-28-18 11:40	pH = 2

Sample ID: 1805005-15      Sampled: Apr-30-18 11:48      Matrix: Water

Sample Name: B2b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 11:48	pH = 2
Anions by IC	28	May-28-18 11:48	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 11:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 11:48	pH = 2
Solids, TDS	7	May-07-18 11:48	pH = 5
TKN DA	28	May-28-18 11:48	pH = 2
TOC	28	May-28-18 11:48	pH = 2

**WORK ORDER**

Printed: 5/3/2018 3:33:25PM

**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> [none]

**Sample ID:** 1805005-15      **Sampled:** Apr-30-18 11:48      **Matrix:** Water

**Sample Name:** B2b      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 11:48	pH = 2

**Sample ID:** 1805005-16      **Sampled:** Apr-30-18 12:29      **Matrix:** Water

**Sample Name:** B3a      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 12:29	pH = 2
Anions by IC	28	May-28-18 12:29	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 12:29	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 12:29	pH = 2
Solids, TDS	7	May-07-18 12:29	pH = 6
TKN DA	28	May-28-18 12:29	pH = 2
TOC	28	May-28-18 12:29	pH = 2
Total Phosphorus DA	28	May-28-18 12:29	pH = 2

**Sample ID:** 1805005-17      **Sampled:** Apr-30-18 12:36      **Matrix:** Water

**Sample Name:** B3b      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 12:36	pH = 2
Anions by IC	28	May-28-18 12:36	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 12:36	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 12:36	pH = 2
Solids, TDS	7	May-07-18 12:36	pH = 5
TKN DA	28	May-28-18 12:36	pH = 2
TOC	28	May-28-18 12:36	pH = 2
Total Phosphorus DA	28	May-28-18 12:36	pH = 2

**Sample ID:** 1805005-18      **Sampled:** Apr-30-18 13:10      **Matrix:** Water

**Sample Name:** B4a      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 13:10	pH = 2
Anions by IC	28	May-28-18 13:10	pH = 5

WORK ORDER

Printed: 5/3/2018 3:33:25PM

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-18      Sampled: Apr-30-18 13:10      Matrix: Water

Sample Name: B4a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-27-18 13:10	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 13:10	pH = 2
Solids, TDS	7	May-07-18 13:10	pH = 5
TKN DA	28	May-28-18 13:10	pH = 2
TOC	28	May-28-18 13:10	pH = 2
Total Phosphorus DA	28	May-28-18 13:10	pH = 2

Sample ID: 1805005-19      Sampled: Apr-30-18 13:41      Matrix: Water

Sample Name: B4b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 13:41	pH = 2
Anions by IC	28	May-28-18 13:41	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 13:41	pH = 4
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 13:41	pH = 2
Solids, TDS	7	May-07-18 13:41	pH = 5
TKN DA	28	May-28-18 13:41	pH = 2
TOC	28	May-28-18 13:41	pH = 2
Total Phosphorus DA	28	May-28-18 13:41	pH = 2

Sample ID: 1805005-20      Sampled: Apr-30-18 15:02      Matrix: Water

Sample Name: C1a      Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 15:02	pH = 2
Anions by IC	28	May-28-18 15:02	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 15:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 15:02	pH = 2
Solids, TDS	7	May-07-18 15:02	pH = 5
TKN DA	28	May-28-18 15:02	pH = 2
TOC	28	May-28-18 15:02	pH = 2
Total Phosphorus DA	28	May-28-18 15:02	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-21      Sampled: Apr-30-18 15:27      Matrix: Water

Sample Name: C1b

Sample Location/Comments: 2nd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 15:27	pH = 2
Anions by IC	28	May-28-18 15:27	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 15:27	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 15:27	pH = 2
Solids, TDS	7	May-07-18 15:27	pH = 5
TKN DA	28	May-28-18 15:27	pH = 2
TOC	28	May-28-18 15:27	pH = 2
Total Phosphorus DA	28	May-28-18 15:27	pH = 2

Sample ID: 1805005-22      Sampled: Apr-30-18 16:06      Matrix: Water

Sample Name: C2a

Sample Location/Comments: Nelson Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 16:06	pH = 2
Anions by IC	28	May-28-18 16:06	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 16:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 16:06	pH = 2
Solids, TDS	7	May-07-18 16:06	pH = 5
TKN DA	28	May-28-18 16:06	pH = 2
TOC	28	May-28-18 16:06	pH = 2
Total Phosphorus DA	28	May-28-18 16:06	pH = 2

Sample ID: 1805005-23      Sampled: Apr-30-18 16:14      Matrix: Water

Sample Name: C2b

Sample Location/Comments: Nelson Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 16:14	pH = 2
Anions by IC	28	May-28-18 16:14	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 16:14	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 16:14	pH = 2
Solids, TDS	7	May-07-18 16:14	pH = 5
TKN DA	28	May-28-18 16:14	pH = 2
TOC	28	May-28-18 16:14	pH = 2

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-23      Sampled: Apr-30-18 16:14      Matrix: Water

Sample Name: C2b      Sample Location/Comments: Nelson Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 16:14	pH = 2

Sample ID: 1805005-24      Sampled: Apr-30-18 14:16      Matrix: Water

Sample Name: C3a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 14:16	pH = 2
Anions by IC	28	May-28-18 14:16	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 14:16	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 14:16	pH = 2
Solids, TDS	7	May-07-18 14:16	pH = 5
TKN DA	28	May-28-18 14:16	pH = 2
TOC	28	May-28-18 14:16	pH = 2
Total Phosphorus DA	28	May-28-18 14:16	pH = 2

Sample ID: 1805005-25      Sampled: Apr-30-18 14:26      Matrix: Water

Sample Name: C3b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 14:26	pH = 2
Anions by IC	28	May-28-18 14:26	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 14:26	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 14:26	pH = 2
Solids, TDS	7	May-07-18 14:26	pH = 5
TKN DA	28	May-28-18 14:26	pH = 2
TOC	28	May-28-18 14:26	pH = 2
Total Phosphorus DA	28	May-28-18 14:26	pH = 2

Sample ID: 1805005-26      Sampled: May-01-18 06:29      Matrix: Water

Sample Name: C5Aa      Sample Location/Comments: CR G (Nelson Road)

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 06:29	pH = 2
Anions by IC	28	May-29-18 06:29	pH = 5

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-26 Sampled: May-01-18 06:29 Matrix: Water

Sample Name: C5Aa Sample Location/Comments: CR G (Nelson Road)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 06:29	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 06:29	pH = 2
Solids, TDS	7	May-08-18 06:29	pH = 5
TKN DA	28	May-29-18 06:29	pH = 2
TOC	28	May-29-18 06:29	pH = 2
Total Phosphorus DA	28	May-29-18 06:29	pH = 2

Sample ID: 1805005-27 Sampled: May-01-18 06:43 Matrix: Water

Sample Name: C5Ab Sample Location/Comments: CR G (Nelson Road)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 06:43	pH = 2
Anions by IC	28	May-29-18 06:43	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 06:43	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 06:43	pH = 2
Solids, TDS	7	May-08-18 06:43	pH = 5
TKN DA	28	May-29-18 06:43	pH = 2
TOC	28	May-29-18 06:43	pH = 2
Total Phosphorus DA	28	May-29-18 06:43	pH = 2

Sample ID: 1805005-28 Sampled: May-01-18 07:06 Matrix: Water

Sample Name: C6a Sample Location/Comments: CR G (Nelson Road)

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:06	pH = 2
Anions by IC	28	May-29-18 07:06	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 07:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:06	pH = 2
Solids, TDS	7	May-08-18 07:06	pH = 6
TKN DA	28	May-29-18 07:06	pH = 2
TOC	28	May-29-18 07:06	pH = 2
Total Phosphorus DA	28	May-29-18 07:06	pH = 2

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b>	Project Manager: <b>Angela Ockrassa Davis</b>
Project: <b>Central Sands</b>	Project Number: <b>[none]</b>

Sample ID: 1805005-29      Sampled: May-01-18 07:15      Matrix: Water

Sample Name: C6b      Sample Location/Comments: CR G (Nelson Road)

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:15	pH = 3
Anions by IC	28	May-29-18 07:15	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 07:15	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:15	pH = 3
Solids, TDS	7	May-08-18 07:15	pH = 5
TKN DA	28	May-29-18 07:15	pH = 3
TOC	28	May-29-18 07:15	pH = 3
Total Phosphorus DA	28	May-29-18 07:15	pH = 3

Sample ID: 1805005-30      Sampled: May-01-18 07:48      Matrix: Water

Sample Name: C7a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:48	pH = 2
Anions by IC	28	May-29-18 07:48	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 07:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:48	pH = 2
Solids, TDS	7	May-08-18 07:48	pH = 6
TKN DA	28	May-29-18 07:48	pH = 2
TOC	28	May-29-18 07:48	pH = 2
Total Phosphorus DA	28	May-29-18 07:48	pH = 2

Sample ID: 1805005-31      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:02	pH = 2
Anions by IC	28	May-29-18 08:02	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:02	pH = 2
Solids, TDS	7	May-08-18 08:02	pH = 5
TKN DA	28	May-29-18 08:02	pH = 2
TOC	28	May-29-18 08:02	pH = 2



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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-31      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 08:02	pH = 2

Sample ID: 1805005-32      Sampled: May-01-18 07:39      Matrix: Water

Sample Name: FB2      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:39	pH = 2
Anions by IC	28	May-29-18 07:39	pH = 4
Metals ICP-AES (w)	180	Oct-28-18 07:39	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:39	pH = 2
Solids, TDS	7	May-08-18 07:39	pH = 4
TKN DA	28	May-29-18 07:39	pH = 2
TOC	28	May-29-18 07:39	pH = 2
Total Phosphorus DA	28	May-29-18 07:39	pH = 2

Sample ID: 1805005-33      Sampled: May-01-18 07:38      Matrix: Water

Sample Name: C7 equip      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:38	pH = 2
Anions by IC	28	May-29-18 07:38	pH = 4
Metals ICP-AES (w)	180	Oct-28-18 07:38	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:38	pH = 2
Solids, TDS	7	May-08-18 07:38	pH = 4
TKN DA	28	May-29-18 07:38	pH = 2
TOC	28	May-29-18 07:38	pH = 2
Total Phosphorus DA	28	May-29-18 07:38	pH = 2

Sample ID: 1805005-34      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7 Dup      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:02	pH = 2
Anions by IC	28	May-29-18 08:02	pH = 5

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: [none]
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**Sample ID:** 1805005-34     **Sampled:** May-01-18 08:02     **Matrix:** Water  
**Sample Name:** C7 Dup     **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 08:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:02	pH = 2
Solids, TDS	7	May-08-18 08:02	pH = 5
TKN DA	28	May-29-18 08:02	pH = 2
TOC	28	May-29-18 08:02	pH = 2
Total Phosphorus DA	28	May-29-18 08:02	pH = 2

**Sample ID:** 1805005-35     **Sampled:** May-01-18 08:35     **Matrix:** Water  
**Sample Name:** C8a     **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:35	pH = 2
Anions by IC	28	May-29-18 08:35	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:35	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:35	pH = 2
Solids, TDS	7	May-08-18 08:35	pH = 5
TKN DA	28	May-29-18 08:35	pH = 2
TOC	28	May-29-18 08:35	pH = 2
Total Phosphorus DA	28	May-29-18 08:35	pH = 2

**Sample ID:** 1805005-36     **Sampled:** May-01-18 08:42     **Matrix:** Water  
**Sample Name:** C8b     **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:42	pH = 2
Anions by IC	28	May-29-18 08:42	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:42	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:42	pH = 2
Solids, TDS	7	May-08-18 08:42	pH = 5
TKN DA	28	May-29-18 08:42	pH = 2
TOC	28	May-29-18 08:42	pH = 2
Total Phosphorus DA	28	May-29-18 08:42	pH = 2

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-37      Sampled: May-01-18 10:00      Matrix: Water

Sample Name: C9a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 10:00	pH = 2
Anions by IC	28	May-29-18 10:00	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 10:00	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 10:00	pH = 2
Solids, TDS	7	May-08-18 10:00	pH = 5
TKN DA	28	May-29-18 10:00	pH = 2
TOC	28	May-29-18 10:00	pH = 2
Total Phosphorus DA	28	May-29-18 10:00	pH = 2

Sample ID: 1805005-38      Sampled: May-01-18 10:21      Matrix: Water

Sample Name: C9b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 10:21	pH = 2
Anions by IC	28	May-29-18 10:21	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 10:21	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 10:21	pH = 2
Solids, TDS	7	May-08-18 10:21	pH = 5
TKN DA	28	May-29-18 10:21	pH = 2
TOC	28	May-29-18 10:21	pH = 2
Total Phosphorus DA	28	May-29-18 10:21	pH = 2

Sample ID: 1805005-39      Sampled: May-01-18 11:05      Matrix: Water

Sample Name: C10a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:05	pH = 2
Anions by IC	28	May-29-18 11:05	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 11:05	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:05	pH = 2
Solids, TDS	7	May-08-18 11:05	pH = 6
TKN DA	28	May-29-18 11:05	pH = 2
TOC	28	May-29-18 11:05	pH = 2

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b>	Project Manager: <b>Angela Ockrassa Davis</b>
Project: <b>Central Sands</b>	Project Number: <b>[none]</b>

Sample ID: 1805005-39      Sampled: May-01-18 11:05      Matrix: Water

Sample Name: C10a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 11:05	pH = 2

Sample ID: 1805005-40      Sampled: May-01-18 11:12      Matrix: Water

Sample Name: C10b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:12	pH = 2
Anions by IC	28	May-29-18 11:12	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 11:12	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:12	pH = 2
Solids, TDS	7	May-08-18 11:12	pH = 5
TKN DA	28	May-29-18 11:12	pH = 2
TOC	28	May-29-18 11:12	pH = 2
Total Phosphorus DA	28	May-29-18 11:12	pH = 2

Sample ID: 1805005-41      Sampled: May-01-18 11:46      Matrix: Water

Sample Name: C11a      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:46	pH = 3
Anions by IC	28	May-29-18 11:46	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 11:46	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:46	pH = 3
Solids, TDS	7	May-08-18 11:46	pH = 6
TKN DA	28	May-29-18 11:46	pH = 3
TOC	28	May-29-18 11:46	pH = 3
Total Phosphorus DA	28	May-29-18 11:46	pH = 3

Sample ID: 1805005-42      Sampled: May-01-18 11:52      Matrix: Water

Sample Name: C11b      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:52	pH = 2
Anions by IC	28	May-29-18 11:52	pH = 5

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-42      Sampled: May-01-18 11:52      Matrix: Water

Sample Name: C11b

Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 11:52	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:52	pH = 2
Solids, TDS	7	May-08-18 11:52	pH = 5
TKN DA	28	May-29-18 11:52	pH = 2
TOC	28	May-29-18 11:52	pH = 2
Total Phosphorus DA	28	May-29-18 11:52	pH = 2

Sample ID: 1805005-43      Sampled: May-01-18 12:41      Matrix: Water

Sample Name: C12a

Sample Location/Comments: 19th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 12:41	pH = 2
Anions by IC	28	May-29-18 12:41	pH = 7
Metals ICP-AES (w)	180	Oct-28-18 12:41	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 12:41	pH = 2
Solids, TDS	7	May-08-18 12:41	pH = 7
TKN DA	28	May-29-18 12:41	pH = 2
TOC	28	May-29-18 12:41	pH = 2
Total Phosphorus DA	28	May-29-18 12:41	pH = 2

Sample ID: 1805005-44      Sampled: May-01-18 12:47      Matrix: Water

Sample Name: C12b

Sample Location/Comments: 19th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 12:47	pH = 2
Anions by IC	28	May-29-18 12:47	pH = 7
Metals ICP-AES (w)	180	Oct-28-18 12:47	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 12:47	pH = 2
Solids, TDS	7	May-08-18 12:47	pH = 7
TKN DA	28	May-29-18 12:47	pH = 2
TOC	28	May-29-18 12:47	pH = 2
Total Phosphorus DA	28	May-29-18 12:47	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-45      Sampled: May-01-18 13:30      Matrix: Water

Sample Name: C13a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 13:30	pH = 3
Anions by IC	28	May-29-18 13:30	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 13:30	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 13:30	pH = 3
Solids, TDS	7	May-08-18 13:30	pH = 6
TKN DA	28	May-29-18 13:30	pH = 3
TOC	28	May-29-18 13:30	pH = 3
Total Phosphorus DA	28	May-29-18 13:30	pH = 3

Sample ID: 1805005-46      Sampled: May-01-18 13:39      Matrix: Water

Sample Name: C13b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 13:39	pH = 2
Anions by IC	28	May-29-18 13:39	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 13:39	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 13:39	pH = 2
Solids, TDS	7	May-08-18 13:39	pH = 5
TKN DA	28	May-29-18 13:39	pH = 2
TOC	28	May-29-18 13:39	pH = 2
Total Phosphorus DA	28	May-29-18 13:39	pH = 2

Sample ID: 1805005-47      Sampled: May-01-18 14:19      Matrix: Water

Sample Name: D1a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 14:19	pH = 2
Anions by IC	28	May-29-18 14:19	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 14:19	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 14:19	pH = 2
Solids, TDS	7	May-08-18 14:19	pH = 6
TKN DA	28	May-29-18 14:19	pH = 2
TOC	28	May-29-18 14:19	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-47      Sampled: May-01-18 14:19      Matrix: Water

Sample Name: D1a

Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-29-18 14:19	pH = 2

Sample ID: 1805005-48      Sampled: May-01-18 14:26      Matrix: Water

Sample Name: D1b

Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 14:26	pH = 3
Anions by IC	28	May-29-18 14:26	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 14:26	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 14:26	pH = 3
Solids, TDS	7	May-08-18 14:26	pH = 5
TKN DA	28	May-29-18 14:26	pH = 3
TOC	28	May-29-18 14:26	pH = 3
Total Phosphorus DA	28	May-29-18 14:26	pH = 3

Sample ID: 1805005-49      Sampled: May-01-18 15:00      Matrix: Water

Sample Name: D2a

Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:00	pH = 3
Anions by IC	28	May-29-18 15:00	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:00	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:00	pH = 3
Solids, TDS	7	May-08-18 15:00	pH = 6
TKN DA	28	May-29-18 15:00	pH = 3
TOC	28	May-29-18 15:00	pH = 3
Total Phosphorus DA	28	May-29-18 15:00	pH = 3

Sample ID: 1805005-50      Sampled: May-01-18 15:06      Matrix: Water

Sample Name: D2b

Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:06	pH = 2
Anions by IC	28	May-29-18 15:06	pH = 6



WORK ORDER

Printed: 5/3/2018 3:33:25PM

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: [none]

Sample ID: 1805005-50      Sampled: May-01-18 15:06      Matrix: Water

Sample Name: D2b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-28-18 15:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:06	pH = 2
Solids, TDS	7	May-08-18 15:06	pH = 6
TKN DA	28	May-29-18 15:06	pH = 2
TOC	28	May-29-18 15:06	pH = 2
Total Phosphorus DA	28	May-29-18 15:06	pH = 2

Sample ID: 1805005-51      Sampled: May-01-18 15:41      Matrix: Water

Sample Name: D3a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:41	pH = 2
Anions by IC	28	May-29-18 15:41	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:41	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:41	pH = 2
Solids, TDS	7	May-08-18 15:41	pH = 6
TKN DA	28	May-29-18 15:41	pH = 2
TOC	28	May-29-18 15:41	pH = 2
Total Phosphorus DA	28	May-29-18 15:41	pH = 2

Sample ID: 1805005-52      Sampled: May-01-18 15:48      Matrix: Water

Sample Name: D3b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:48	pH = 2
Anions by IC	28	May-29-18 15:48	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 15:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:48	pH = 2
Solids, TDS	7	May-08-18 15:48	pH = 5
TKN DA	28	May-29-18 15:48	pH = 2
TOC	28	May-29-18 15:48	pH = 2
Total Phosphorus DA	28	May-29-18 15:48	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: [none]

Sample ID: 1805005-53      Sampled: May-01-18 16:19      Matrix: Water

Sample Name: D4a

Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 16:19	pH = 2
Anions by IC	28	May-29-18 16:19	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 16:19	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 16:19	pH = 2
Solids, TDS	7	May-08-18 16:19	pH = 6
TKN DA	28	May-29-18 16:19	pH = 2
TOC	28	May-29-18 16:19	pH = 2
Total Phosphorus DA	28	May-29-18 16:19	pH = 2

Sample ID: 1805005-54      Sampled: May-01-18 16:26      Matrix: Water

Sample Name: D4b

Sample Location/Comments: 5th Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 16:26	pH = 2
Anions by IC	28	May-29-18 16:26	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 16:26	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 16:26	pH = 2
Solids, TDS	7	May-08-18 16:26	pH = 5
TKN DA	28	May-29-18 16:26	pH = 2
TOC	28	May-29-18 16:26	pH = 2
Total Phosphorus DA	28	May-29-18 16:26	pH = 2

WORK ORDER MEMO: NCR 14118

PROJECT COMMENTS: Anions: Chloride, fluoride, bromide, sulfate.  
Full List metals

**REVIEWED**

By Amanda Wroble at 3:35 pm, May 03, 2018

Reviewed By

Date



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
Jul-26-18 08:14

**Anions by Ion Chromatography, EPA 300.0 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

A2a (1805005-03)

Matrix: Water

Sampled: Apr-30-18 08:15

Received: May-02-18 09:55

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Fluoride	0.04		0.01	0.02	mg/L	1	B18E016	May-08-18	May-08-18
Chloride	1.21		0.05	0.12	"	"	"	"	"
Sulfate as SO <sub>4</sub>	9.84		0.07	0.12	"	"	"	"	"
Bromide	U		0.03	0.12	"	"	"	"	"
Nitrate - NO <sub>3</sub>	U	UJ	0.04	0.12	"	"	"	"	"



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

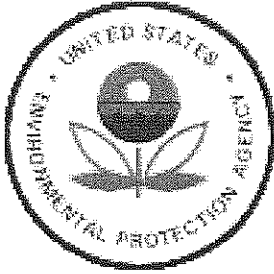
Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
Jul-26-18 08:14

**Notes and Definitions**

- UJ The analyte was not detected at or above the reported limit. The reported limit is an estimate.
- U Not Detected
- NR Not Reported
- Q QC limit Exceeded



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5 CHICAGO REGIONAL LABORATORY  
536 SOUTH CLARK STREET  
CHICAGO, ILLINOIS 60605

Date: 8/22/2018  
Subject: Review of Region 5 Data for Central Sands  
To: Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604  
From: Anna Knoebel, Chemist  
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with the EPA QA/G-8 *Guidance on Environmental Data Verification and Data Validation* and the U.S. EPA Region 5 RMD QMP, CRL performs data verification on all the data generated internally. CRL does not perform data validation or quality assessment procedures.

This report was reviewed and the information provided herein accurately represents the analysis performed.

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*Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.*

**Attached are Results for: Central Sands**

**Analyses included in this report:**

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Anions by IC

Anions NO3 as N

Report Name: 1805005,1805007 Anions NO3 as N Anions by IC FINAL Aug 22 18 1308



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
Aug-22-18 13:08

**Accredited Analyses included in this Report**



*Method:* EPA 300.0 in Water

*Analysis:* Anions by IC

Analyte

Certifications

---

Nitrate --NO3

ISO/IEC 17025:2005

---

Analytes not listed above are not accredited by ANAB.



Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

**Reported:**  
Aug-22-18 13:08

## ANALYSIS CASE NARRATIVE

### Analysis List

#### Anions by IC (nitrate)

Analyst: Anna Knoebel  
Phone #: 312-353-9467

### General Information

Water samples for Anions by IC (nitrate only) were received on May 2, 2018 and May 4, 2018.

Discrepancies between CRL and University of Nebraska results were observed by the client in the Nitrate-Nitrite N results previously reported. The Client requested that the nitrate data be reported from the anions analysis of these samples.

**NOTE:** Documentation of this instance can be found in Qualtrax Client Contact ID 14957.

**AMENDED SECTION:** Results for Anions by IC (Nitrate - NO<sub>3</sub>) were previously reported. The client requested Nitrate Nitrogen (Nitrate N) results to be reported from the calculated analyte results which CRL reports as "Anions NO<sub>3</sub> as N" for Nitrate N, refer to Qualtrax Client Contact ID 15422. The qualifiers applied for the Nitrate - NO<sub>3</sub> data were added to the calculated results.

### Holding times:

The samples were analyzed past the 48-hour hold time, the samples were flagged with a "(H)" (Holding time exceeded for sample preparation and/or analysis; Target analyte concentrations and/or reporting limits may not be accurate) indicator qualifier. Samples were additionally qualified "UJ" (The analyte was not detected at or above the reported limit. The reported limit is an estimate) or "J" (The identification of the analyte is acceptable; the reported value is an estimate).

### Sample Analysis and Results

The samples were analyzed using CRL SOP AIG45A, Version #7. The samples were stored in the refrigerator at all times, except when in use. The data reported herein meets any requirements referenced in the previously mentioned SOP and Sampling QAPP titled "*FINAL\_2018 GW Sampling Plan4\_27\_2018.pdf*", except for those listed in the Quality Control section.

### SOP Based on:

Method List  
EPA 300.0





Environmental Protection Agency Region 5  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
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Water Division, WECA Region 5  
77 West Jackson Boulevard  
Chicago IL, 60604

Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
Aug-22-18 13:08

Many of the sample results exceeded the calibration range, these results were qualified "(E)" (This analyte exceeded the calibration range). These results are estimated and qualified "J" (The identification of the analyte is acceptable; the reported value is an estimate).

### Quality Control

All quality control audits were within CRL limits or did not result in qualification of the data except for any listed below.

**B18E016-CCV9**

Recovery for Nitrate - NO3 (81%) was outside acceptance limits (90-110%)

**B18E016-CCVB**

Recovery for Nitrate - NO3 (112%) was outside acceptance limits (90-110%)

**B18E016-CCVK**

Recovery for Nitrate - NO3 (111%) was outside acceptance limits (90-110%)

**B18E016-CCVL**

Recovery for Nitrate - NO3 (112%) was outside acceptance limits (90-110%)

**B18E016-MS4 Source Sample: 1805005-35 - [C8a]**

Recovery for Nitrate - NO3 (38%) was outside acceptance limits (80-120%)

**B18E016-MS6 Source Sample: 1805007-08 - [D7a]**

Recovery for Nitrate - NO3 (-47%) was outside acceptance limits (80-120%)

**B18E016-MS7 Source Sample: 1805007-18 - [D11a]**

Recovery for Nitrate - NO3 (-38%) was outside acceptance limits (80-120%)

**B18E016-MS8 Source Sample: 1805007-28 - [E4a]**

Recovery for Nitrate - NO3 (-16%) was outside acceptance limits (80-120%)

Samples affected by these exceptions are qualified with an indicator qualifier ["(CCV)" or "(MS)"] and impact qualifier ["K" or "L"]. Refer to the results page for these qualifications.



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

**WORK ORDER**

Printed: 8/21/2018 11:34:24AM

**1805005**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

<b>Report To:</b>		
Cheryl Burdett	77 West Jackson Boulevard	Phone: (312) 886-1463
Water Division, WECA Region 5	Chicago, IL 60604	Fax: (312) 886-2001

Date Due:	Jun-04-18 15:00 (32 day TAT)	Date Received:	May-02-18 09:55
Received By:	Colin Breslin	Date Logged In:	May-03-18 09:30
Logged In By:	Robert Snyder		

<b>Samples Received at:</b>	<b>Work Order Comments:</b>
Sample tags/labels <b>Yes</b>	Anions: Chloride and nitrate as NO3
Seals Intact <b>Yes</b>	Full List metals
Received on ice <b>Yes</b>	pH paper used in SC 161L2601
Paperwork Included <b>Yes</b>	

**Sample ID:** 1805005-01      **Sampled:** Apr-30-18 07:19      **Matrix:** Water

**Sample Name:** A1a      **Sample Location/Comments:** 1st Street

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 07:19	pH = 2
Anions NO3 as N	28	May-28-18 07:19	
Anions by IC	28	May-28-18 07:19	pH = 7
Metals ICP-AES (w)	180	Oct-27-18 07:19	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 07:19	pH = 2
Solids, TDS	7	May-07-18 07:19	pH = 7
TKN DA	28	May-28-18 07:19	pH = 2
TOC	28	May-28-18 07:19	pH = 2
Total Phosphorus DA	28	May-28-18 07:19	pH = 2

**Sample ID:** 1805005-02      **Sampled:** Apr-30-18 07:32      **Matrix:** Water

**Sample Name:** A1b      **Sample Location/Comments:** 1st Street

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 07:32	pH = 2
Anions NO3 as N	28	May-28-18 07:32	
Anions by IC	28	May-28-18 07:32	pH = 5

1805005

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> CB022018
---	--

**Sample ID:** 1805005-02      **Sampled:** Apr-30-18 07:32      **Matrix:** Water

**Sample Name:** A1b      **Sample Location/Comments:** 1st Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-27-18 07:32	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 07:32	pH = 2
Solids, TDS	7	May-07-18 07:32	pH = 5
TKN DA	28	May-28-18 07:32	pH = 2
TOC	28	May-28-18 07:32	pH = 2
Total Phosphorus DA	28	May-28-18 07:32	pH = 2

**Sample ID:** 1805005-03      **Sampled:** Apr-30-18 08:15      **Matrix:** Water

**Sample Name:** A2a      **Sample Location/Comments:** 22nd Avenue North

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 08:15	pH = 2
Anions NO3 as N	28	May-28-18 08:15	
Anions by IC	28	May-28-18 08:15	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 08:15	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 08:15	pH = 2
Solids, TDS	7	May-07-18 08:15	pH = 6
TKN DA	28	May-28-18 08:15	pH = 2
TOC	28	May-28-18 08:15	pH = 2
Total Phosphorus DA	28	May-28-18 08:15	pH = 2

**Sample ID:** 1805005-04      **Sampled:** Apr-30-18 08:24      **Matrix:** Water

**Sample Name:** A2b      **Sample Location/Comments:** 22nd Avenue North

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 08:24	pH = 2
Anions NO3 as N	28	May-28-18 08:24	
Anions by IC	28	May-28-18 08:24	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 08:24	pH = 5
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 08:24	pH = 2
Solids, TDS	7	May-07-18 08:24	pH = 6
TKN DA	28	May-28-18 08:24	pH = 2
TOC	28	May-28-18 08:24	pH = 2

WORK ORDER

Printed: 8/21/2018 11:34:24AM

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805005-04      Sampled: Apr-30-18 08:24      Matrix: Water  
 Sample Name: A2h      Sample Location/Comments: 22nd Avenue North

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-28-18 08:24	pH = 2

Sample ID: 1805005-05      Sampled: Apr-30-18 09:06      Matrix: Water      OC Source Sample MS/MSD  
 Sample Name: A3a      Sample Location/Comments: 2nd Street

Sample Comments: MS/MSD

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:06	pH = 2
Anions NO3 as N	28	May-28-18 09:06	
Anions by IC	28	May-28-18 09:06	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:06	pH = 2
Solids, TDS	7	May-07-18 09:06	pH = 6
TKN DA	28	May-28-18 09:06	pH = 2
TOC	28	May-28-18 09:06	pH = 2
Total Phosphorus DA	28	May-28-18 09:06	pH = 2

Sample ID: 1805005-06      Sampled: Apr-30-18 09:14      Matrix: Water  
 Sample Name: A3b      Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:14	pH = 2
Anions NO3 as N	28	May-28-18 09:14	
Anions by IC	28	May-28-18 09:14	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:14	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:14	pH = 2
Solids, TDS	7	May-07-18 09:14	pH = 6
TKN DA	28	May-28-18 09:14	pH = 2
TOC	28	May-28-18 09:14	pH = 2
Total Phosphorus DA	28	May-28-18 09:14	pH = 2

Sample ID: 1805005-07      Sampled: Apr-30-18 09:38      Matrix: Water  
 Sample Name: A4 Equip      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
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WORK ORDER

Printed: 8/21/2018 11:34:24AM

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: CB022018
---	--

Sample ID: 1805005-07      Sampled: Apr-30-18 09:38      Matrix: Water

Sample Name: A4 Equip      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:38	pH = 2
Anions NO3 as N	28	May-28-18 09:38	
Anions by IC	28	May-28-18 09:38	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 09:38	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:38	pH = 2
Solids, TDS	7	May-07-18 09:38	pH = 5
TKN DA	28	May-28-18 09:38	pH = 2
TOC	28	May-28-18 09:38	pH = 2
Total Phosphorus DA	28	May-28-18 09:38	pH = 2

Sample ID: 1805005-08      Sampled: Apr-30-18 09:06      Matrix: Water

Sample Name: A3a (Dup)      Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:06	pH = 2
Anions NO3 as N	28	May-28-18 09:06	
Anions by IC	28	May-28-18 09:06	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:06	pH = 2
Solids, TDS	7	May-07-18 09:06	pH = 6
TKN DA	28	May-28-18 09:06	pH = 2
TOC	28	May-28-18 09:06	pH = 2
Total Phosphorus DA	28	May-28-18 09:06	pH = 2

Sample ID: 1805005-09      Sampled: Apr-30-18 09:49      Matrix: Water

Sample Name: FB1      Sample Location/Comments: Cranberry Rock Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:49	pH = 2
Anions NO3 as N	28	May-28-18 09:49	
Anions by IC	28	May-28-18 09:49	pH = 4
Metals ICP-AES (w)	180	Oct-27-18 09:49	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:49	pH = 2

## WORK ORDER

Printed: 8/21/2018 11:34:24AM

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805005-09      Sampled: Apr-30-18 09:49      Matrix: Water

Sample Name: FB1      Sample Location/Comments: Cranberry Rock Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-07-18 09:49	pH = 4
TKN DA	28	May-28-18 09:49	pH = 2
TOC	28	May-28-18 09:49	pH = 2
Total Phosphorus DA	28	May-28-18 09:49	pH = 2

Sample ID: 1805005-10      Sampled: Apr-30-18 09:58      Matrix: Water

Sample Name: A4a      Sample Location/Comments: Cranberry Rock Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 09:58	pH = 2
Anions NO3 as N	28	May-28-18 09:58	
Anions by IC	28	May-28-18 09:58	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 09:58	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 09:58	pH = 2
Solids, TDS	7	May-07-18 09:58	pH = 6
TKN DA	28	May-28-18 09:58	pH = 2
TOC	28	May-28-18 09:58	pH = 2
Total Phosphorus DA	28	May-28-18 09:58	pH = 2

Sample ID: 1805005-11      Sampled: Apr-30-18 10:09      Matrix: Water

Sample Name: A4b      Sample Location/Comments: Cranberry Rock Road

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:09	pH = 2
Anions NO3 as N	28	May-28-18 10:09	
Anions by IC	28	May-28-18 10:09	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:09	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:09	pH = 2
Solids, TDS	7	May-07-18 10:09	pH = 5
TKN DA	28	May-28-18 10:09	pH = 2
TOC	28	May-28-18 10:09	pH = 2
Total Phosphorus DA	28	May-28-18 10:09	pH = 2

1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805005-12      Sampled: Apr-30-18 10:51      Matrix: Water

Sample Name: B1a      Sample Location/Comments: 20th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:51	pH = 3
Anions NO3 as N	28	May-28-18 10:51	
Anions by IC	28	May-28-18 10:51	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:51	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:51	pH = 3
Solids, TDS	7	May-07-18 10:51	pH = 5
TKN DA	28	May-28-18 10:51	pH = 3
TOC	28	May-28-18 10:51	pH = 3
Total Phosphorus DA	28	May-28-18 10:51	pH = 3

Sample ID: 1805005-13      Sampled: Apr-30-18 10:58      Matrix: Water

Sample Name: B1b      Sample Location/Comments: 20th Avenue

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 10:58	pH = 2
Anions NO3 as N	28	May-28-18 10:58	
Anions by IC	28	May-28-18 10:58	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 10:58	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 10:58	pH = 2
Solids, TDS	7	May-07-18 10:58	pH = 5
TKN DA	28	May-28-18 10:58	pH = 2
TOC	28	May-28-18 10:58	pH = 2
Total Phosphorus DA	28	May-28-18 10:58	pH = 2

Sample ID: 1805005-14      Sampled: Apr-30-18 11:40      Matrix: Water

Sample Name: B2a      Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 11:40	pH = 2
Anions NO3 as N	28	May-28-18 11:40	
Anions by IC	28	May-28-18 11:40	pH = 7
Metals ICP-AES (w)	180	Oct-27-18 11:40	pH = 4
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 11:40	pH = 2



1805005

## US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5  
Project: Central Sands

Project Manager: Angela Ockrassa Davis  
Project Number: CB022018

Sample ID: 1805005-14      Sampled: Apr-30-18 11:40      Matrix: Water

Sample Name: B2a      Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-07-18 11:40	pH = 7
TKN DA	28	May-28-18 11:40	pH = 2
TOC	28	May-28-18 11:40	pH = 2
Total Phosphorus DA	28	May-28-18 11:40	pH = 2

Sample ID: 1805005-15      Sampled: Apr-30-18 11:48      Matrix: Water

Sample Name: B2b      Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 11:48	pH = 2
Anions NO3 as N	28	May-28-18 11:48	
Anions by IC	28	May-28-18 11:48	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 11:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 11:48	pH = 2
Solids, TDS	7	May-07-18 11:48	pH = 5
TKN DA	28	May-28-18 11:48	pH = 2
TOC	28	May-28-18 11:48	pH = 2
Total Phosphorus DA	28	May-28-18 11:48	pH = 2

Sample ID: 1805005-16      Sampled: Apr-30-18 12:29      Matrix: Water

Sample Name: B3a      Sample Location/Comments: 3rd Street

## Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 12:29	pH = 2
Anions NO3 as N	28	May-28-18 12:29	
Anions by IC	28	May-28-18 12:29	pH = 6
Metals ICP-AES (w)	180	Oct-27-18 12:29	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 12:29	pH = 2
Solids, TDS	7	May-07-18 12:29	pH = 6
TKN DA	28	May-28-18 12:29	pH = 2
TOC	28	May-28-18 12:29	pH = 2
Total Phosphorus DA	28	May-28-18 12:29	pH = 2

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: CB022018
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**Sample ID:** 1805005-17      **Sampled:** Apr-30-18 12:36      **Matrix:** Water  
**Sample Name:** B3b      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 12:36	pH = 2
Anions NO3 as N	28	May-28-18 12:36	
Anions by IC	28	May-28-18 12:36	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 12:36	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 12:36	pH = 2
Solids, TDS	7	May-07-18 12:36	pH = 5
TKN DA	28	May-28-18 12:36	pH = 2
TOC	28	May-28-18 12:36	pH = 2
Total Phosphorus DA	28	May-28-18 12:36	pH = 2

**Sample ID:** 1805005-18      **Sampled:** Apr-30-18 13:10      **Matrix:** Water  
**Sample Name:** B4a      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 13:10	pH = 2
Anions NO3 as N	28	May-28-18 13:10	
Anions by IC	28	May-28-18 13:10	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 13:10	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 13:10	pH = 2
Solids, TDS	7	May-07-18 13:10	pH = 5
TKN DA	28	May-28-18 13:10	pH = 2
TOC	28	May-28-18 13:10	pH = 2
Total Phosphorus DA	28	May-28-18 13:10	pH = 2

**Sample ID:** 1805005-19      **Sampled:** Apr-30-18 13:41      **Matrix:** Water  
**Sample Name:** B4b      **Sample Location/Comments:** 3rd Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 13:41	pH = 2
Anions NO3 as N	28	May-28-18 13:41	
Anions by IC	28	May-28-18 13:41	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 13:41	pH = 4
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 13:41	pH = 2

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805005-19      Sampled: Apr-30-18 13:41      Matrix: Water  
 Sample Name: B4b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-07-18 13:41	pH = 5
TKN DA	28	May-28-18 13:41	pH = 2
TOC	28	May-28-18 13:41	pH = 2
Total Phosphorus DA	28	May-28-18 13:41	pH = 2

Sample ID: 1805005-20      Sampled: Apr-30-18 15:02      Matrix: Water  
 Sample Name: C1a      Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 15:02	pH = 2
Anions NO3 as N	28	May-28-18 15:02	
Anions by IC	28	May-28-18 15:02	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 15:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 15:02	pH = 2
Solids, TDS	7	May-07-18 15:02	pH = 5
TKN DA	28	May-28-18 15:02	pH = 2
TOC	28	May-28-18 15:02	pH = 2
Total Phosphorus DA	28	May-28-18 15:02	pH = 2

Sample ID: 1805005-21      Sampled: Apr-30-18 15:27      Matrix: Water  
 Sample Name: C1b      Sample Location/Comments: 2nd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 15:27	pH = 2
Anions NO3 as N	28	May-28-18 15:27	
Anions by IC	28	May-28-18 15:27	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 15:27	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 15:27	pH = 2
Solids, TDS	7	May-07-18 15:27	pH = 5
TKN DA	28	May-28-18 15:27	pH = 2
TOC	28	May-28-18 15:27	pH = 2
Total Phosphorus DA	28	May-28-18 15:27	pH = 2

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: CB022018
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Sample ID: 1805005-22      Sampled: Apr-30-18 16:06      Matrix: Water

Sample Name: C2a      Sample Location/Comments: Nelson Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 16:06	pH = 2
Anions NO3 as N	28	May-28-18 16:06	
Anions by IC	28	May-28-18 16:06	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 16:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 16:06	pH = 2
Solids, TDS	7	May-07-18 16:06	pH = 5
TKN DA	28	May-28-18 16:06	pH = 2
TOC	28	May-28-18 16:06	pH = 2
Total Phosphorus DA	28	May-28-18 16:06	pH = 2

Sample ID: 1805005-23      Sampled: Apr-30-18 16:14      Matrix: Water

Sample Name: C2b      Sample Location/Comments: Nelson Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 16:14	pH = 2
Anions NO3 as N	28	May-28-18 16:14	
Anions by IC	28	May-28-18 16:14	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 16:14	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 16:14	pH = 2
Solids, TDS	7	May-07-18 16:14	pH = 5
TKN DA	28	May-28-18 16:14	pH = 2
TOC	28	May-28-18 16:14	pH = 2
Total Phosphorus DA	28	May-28-18 16:14	pH = 2

Sample ID: 1805005-24      Sampled: Apr-30-18 14:16      Matrix: Water

Sample Name: C3a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 14:16	pH = 2
Anions NO3 as N	28	May-28-18 14:16	
Anions by IC	28	May-28-18 14:16	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 14:16	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 14:16	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805005-24      Sampled: Apr-30-18 14:16      Matrix: Water  
 Sample Name: C3a      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-07-18 14:16	pH = 5
TKN DA	28	May-28-18 14:16	pH = 2
TOC	28	May-28-18 14:16	pH = 2
Total Phosphorus DA	28	May-28-18 14:16	pH = 2

Sample ID: 1805005-25      Sampled: Apr-30-18 14:26      Matrix: Water  
 Sample Name: C3b      Sample Location/Comments: 3rd Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-28-18 14:26	pH = 2
Anions NO3 as N	28	May-28-18 14:26	
Anions by IC	28	May-28-18 14:26	pH = 5
Metals ICP-AES (w)	180	Oct-27-18 14:26	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-28-18 14:26	pH = 2
Solids, TDS	7	May-07-18 14:26	pH = 5
TKN DA	28	May-28-18 14:26	pH = 2
TOC	28	May-28-18 14:26	pH = 2
Total Phosphorus DA	28	May-28-18 14:26	pH = 2

Sample ID: 1805005-26      Sampled: May-01-18 06:29      Matrix: Water  
 Sample Name: C5Aa      Sample Location/Comments: CR G (Nelson Road)

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 06:29	pH = 2
Anions NO3 as N	28	May-29-18 06:29	
Anions by IC	28	May-29-18 06:29	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 06:29	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 06:29	pH = 2
Solids, TDS	7	May-08-18 06:29	pH = 5
TKN DA	28	May-29-18 06:29	pH = 2
TOC	28	May-29-18 06:29	pH = 2
Total Phosphorus DA	28	May-29-18 06:29	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: CB022018
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Sample ID: 1805005-27      Sampled: May-01-18 06:43      Matrix: Water

Sample Name: C5Ab      Sample Location/Comments: CR G (Nelson Road)

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 06:43	pH = 2
Anions NO3 as N	28	May-29-18 06:43	
Anions by IC	28	May-29-18 06:43	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 06:43	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 06:43	pH = 2
Solids, TDS	7	May-08-18 06:43	pH = 5
TKN DA	28	May-29-18 06:43	pH = 2
TOC	28	May-29-18 06:43	pH = 2
Total Phosphorus DA	28	May-29-18 06:43	pH = 2

Sample ID: 1805005-28      Sampled: May-01-18 07:06      Matrix: Water

Sample Name: C6a      Sample Location/Comments: CR G (Nelson Road)

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:06	pH = 2
Anions NO3 as N	28	May-29-18 07:06	
Anions by IC	28	May-29-18 07:06	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 07:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:06	pH = 2
Solids, TDS	7	May-08-18 07:06	pH = 6
TKN DA	28	May-29-18 07:06	pH = 2
TOC	28	May-29-18 07:06	pH = 2
Total Phosphorus DA	28	May-29-18 07:06	pH = 2

Sample ID: 1805005-29      Sampled: May-01-18 07:15      Matrix: Water

Sample Name: C6b      Sample Location/Comments: CR G (Nelson Road)

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:15	pH = 3
Anions NO3 as N	28	May-29-18 07:15	
Anions by IC	28	May-29-18 07:15	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 07:15	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:15	pH = 3

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805005-29      Sampled: May-01-18 07:15      Matrix: Water

Sample Name: C6h      Sample Location/Comments: CR G (Nelson Road)

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-08-18 07:15	pH = 5
TKN DA	28	May-29-18 07:15	pH = 3
TOC	28	May-29-18 07:15	pH = 3
Total Phosphorus DA	28	May-29-18 07:15	pH = 3

Sample ID: 1805005-30      Sampled: May-01-18 07:48      Matrix: Water

Sample Name: C7a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:48	pH = 2
Anions NO3 as N	28	May-29-18 07:48	
Anions by IC	28	May-29-18 07:48	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 07:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:48	pH = 2
Solids, TDS	7	May-08-18 07:48	pH = 6
TKN DA	28	May-29-18 07:48	pH = 2
TOC	28	May-29-18 07:48	pH = 2
Total Phosphorus DA	28	May-29-18 07:48	pH = 2

Sample ID: 1805005-31      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:02	pH = 2
Anions NO3 as N	28	May-29-18 08:02	
Anions by IC	28	May-29-18 08:02	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:02	pH = 2
Solids, TDS	7	May-08-18 08:02	pH = 5
TKN DA	28	May-29-18 08:02	pH = 2
TOC	28	May-29-18 08:02	pH = 2
Total Phosphorus DA	28	May-29-18 08:02	pH = 2



1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: CB022018
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Sample ID: 1805005-32      Sampled: May-01-18 07:39      Matrix: Water

Sample Name: FB2      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:39	pH = 2
Anions NO3 as N	28	May-29-18 07:39	
Anions by IC	28	May-29-18 07:39	pH = 4
Metals ICP-AES (w)	180	Oct-28-18 07:39	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:39	pH = 2
Solids, TDS	7	May-08-18 07:39	pH = 4
TKN DA	28	May-29-18 07:39	pH = 2
TOC	28	May-29-18 07:39	pH = 2
Total Phosphorus DA	28	May-29-18 07:39	pH = 2

Sample ID: 1805005-33      Sampled: May-01-18 07:38      Matrix: Water

Sample Name: C7 equip      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 07:38	pH = 2
Anions NO3 as N	28	May-29-18 07:38	
Anions by IC	28	May-29-18 07:38	pH = 4
Metals ICP-AES (w)	180	Oct-28-18 07:38	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 07:38	pH = 2
Solids, TDS	7	May-08-18 07:38	pH = 4
TKN DA	28	May-29-18 07:38	pH = 2
TOC	28	May-29-18 07:38	pH = 2
Total Phosphorus DA	28	May-29-18 07:38	pH = 2

Sample ID: 1805005-34      Sampled: May-01-18 08:02      Matrix: Water

Sample Name: C7b Dup      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:02	pH = 2
Anions NO3 as N	28	May-29-18 08:02	
Anions by IC	28	May-29-18 08:02	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:02	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:02	pH = 2

**1805005**

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b> Project: <b>Central Sands</b>	Project Manager: <b>Angela Ockrassa Davis</b> Project Number: <b>CB022018</b>
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**Sample ID:** 1805005-34      **Sampled:** May-01-18 08:02      **Matrix:** Water  
**Sample Name:** C7b Dup      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-08-18 08:02	pH = 5
TKN DA	28	May-29-18 08:02	pH = 2
TOC	28	May-29-18 08:02	pH = 2
Total Phosphorus DA	28	May-29-18 08:02	pH = 2

**Sample ID:** 1805005-35      **Sampled:** May-01-18 08:35      **Matrix:** Water  
**Sample Name:** C8a      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:35	pH = 2
Anions NO3 as N	28	May-29-18 08:35	
Anions by IC	28	May-29-18 08:35	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:35	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:35	pH = 2
Solids, TDS	7	May-08-18 08:35	pH = 5
TKN DA	28	May-29-18 08:35	pH = 2
TOC	28	May-29-18 08:35	pH = 2
Total Phosphorus DA	28	May-29-18 08:35	pH = 2

**Sample ID:** 1805005-36      **Sampled:** May-01-18 08:42      **Matrix:** Water  
**Sample Name:** C8b      **Sample Location/Comments:** 4th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 08:42	pH = 2
Anions NO3 as N	28	May-29-18 08:42	
Anions by IC	28	May-29-18 08:42	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 08:42	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 08:42	pH = 2
Solids, TDS	7	May-08-18 08:42	pH = 5
TKN DA	28	May-29-18 08:42	pH = 2
TOC	28	May-29-18 08:42	pH = 2
Total Phosphorus DA	28	May-29-18 08:42	pH = 2

1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: CB022018
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Sample ID: 1805005-37      Sampled: May-01-18 10:00      Matrix: Water

Sample Name: C9a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 10:00	pH = 2
Anions NO3 as N	28	May-29-18 10:00	
Anions by IC	28	May-29-18 10:00	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 10:00	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 10:00	pH = 2
Solids, TDS	7	May-08-18 10:00	pH = 5
TKN DA	28	May-29-18 10:00	pH = 2
TOC	28	May-29-18 10:00	pH = 2
Total Phosphorus DA	28	May-29-18 10:00	pH = 2

Sample ID: 1805005-38      Sampled: May-01-18 10:21      Matrix: Water

Sample Name: C9b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 10:21	pH = 2
Anions NO3 as N	28	May-29-18 10:21	
Anions by IC	28	May-29-18 10:21	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 10:21	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 10:21	pH = 2
Solids, TDS	7	May-08-18 10:21	pH = 5
TKN DA	28	May-29-18 10:21	pH = 2
TOC	28	May-29-18 10:21	pH = 2
Total Phosphorus DA	28	May-29-18 10:21	pH = 2

Sample ID: 1805005-39      Sampled: May-01-18 11:05      Matrix: Water

Sample Name: C10a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:05	pH = 2
Anions NO3 as N	28	May-29-18 11:05	
Anions by IC	28	May-29-18 11:05	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 11:05	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:05	pH = 2

**1805005**

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b>	Project Manager: <b>Angela Ockrassa Davis</b>
Project: <b>Central Sands</b>	Project Number: <b>CB022018</b>

Sample ID: 1805005-39      Sampled: May-01-18 11:05      Matrix: Water  
 Sample Name: C10a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-08-18 11:05	pH = 6
TKN DA	28	May-29-18 11:05	pH = 2
TOC	28	May-29-18 11:05	pH = 2
Total Phosphorus DA	28	May-29-18 11:05	pH = 2

Sample ID: 1805005-40      Sampled: May-01-18 11:12      Matrix: Water  
 Sample Name: C10b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:12	pH = 2
Anions NO3 as N	28	May-29-18 11:12	
Anions by IC	28	May-29-18 11:12	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 11:12	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:12	pH = 2
Solids, TDS	7	May-08-18 11:12	pH = 5
TKN DA	28	May-29-18 11:12	pH = 2
TOC	28	May-29-18 11:12	pH = 2
Total Phosphorus DA	28	May-29-18 11:12	pH = 2

Sample ID: 1805005-41      Sampled: May-01-18 11:46      Matrix: Water  
 Sample Name: C11a      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:46	pH = 3
Anions NO3 as N	28	May-29-18 11:46	
Anions by IC	28	May-29-18 11:46	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 11:46	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:46	pH = 3
Solids, TDS	7	May-08-18 11:46	pH = 6
TKN DA	28	May-29-18 11:46	pH = 3
TOC	28	May-29-18 11:46	pH = 3
Total Phosphorus DA	28	May-29-18 11:46	pH = 3

WORK ORDER

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: CB022018
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Sample ID: 1805005-42      Sampled: May-01-18 11:52      Matrix: Water

Sample Name: C11b      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 11:52	pH = 2
Anions NO3 as N	28	May-29-18 11:52	
Anions by IC	28	May-29-18 11:52	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 11:52	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 11:52	pH = 2
Solids, TDS	7	May-08-18 11:52	pH = 5
TKN DA	28	May-29-18 11:52	pH = 2
TOC	28	May-29-18 11:52	pH = 2
Total Phosphorus DA	28	May-29-18 11:52	pH = 2

Sample ID: 1805005-43      Sampled: May-01-18 12:41      Matrix: Water

Sample Name: C12a      Sample Location/Comments: 19th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 12:41	pH = 2
Anions NO3 as N	28	May-29-18 12:41	
Anions by IC	28	May-29-18 12:41	pH = 7
Metals ICP-AES (w)	180	Oct-28-18 12:41	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 12:41	pH = 2
Solids, TDS	7	May-08-18 12:41	pH = 7
TKN DA	28	May-29-18 12:41	pH = 2
TOC	28	May-29-18 12:41	pH = 2
Total Phosphorus DA	28	May-29-18 12:41	pH = 2

Sample ID: 1805005-44      Sampled: May-01-18 12:47      Matrix: Water

Sample Name: C12b      Sample Location/Comments: 19th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 12:47	pH = 2
Anions NO3 as N	28	May-29-18 12:47	
Anions by IC	28	May-29-18 12:47	pH = 7
Metals ICP-AES (w)	180	Oct-28-18 12:47	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 12:47	pH = 2

WORK ORDER

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**1805005**

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b>	Project Manager: <b>Angela Ockrassa Davis</b>
Project: <b>Central Sands</b>	Project Number: <b>CB022018</b>

Sample ID: 1805005-44      Sampled: May-01-18 12:47      Matrix: Water  
 Sample Name: C12b      Sample Location/Comments: 19th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-08-18 12:47	pH = 7
TKN DA	28	May-29-18 12:47	pH = 2
TOC	28	May-29-18 12:47	pH = 2
Total Phosphorus DA	28	May-29-18 12:47	pH = 2

Sample ID: 1805005-45      Sampled: May-01-18 13:30      Matrix: Water  
 Sample Name: C13a      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 13:30	pH = 3
Anions NO3 as N	28	May-29-18 13:30	
Anions by IC	28	May-29-18 13:30	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 13:30	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 13:30	pH = 3
Solids, TDS	7	May-08-18 13:30	pH = 6
TKN DA	28	May-29-18 13:30	pH = 3
TOC	28	May-29-18 13:30	pH = 3
Total Phosphorus DA	28	May-29-18 13:30	pH = 3

Sample ID: 1805005-46      Sampled: May-01-18 13:39      Matrix: Water  
 Sample Name: C13b      Sample Location/Comments: 4th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 13:39	pH = 2
Anions NO3 as N	28	May-29-18 13:39	
Anions by IC	28	May-29-18 13:39	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 13:39	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 13:39	pH = 2
Solids, TDS	7	May-08-18 13:39	pH = 5
TKN DA	28	May-29-18 13:39	pH = 2
TOC	28	May-29-18 13:39	pH = 2
Total Phosphorus DA	28	May-29-18 13:39	pH = 2

**1805005**

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: CB022018
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Sample ID: 1805005-47      Sampled: May-01-18 14:19      Matrix: Water

Sample Name: D1a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 14:19	pH = 2
Anions NO3 as N	28	May-29-18 14:19	
Anions by IC	28	May-29-18 14:19	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 14:19	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 14:19	pH = 2
Solids, TDS	7	May-08-18 14:19	pH = 6
TKN DA	28	May-29-18 14:19	pH = 2
TOC	28	May-29-18 14:19	pH = 2
Total Phosphorus DA	28	May-29-18 14:19	pH = 2

Sample ID: 1805005-48      Sampled: May-01-18 14:26      Matrix: Water

Sample Name: D1b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 14:26	pH = 3
Anions NO3 as N	28	May-29-18 14:26	
Anions by IC	28	May-29-18 14:26	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 14:26	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 14:26	pH = 3
Solids, TDS	7	May-08-18 14:26	pH = 5
TKN DA	28	May-29-18 14:26	pH = 3
TOC	28	May-29-18 14:26	pH = 3
Total Phosphorus DA	28	May-29-18 14:26	pH = 3

Sample ID: 1805005-49      Sampled: May-01-18 15:00      Matrix: Water

Sample Name: D2a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:00	pH = 3
Anions NO3 as N	28	May-29-18 15:00	
Anions by IC	28	May-29-18 15:00	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:00	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:00	pH = 3



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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805005-49      Sampled: May-01-18 15:00      Matrix: Water  
 Sample Name: D2a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-08-18 15:00	pH = 6
TKN DA	28	May-29-18 15:00	pH = 3
TOC	28	May-29-18 15:00	pH = 3
Total Phosphorus DA	28	May-29-18 15:00	pH = 3

Sample ID: 1805005-50      Sampled: May-01-18 15:06      Matrix: Water  
 Sample Name: D2b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:06	pH = 2
Anions NO3 as N	28	May-29-18 15:06	
Anions by IC	28	May-29-18 15:06	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:06	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:06	pH = 2
Solids, TDS	7	May-08-18 15:06	pH = 6
TKN DA	28	May-29-18 15:06	pH = 2
TOC	28	May-29-18 15:06	pH = 2
Total Phosphorus DA	28	May-29-18 15:06	pH = 2

Sample ID: 1805005-51      Sampled: May-01-18 15:41      Matrix: Water  
 Sample Name: D3a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:41	pH = 2
Anions NO3 as N	28	May-29-18 15:41	
Anions by IC	28	May-29-18 15:41	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 15:41	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:41	pH = 2
Solids, TDS	7	May-08-18 15:41	pH = 6
TKN DA	28	May-29-18 15:41	pH = 2
TOC	28	May-29-18 15:41	pH = 2
Total Phosphorus DA	28	May-29-18 15:41	pH = 2

WORK ORDER

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: CB022018
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**Sample ID:** 1805005-52      **Sampled:** May-01-18 15:48      **Matrix:** Water  
**Sample Name:** D3b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 15:48	pH = 2
Anions NO3 as N	28	May-29-18 15:48	
Anions by IC	28	May-29-18 15:48	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 15:48	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 15:48	pH = 2
Solids, TDS	7	May-08-18 15:48	pH = 5
TKN DA	28	May-29-18 15:48	pH = 2
TOC	28	May-29-18 15:48	pH = 2
Total Phosphorus DA	28	May-29-18 15:48	pH = 2

**Sample ID:** 1805005-53      **Sampled:** May-01-18 16:19      **Matrix:** Water  
**Sample Name:** D4a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 16:19	pH = 2
Anions NO3 as N	28	May-29-18 16:19	
Anions by IC	28	May-29-18 16:19	pH = 6
Metals ICP-AES (w)	180	Oct-28-18 16:19	pH = 2
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 16:19	pH = 2
Solids, TDS	7	May-08-18 16:19	pH = 6
TKN DA	28	May-29-18 16:19	pH = 2
TOC	28	May-29-18 16:19	pH = 2
Total Phosphorus DA	28	May-29-18 16:19	pH = 2

**Sample ID:** 1805005-54      **Sampled:** May-01-18 16:26      **Matrix:** Water  
**Sample Name:** D4b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-29-18 16:26	pH = 2
Anions NO3 as N	28	May-29-18 16:26	
Anions by IC	28	May-29-18 16:26	pH = 5
Metals ICP-AES (w)	180	Oct-28-18 16:26	pH = 3
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-29-18 16:26	pH = 2

WORK ORDER

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1805005

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805005-54      Sampled: May-01-18 16:26      Matrix: Water  
 Sample Name: D4b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-08-18 16:26	pH = 5
TKN DA	28	May-29-18 16:26	pH = 2
TOC	28	May-29-18 16:26	pH = 2
Total Phosphorus DA	28	May-29-18 16:26	pH = 2

Anions NO3 as N

Anions by IC

WORK ORDER MEMO: NCR 14118

Anions NO3 as N added per client request - see CC 15422

PROJECT COMMENTS: Anions: Chloride, fluoride, bromide, sulfate.  
 Full List metals

**REVIEWED**  
 By Francis A Awanya at 1:13 pm, Aug 21, 2018

Reviewed By

Date



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

**WORK ORDER**

Printed: 8/21/2018 11:31:15AM

**1805007**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

<b>Report To:</b> Cheryl Burdett Water Division, WECA Region 5	77 West Jackson Boulevard Chicago, IL 60604	Phone: (312) 886-1463 Fax: (312) 886-2001
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<b>Date Due:</b> Jun-04-18 15:00 (30 day TAT)	<b>Date Received:</b> May-04-18 10:00
<b>Received By:</b> Robert Snyder	<b>Date Logged In:</b> May-07-18 07:38
<b>Logged In By:</b> Robert Snyder	

<b>Samples Received at:</b>	<b>Work Order Comments:</b>
Sample tags/labels <b>Yes</b>	Copy/Relog from 1805005. Anions: Chloride and nitrate as NO3
Seals Intact <b>Yes</b>	Full List metals
Received on ice <b>Yes</b>	pH paper used in SC 16H2601
Paperwork Included <b>Yes</b>	

**Sample ID:** 1805007-01      **Sampled:** May-02-18 06:38      **Matrix:** Water  
**Sample Name:** D5a      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 06:38	pH = 1
Anions NO3 as N	28	May-30-18 06:38	
Anions by IC	28	May-30-18 06:38	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 06:38	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 06:38	pH = 1
Solids, TDS	7	May-09-18 06:38	pH = 6
TKN DA	28	May-30-18 06:38	pH = 1
TOC	28	May-30-18 06:38	pH = 1
Total Phosphorus DA	28	May-30-18 06:38	pH = 1

**Sample ID:** 1805007-02      **Sampled:** May-02-18 06:46      **Matrix:** Water  
**Sample Name:** D5b      **Sample Location/Comments:** 5th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 06:46	pH = 1
Anions NO3 as N	28	May-30-18 06:46	
Anions by IC	28	May-30-18 06:46	pH = 5

WORK ORDER

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1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-02      Sampled: May-02-18 06:46      Matrix: Water  
 Sample Name: D5b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Metals ICP-AES (w)	180	Oct-29-18 06:46	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 06:46	pH = 1
Solids, TDS	7	May-09-18 06:46	pH = 5
TKN DA	28	May-30-18 06:46	pH = 1
TOC	28	May-30-18 06:46	pH = 1
Total Phosphorus DA	28	May-30-18 06:46	pH = 1

Sample ID: 1805007-03      Sampled: May-02-18 07:17      Matrix: Water  
 Sample Name: D6a      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 07:17	pH = 1
Anions NO3 as N	28	May-30-18 07:17	
Anions by IC	28	May-30-18 07:17	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 07:17	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 07:17	pH = 1
Solids, TDS	7	May-09-18 07:17	pH = 6
TKN DA	28	May-30-18 07:17	pH = 1
TOC	28	May-30-18 07:17	pH = 1
Total Phosphorus DA	28	May-30-18 07:17	pH = 1

Sample ID: 1805007-04      Sampled: May-02-18 07:29      Matrix: Water  
 Sample Name: D6b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 07:29	pH = 1
Anions NO3 as N	28	May-30-18 07:29	
Anions by IC	28	May-30-18 07:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 07:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 07:29	pH = 1
Solids, TDS	7	May-09-18 07:29	pH = 6
TKN DA	28	May-30-18 07:29	pH = 1
TOC	28	May-30-18 07:29	pH = 1

WORK ORDER

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1805007

US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b>	Project Manager: <b>Angela Ockrassa Davis</b>
Project: <b>Central Sands</b>	Project Number: <b>CB022018</b>

Sample ID: 1805007-04      Sampled: May-02-18 07:29      Matrix: Water  
 Sample Name: D6b      Sample Location/Comments: 5th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Total Phosphorus DA	28	May-30-18 07:29	pH = 1

Sample ID: 1805007-05      Sampled: May-02-18 08:01      Matrix: Water  
 Sample Name: D7 equip      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:01	pH = 1
Anions NO3 as N	28	May-30-18 08:01	
Anions by IC	28	May-30-18 08:01	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 08:01	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:01	pH = 1
Solids, TDS	7	May-09-18 08:01	pH = 5
TKN DA	28	May-30-18 08:01	pH = 1
TOC	28	May-30-18 08:01	pH = 1
Total Phosphorus DA	28	May-30-18 08:01	pH = 1

Sample ID: 1805007-06      Sampled: May-02-18 08:03      Matrix: Water  
 Sample Name: FB3      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:03	pH = 1
Anions NO3 as N	28	May-30-18 08:03	
Anions by IC	28	May-30-18 08:03	pH = 4
Metals ICP-AES (w)	180	Oct-29-18 08:03	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:03	pH = 1
Solids, TDS	7	May-09-18 08:03	pH = 4
TKN DA	28	May-30-18 08:03	pH = 1
TOC	28	May-30-18 08:03	pH = 1
Total Phosphorus DA	28	May-30-18 08:03	pH = 1

Sample ID: 1805007-07      Sampled: May-02-18 08:12      Matrix: Water  
 Sample Name: D7a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
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US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b>	Project Manager: <b>Angela Ockrassa Davis</b>
Project: <b>Central Sands</b>	Project Number: <b>CB022018</b>

Sample ID: 1805007-07      Sampled: May-02-18 08:12      Matrix: Water

Sample Name: D7a Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:12	pH = 1
Anions NO3 as N	28	May-30-18 08:12	
Anions by IC	28	May-30-18 08:12	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:12	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:12	pH = 1
Solids, TDS	7	May-09-18 08:12	pH = 6
TKN DA	28	May-30-18 08:12	pH = 1
TOC	28	May-30-18 08:12	pH = 1
Total Phosphorus DA	28	May-30-18 08:12	pH = 1

Sample ID: 1805007-08      Sampled: May-02-18 08:12      Matrix: Water      QC Source Sample MS/MSD

Sample Name: D7a      Sample Location/Comments: 23rd Avenue

Sample Comments: MS/MSD

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:12	pH = 1
Anions NO3 as N	28	May-30-18 08:12	
Anions by IC	28	May-30-18 08:12	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:12	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:12	pH = 1
Solids, TDS	7	May-09-18 08:12	pH = 6
TKN DA	28	May-30-18 08:12	pH = 1
TOC	28	May-30-18 08:12	pH = 1
Total Phosphorus DA	28	May-30-18 08:12	pH = 1

Sample ID: 1805007-09      Sampled: May-02-18 08:19      Matrix: Water

Sample Name: D7b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:19	pH = 1
Anions NO3 as N	28	May-30-18 08:19	
Anions by IC	28	May-30-18 08:19	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 08:19	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:19	pH = 1



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**1805007**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5 <b>Project:</b> Central Sands	<b>Project Manager:</b> Angela Ockrassa Davis <b>Project Number:</b> CB022018
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**Sample ID:** 1805007-09      **Sampled:** May-02-18 08:19      **Matrix:** Water

**Sample Name:** D7b      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-09-18 08:19	pH = 5
TKN DA	28	May-30-18 08:19	pH = 1
TOC	28	May-30-18 08:19	pH = 1
Total Phosphorus DA	28	May-30-18 08:19	pH = 1

**Sample ID:** 1805007-10      **Sampled:** May-02-18 08:55      **Matrix:** Water

**Sample Name:** D8a      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 08:55	pH = 1
Anions NO3 as N	28	May-30-18 08:55	
Anions by IC	28	May-30-18 08:55	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 08:55	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 08:55	pH = 1
Solids, TDS	7	May-09-18 08:55	pH = 6
TKN DA	28	May-30-18 08:55	pH = 1
TOC	28	May-30-18 08:55	pH = 1
Total Phosphorus DA	28	May-30-18 08:55	pH = 1

**Sample ID:** 1805007-11      **Sampled:** May-02-18 09:11      **Matrix:** Water

**Sample Name:** D8b      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:11	pH = 1
Anions NO3 as N	28	May-30-18 09:11	
Anions by IC	28	May-30-18 09:11	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:11	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:11	pH = 1
Solids, TDS	7	May-09-18 09:11	pH = 6
TKN DA	28	May-30-18 09:11	pH = 1
TOC	28	May-30-18 09:11	pH = 1
Total Phosphorus DA	28	May-30-18 09:11	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b>	Project Manager: <b>Angela Ockrassa Davis</b>
Project: <b>Central Sands</b>	Project Number: <b>CB022018</b>

Sample ID: 1805007-12      Sampled: May-02-18 09:45      Matrix: Water  
 Sample Name: D9a      Sample Location/Comments: 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:45	pH = 1
Anions NO3 as N	28	May-30-18 09:45	
Anions by IC	28	May-30-18 09:45	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:45	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:45	pH = 1
Solids, TDS	7	May-09-18 09:45	pH = 6
TKN DA	28	May-30-18 09:45	pH = 1
TOC	28	May-30-18 09:45	pH = 1
Total Phosphorus DA	28	May-30-18 09:45	pH = 1

Sample ID: 1805007-13      Sampled: May-02-18 09:54      Matrix: Water  
 Sample Name: D9b      Sample Location/Comments: 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 09:54	pH = 1
Anions NO3 as N	28	May-30-18 09:54	
Anions by IC	28	May-30-18 09:54	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 09:54	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 09:54	pH = 1
Solids, TDS	7	May-09-18 09:54	pH = 6
TKN DA	28	May-30-18 09:54	pH = 1
TOC	28	May-30-18 09:54	pH = 1
Total Phosphorus DA	28	May-30-18 09:54	pH = 1

Sample ID: 1805007-14      Sampled: May-02-18 10:29      Matrix: Water  
 Sample Name: D10a      Sample Location/Comments: 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:29	pH = 1
Anions NO3 as N	28	May-30-18 10:29	
Anions by IC	28	May-30-18 10:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 10:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:29	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5 Project: Central Sands	Project Manager: Angela Ockrassa Davis Project Number: CB022018
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**Sample ID:** 1805007-14      **Sampled:** May-02-18 10:29      **Matrix:** Water  
**Sample Name:** D10a      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-09-18 10:29	pH = 6
TKN DA	28	May-30-18 10:29	pH = 1
TOC	28	May-30-18 10:29	pH = 1
Total Phosphorus DA	28	May-30-18 10:29	pH = 1

**Sample ID:** 1805007-15      **Sampled:** May-02-18 10:29      **Matrix:** Water  
**Sample Name:** D10a Dup      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:29	pH = 1
Anions NO3 as N	28	May-30-18 10:29	
Anions by IC	28	May-30-18 10:29	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 10:29	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:29	pH = 1
Solids, TDS	7	May-09-18 10:29	pH = 6
TKN DA	28	May-30-18 10:29	pH = 1
TOC	28	May-30-18 10:29	pH = 1
Total Phosphorus DA	28	May-30-18 10:29	pH = 1

**Sample ID:** 1805007-16      **Sampled:** May-02-18 10:41      **Matrix:** Water  
**Sample Name:** D10b      **Sample Location/Comments:** 23rd Avenue

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:41	pH = 1
Anions NO3 as N	28	May-30-18 10:41	
Anions by IC	28	May-30-18 10:41	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 10:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:41	pH = 1
Solids, TDS	7	May-09-18 10:41	pH = 5
TKN DA	28	May-30-18 10:41	pH = 1
TOC	28	May-30-18 10:41	pH = 1
Total Phosphorus DA	28	May-30-18 10:41	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-17      Sampled: May-02-18 10:41      Matrix: Water  
 Sample Name: D10b Dup      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 10:41	pH = 1
Anions NO3 as N	28	May-30-18 10:41	
Anions by IC	28	May-30-18 10:41	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 10:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 10:41	pH = 1
Solids, TDS	7	May-09-18 10:41	pH = 5
TKN DA	28	May-30-18 10:41	pH = 1
TOC	28	May-30-18 10:41	pH = 1
Total Phosphorus DA	28	May-30-18 10:41	pH = 1

Sample ID: 1805007-18      Sampled: May-02-18 11:19      Matrix: Water  
 Sample Name: D11a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 11:19	pH = 1
Anions NO3 as N	28	May-30-18 11:19	
Anions by IC	28	May-30-18 11:19	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 11:19	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 11:19	pH = 1
Solids, TDS	7	May-09-18 11:19	pH = 6
TKN DA	28	May-30-18 11:19	pH = 1
TOC	28	May-30-18 11:19	pH = 1
Total Phosphorus DA	28	May-30-18 11:19	pH = 1

Sample ID: 1805007-19      Sampled: May-02-18 11:42      Matrix: Water  
 Sample Name: D11b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 11:42	pH = 1
Anions NO3 as N	28	May-30-18 11:42	
Anions by IC	28	May-30-18 11:42	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 11:42	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 11:42	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b>	Project Manager: <b>Angela Ockrassa Davis</b>
Project: <b>Central Sands</b>	Project Number: <b>CB022018</b>

Sample ID: 1805007-19      Sampled: May-02-18 11:42      Matrix: Water

Sample Name: D11b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-09-18 11:42	pH = 5
TKN DA	28	May-30-18 11:42	pH = 1
TOC	28	May-30-18 11:42	pH = 1
Total Phosphorus DA	28	May-30-18 11:42	pH = 1

Sample ID: 1805007-20      Sampled: May-02-18 12:41      Matrix: Water

Sample Name: E1a      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 12:41	pH = 1
Anions NO3 as N	28	May-30-18 12:41	
Anions by IC	28	May-30-18 12:41	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 12:41	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 12:41	pH = 1
Solids, TDS	7	May-09-18 12:41	pH = 6
TKN DA	28	May-30-18 12:41	pH = 1
TOC	28	May-30-18 12:41	pH = 1
Total Phosphorus DA	28	May-30-18 12:41	pH = 1

Sample ID: 1805007-21      Sampled: May-02-18 12:58      Matrix: Water

Sample Name: E1b      Sample Location/Comments: 23rd Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 12:58	pH = 1
Anions NO3 as N	28	May-30-18 12:58	
Anions by IC	28	May-30-18 12:58	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 12:58	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 12:58	pH = 1
Solids, TDS	7	May-09-18 12:58	pH = 6
TKN DA	28	May-30-18 12:58	pH = 1
TOC	28	May-30-18 12:58	pH = 1
Total Phosphorus DA	28	May-30-18 12:58	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-22      Sampled: May-02-18 13:28      Matrix: Water

Sample Name: E2a      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:28	pH = 1
Anions NO3 as N	28	May-30-18 13:28	
Anions by IC	28	May-30-18 13:28	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 13:28	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:28	pH = 1
Solids, TDS	7	May-09-18 13:28	pH = 6
TKN DA	28	May-30-18 13:28	pH = 1
TOC	28	May-30-18 13:28	pH = 1
Total Phosphorus DA	28	May-30-18 13:28	pH = 1

Sample ID: 1805007-23      Sampled: May-02-18 13:37      Matrix: Water

Sample Name: E2b      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:37	pH = 1
Anions NO3 as N	28	May-30-18 13:37	
Anions by IC	28	May-30-18 13:37	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 13:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:37	pH = 1
Solids, TDS	7	May-09-18 13:37	pH = 5
TKN DA	28	May-30-18 13:37	pH = 1
TOC	28	May-30-18 13:37	pH = 1
Total Phosphorus DA	28	May-30-18 13:37	pH = 1

Sample ID: 1805007-24      Sampled: May-02-18 13:28      Matrix: Water

Sample Name: E2a Dup      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:28	pH = 1
Anions NO3 as N	28	May-30-18 13:28	
Anions by IC	28	May-30-18 13:28	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 13:28	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:28	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-24      Sampled: May-02-18 13:28      Matrix: Water

Sample Name: E2a Dup      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-09-18 13:28	pH = 6
TKN DA	28	May-30-18 13:28	pH = 1
TOC	28	May-30-18 13:28	pH = 1
Total Phosphorus DA	28	May-30-18 13:28	pH = 1

Sample ID: 1805007-25      Sampled: May-02-18 13:37      Matrix: Water

Sample Name: E2b Dup      Sample Location/Comments: Porter Road

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 13:37	pH = 1
Anions NO3 as N	28	May-30-18 13:37	
Anions by IC	28	May-30-18 13:37	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 13:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 13:37	pH = 1
Solids, TDS	7	May-09-18 13:37	pH = 5
TKN DA	28	May-30-18 13:37	pH = 1
TOC	28	May-30-18 13:37	pH = 1
Total Phosphorus DA	28	May-30-18 13:37	pH = 1

Sample ID: 1805007-26      Sampled: May-02-18 14:03      Matrix: Water

Sample Name: E3a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:03	pH = 1
Anions NO3 as N	28	May-30-18 14:03	
Anions by IC	28	May-30-18 14:03	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:03	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:03	pH = 1
Solids, TDS	7	May-09-18 14:03	pH = 6
TKN DA	28	May-30-18 14:03	pH = 1
TOC	28	May-30-18 14:03	pH = 1
Total Phosphorus DA	28	May-30-18 14:03	pH = 1



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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-27      Sampled: May-02-18 14:09      Matrix: Water  
 Sample Name: E3b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:09	pH = 1
Anions NO3 as N	28	May-30-18 14:09	
Anions by IC	28	May-30-18 14:09	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:09	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:09	pH = 1
Solids, TDS	7	May-09-18 14:09	pH = 6
TKN DA	28	May-30-18 14:09	pH = 1
TOC	28	May-30-18 14:09	pH = 1
Total Phosphorus DA	28	May-30-18 14:09	pH = 1

Sample ID: 1805007-28      Sampled: May-02-18 14:37      Matrix: Water  
 Sample Name: E4a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:37	pH = 1
Anions NO3 as N	28	May-30-18 14:37	
Anions by IC	28	May-30-18 14:37	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:37	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:37	pH = 1
Solids, TDS	7	May-09-18 14:37	pH = 6
TKN DA	28	May-30-18 14:37	pH = 1
TOC	28	May-30-18 14:37	pH = 1
Total Phosphorus DA	28	May-30-18 14:37	pH = 1

Sample ID: 1805007-29      Sampled: May-02-18 14:43      Matrix: Water  
 Sample Name: E4b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 14:43	pH = 1
Anions NO3 as N	28	May-30-18 14:43	
Anions by IC	28	May-30-18 14:43	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 14:43	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 14:43	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: <b>Water Division, WECA Region 5</b>	Project Manager: <b>Angela Ockrassa Davis</b>
Project: <b>Central Sands</b>	Project Number: <b>CB022018</b>

Sample ID: 1805007-29      Sampled: May-02-18 14:43      Matrix: Water  
 Sample Name: E4b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-09-18 14:43	pH = 6
TKN DA	28	May-30-18 14:43	pH = 1
TOC	28	May-30-18 14:43	pH = 1
Total Phosphorus DA	28	May-30-18 14:43	pH = 1

Sample ID: 1805007-30      Sampled: May-02-18 15:08      Matrix: Water  
 Sample Name: E5a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:08	pH = 1
Anions NO3 as N	28	May-30-18 15:08	
Anions by IC	28	May-30-18 15:08	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:08	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:08	pH = 1
Solids, TDS	7	May-09-18 15:08	pH = 6
TKN DA	28	May-30-18 15:08	pH = 1
TOC	28	May-30-18 15:08	pH = 1
Total Phosphorus DA	28	May-30-18 15:08	pH = 1

Sample ID: 1805007-31      Sampled: May-02-18 15:13      Matrix: Water  
 Sample Name: E5b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:13	pH = 1
Anions NO3 as N	28	May-30-18 15:13	
Anions by IC	28	May-30-18 15:13	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:13	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:13	pH = 1
Solids, TDS	7	May-09-18 15:13	pH = 6
TKN DA	28	May-30-18 15:13	pH = 1
TOC	28	May-30-18 15:13	pH = 1
Total Phosphorus DA	28	May-30-18 15:13	pH = 1

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US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-32      Sampled: May-02-18 15:38      Matrix: Water  
 Sample Name: E6a      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:38	pH = 1
Anions NO3 as N	28	May-30-18 15:38	
Anions by IC	28	May-30-18 15:38	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:38	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:38	pH = 1
Solids, TDS	7	May-09-18 15:38	pH = 6
TKN DA	28	May-30-18 15:38	pH = 1
TOC	28	May-30-18 15:38	pH = 1
Total Phosphorus DA	28	May-30-18 15:38	pH = 1

Sample ID: 1805007-33      Sampled: May-02-18 15:44      Matrix: Water  
 Sample Name: E6b      Sample Location/Comments: 20th Avenue

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 15:44	pH = 1
Anions NO3 as N	28	May-30-18 15:44	
Anions by IC	28	May-30-18 15:44	pH = 6
Metals ICP-AES (w)	180	Oct-29-18 15:44	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 15:44	pH = 1
Solids, TDS	7	May-09-18 15:44	pH = 6
TKN DA	28	May-30-18 15:44	pH = 1
TOC	28	May-30-18 15:44	pH = 1
Total Phosphorus DA	28	May-30-18 15:44	pH = 1

Sample ID: 1805007-34      Sampled: May-02-18 16:09      Matrix: Water  
 Sample Name: E7a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 16:09	pH = 1
Anions NO3 as N	28	May-30-18 16:09	
Anions by IC	28	May-30-18 16:09	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 16:09	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 16:09	pH = 1

**WORK ORDER**

Printed: 8/21/2018 11:31:15AM

**1805007**

**US EPA Region 5 Chicago Regional Laboratory**

<b>Client:</b> Water Division, WECA Region 5	<b>Project Manager:</b> Angela Ockrassa Davis
<b>Project:</b> Central Sands	<b>Project Number:</b> CB022018

**Sample ID:** 1805007-34      **Sampled:** May-02-18 16:09      **Matrix:** Water  
**Sample Name:** E7a      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-09-18 16:09	pH = 5
TKN DA	28	May-30-18 16:09	pH = 1
TOC	28	May-30-18 16:09	pH = 1
Total Phosphorus DA	28	May-30-18 16:09	pH = 1

**Sample ID:** 1805007-35      **Sampled:** May-02-18 16:35      **Matrix:** Water  
**Sample Name:** E7b      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-30-18 16:35	pH = 1
Anions NO3 as N	28	May-30-18 16:35	
Anions by IC	28	May-30-18 16:35	pH = 5
Metals ICP-AES (w)	180	Oct-29-18 16:35	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-30-18 16:35	pH = 1
Solids, TDS	7	May-09-18 16:35	pH = 5
TKN DA	28	May-30-18 16:35	pH = 1
TOC	28	May-30-18 16:35	pH = 1
Total Phosphorus DA	28	May-30-18 16:35	pH = 1

**Sample ID:** 1805007-36      **Sampled:** May-03-18 08:40      **Matrix:** Water  
**Sample Name:** E8a      **Sample Location/Comments:** 7th Street

**Sample Comments:**

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 08:40	pH = 1
Anions NO3 as N	28	May-31-18 08:40	
Anions by IC	28	May-31-18 08:40	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 08:40	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 08:40	pH = 1
Solids, TDS	7	May-10-18 08:40	pH = 5
TKN DA	28	May-31-18 08:40	pH = 1
TOC	28	May-31-18 08:40	pH = 1
Total Phosphorus DA	28	May-31-18 08:40	pH = 1

WORK ORDER

Printed: 8/21/2018 11:31:15AM

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-37      Sampled: May-03-18 08:48      Matrix: Water  
 Sample Name: E8b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 08:48	pH = 1
Anions NO3 as N	28	May-31-18 08:48	
Anions by IC	28	May-31-18 08:48	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 08:48	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 08:48	pH = 1
Solids, TDS	7	May-10-18 08:48	pH = 6
TKN DA	28	May-31-18 08:48	pH = 1
TOC	28	May-31-18 08:48	pH = 1
Total Phosphorus DA	28	May-31-18 08:48	pH = 1

Sample ID: 1805007-38      Sampled: May-03-18 07:15      Matrix: Water  
 Sample Name: E10a      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:15	pH = 1
Anions NO3 as N	28	May-31-18 07:15	
Anions by IC	28	May-31-18 07:15	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:15	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:15	pH = 1
Solids, TDS	7	May-10-18 07:15	pH = 6
TKN DA	28	May-31-18 07:15	pH = 1
TOC	28	May-31-18 07:15	pH = 1
Total Phosphorus DA	28	May-31-18 07:15	pH = 1

Sample ID: 1805007-39      Sampled: May-03-18 07:15      Matrix: Water  
 Sample Name: E10a Dup      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:15	pH = 1
Anions NO3 as N	28	May-31-18 07:15	
Anions by IC	28	May-31-18 07:15	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:15	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:15	pH = 1

WORK ORDER

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1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-39      Sampled: May-03-18 07:15      Matrix: Water  
 Sample Name: E10a Dup      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-10-18 07:15	pH = 6
TKN DA	28	May-31-18 07:15	pH = 1
TOC	28	May-31-18 07:15	pH = 1
Total Phosphorus DA	28	May-31-18 07:15	pH = 1

Sample ID: 1805007-40      Sampled: May-03-18 07:27      Matrix: Water  
 Sample Name: E10b      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:27	pH = 1
Anions NO3 as N	28	May-31-18 07:27	
Anions by IC	28	May-31-18 07:27	pH = 6
Metals ICP-AES (w)	180	Oct-30-18 07:27	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:27	pH = 1
Solids, TDS	7	May-10-18 07:27	pH = 6
TKN DA	28	May-31-18 07:27	pH = 1
TOC	28	May-31-18 07:27	pH = 1
Total Phosphorus DA	28	May-31-18 07:27	pH = 1

Sample ID: 1805007-41      Sampled: May-03-18 07:36      Matrix: Water  
 Sample Name: FB4      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:36	pH = 1
Anions NO3 as N	28	May-31-18 07:36	
Anions by IC	28	May-31-18 07:36	pH = 4
Metals ICP-AES (w)	180	Oct-30-18 07:36	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:36	pH = 1
Solids, TDS	7	May-10-18 07:36	pH = 4
TKN DA	28	May-31-18 07:36	pH = 1
TOC	28	May-31-18 07:36	pH = 1
Total Phosphorus DA	28	May-31-18 07:36	pH = 1

1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-42      Sampled: May-03-18 07:13      Matrix: Water

Sample Name: E10 Equip      Sample Location/Comments: 8th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 07:13	pH = 1
Anions NO3 as N	28	May-31-18 07:13	
Anions by IC	28	May-31-18 07:13	pH = 4
Metals ICP-AES (w)	180	Oct-30-18 07:13	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 07:13	pH = 1
Solids, TDS	7	May-10-18 07:13	pH = 4
TKN DA	28	May-31-18 07:13	pH = 1
TOC	28	May-31-18 07:13	pH = 1
Total Phosphorus DA	28	May-31-18 07:13	pH = 1

Sample ID: 1805007-43      Sampled: May-03-18 09:53      Matrix: Water

Sample Name: E9a      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 09:53	pH = 1
Anions NO3 as N	28	May-31-18 09:53	
Anions by IC	28	May-31-18 09:53	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 09:53	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 09:53	pH = 1
Solids, TDS	7	May-10-18 09:53	pH = 5
TKN DA	28	May-31-18 09:53	pH = 1
TOC	28	May-31-18 09:53	pH = 1
Total Phosphorus DA	28	May-31-18 09:53	pH = 1

Sample ID: 1805007-44      Sampled: May-03-18 10:02      Matrix: Water

Sample Name: E9b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Ammonia N DA, Distilled	28	May-31-18 10:02	pH = 1
Anions NO3 as N	28	May-31-18 10:02	
Anions by IC	28	May-31-18 10:02	pH = 5
Metals ICP-AES (w)	180	Oct-30-18 10:02	pH = 1
Nitrate-Nitrite N DA, Enzymatic reduction	28	May-31-18 10:02	pH = 1



WORK ORDER

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1805007

US EPA Region 5 Chicago Regional Laboratory

Client: Water Division, WECA Region 5	Project Manager: Angela Ockrassa Davis
Project: Central Sands	Project Number: CB022018

Sample ID: 1805007-44      Sampled: May-03-18 10:02      Matrix: Water  
 Sample Name: E9b      Sample Location/Comments: 7th Street

Sample Comments:

Analysis	Hold time (days)	Expires	Comments
Solids, TDS	7	May-10-18 10:02	pH = 5
TKN DA	28	May-31-18 10:02	pH = 1
TOC	28	May-31-18 10:02	pH = 1
Total Phosphorus DA	28	May-31-18 10:02	pH = 1

Anions NO3 as N

Anions by IC

WORK ORDER MEMO: Anions NO3 as N added per client request - see CC 15422

PROJECT COMMENTS: Anions: Chloride, fluoride, bromide, sulfate.  
Full List metals

**REVIEWED**  
 By Francis A Awanya at 1:13 pm, Aug 21, 2018

Reviewed By

Date



**Environmental Protection Agency Region 5**  
**Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
 Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Aug-22-18 13:08
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**Anions by Ion Chromatography, EPA 300.0 (modified)**  
**US EPA Region 5 Chicago Regional Laboratory**

**A1a (1805005-01) Matrix: Water Sampled: Apr-30-18 07:19 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	0.0609	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	0.27	(H), J	0.04	0.12	"	"	B18E016	"	"

**A1b (1805005-02) Matrix: Water Sampled: Apr-30-18 07:32 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	1.34	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-08-18
Nitrate - NO3	5.94	(H), J	0.04	0.12	"	"	B18E016	"	"

**A2a (1805005-03) Matrix: Water Sampled: Apr-30-18 08:15 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	U	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-08-18
Nitrate - NO3	U	(H), J	0.04	0.12	"	"	B18E016	"	"

**A2b (1805005-04) Matrix: Water Sampled: Apr-30-18 08:24 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	U	(H), UJ		0.0282	mg/L	1	[CALC]	May-08-18	May-08-18
Nitrate - NO3	U	(H), UJ	0.04	0.12	"	"	B18E016	"	"

**A3a (1805005-05) Matrix: Water Sampled: Apr-30-18 09:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	U	(H), UJ		0.0282	mg/L	1	[CALC]	May-08-18	May-08-18
Nitrate - NO3	U	(H), UJ	0.04	0.12	"	"	B18E016	"	"

**A3b (1805005-06) Matrix: Water Sampled: Apr-30-18 09:14 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	0.0551	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-08-18
Nitrate - NO3	0.24	(H), J	0.04	0.12	"	"	B18E016	"	"

**A4 Equip (1805005-07) Matrix: Water Sampled: Apr-30-18 09:38 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	0.0592	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-10-18



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312) 353-8370 Fax: (312) 886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Aug-22-18 13:08
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## Anions by Ion Chromatography, EPA 300.0 (modified) US EPA Region 5 Chicago Regional Laboratory

**A4 Equip (1805005-07) Matrix: Water Sampled: Apr-30-18 09:38 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate - NO3	0.26	(H), J	0.04	0.12	mg/L	1	B18E016	May-08-18	May-10-18

**A3a (Dup) (1805005-08) Matrix: Water Sampled: Apr-30-18 09:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	U	(H), UJ		0.0282	mg/L	1	[CALC]	May-08-18	May-10-18
Nitrate - NO3	U	(H), UJ	0.04	0.12	"	"	B18E016	"	"

**FBI (1805005-09) Matrix: Water Sampled: Apr-30-18 09:49 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	U	(H), UJ		0.0282	mg/L	1	[CALC]	May-08-18	May-10-18
Nitrate - NO3	U	(H), UJ	0.04	0.12	"	"	B18E016	"	"

**A4a (1805005-10) Matrix: Water Sampled: Apr-30-18 09:58 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	0.884	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-10-18
Nitrate - NO3	3.91	(H), J	0.04	0.12	"	"	B18E016	"	"

**A4b (1805005-11) Matrix: Water Sampled: Apr-30-18 10:09 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	4.31	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-10-18
Nitrate - NO3	19.1	(H), J	0.04	0.12	"	"	B18E016	"	"

**B1a (1805005-12) Matrix: Water Sampled: Apr-30-18 10:51 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	U	(H), UJ		0.0282	mg/L	1	[CALC]	May-08-18	May-10-18
Nitrate - NO3	U	(H), UJ	0.04	0.12	"	"	B18E016	"	"

**B1b (1805005-13) Matrix: Water Sampled: Apr-30-18 10:58 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	U	(H), UJ		0.0282	mg/L	1	[CALC]	May-08-18	May-10-18
Nitrate - NO3	U	(H), UJ	0.04	0.12	"	"	B18E016	"	"



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312)353-8370 Fax: (312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Aug-22-18 13:08
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## Anions by Ion Chromatography, EPA 300.0 (modified) US EPA Region 5 Chicago Regional Laboratory

**B2a (1805005-14) Matrix: Water Sampled: Apr-30-18 11:40 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	U	(H), UJ		0.0282	mg/L	1	[CALC]	May-08-18	May-10-18
Nitrate - NO3	U	(H), UJ	0.04	0.12	"	"	B18E016	"	"

**B2b (1805005-15) Matrix: Water Sampled: Apr-30-18 11:48 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	0.140	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-10-18
Nitrate - NO3	0.62	(H), J	0.04	0.12	"	"	B18E016	"	"

**B3a (1805005-16) Matrix: Water Sampled: Apr-30-18 12:29 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	4.05	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-10-18
Nitrate - NO3	17.9	(H), J	0.04	0.12	"	"	B18E016	"	"

**B3b (1805005-17) Matrix: Water Sampled: Apr-30-18 12:36 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	0.568	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-10-18
Nitrate - NO3	2.51	(H), J	0.04	0.12	"	"	B18E016	"	"

**B4a (1805005-18) Matrix: Water Sampled: Apr-30-18 13:10 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	27.1	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-10-18
Nitrate - NO3	120	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**B4b (1805005-19) Matrix: Water Sampled: Apr-30-18 13:41 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	17.4	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-10-18
Nitrate - NO3	76.8	(H), J	0.04	0.12	"	"	B18E016	"	"

**C1a (1805005-20) Matrix: Water Sampled: Apr-30-18 15:02 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	0.0799	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-10-18



**Environmental Protection Agency Region 5  
Chicago Regional Laboratory**

536 South Clark Street, Chicago, IL 60605  
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Aug-22-18 13:08
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**Anions by Ion Chromatography, EPA 300.0 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**C1a (1805005-20) Matrix: Water Sampled: Apr-30-18 15:02 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate - NO3	0.35	(H), J	0.04	0.12	mg/L	1	B18E016	May-08-18	May-10-18

**C1b (1805005-21) Matrix: Water Sampled: Apr-30-18 15:27 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	0.0515	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-10-18
Nitrate - NO3	0.23	(H), J	0.04	0.12	"	"	B18E016	"	"

**C2a (1805005-22) Matrix: Water Sampled: Apr-30-18 16:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	36.1	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-10-18
Nitrate - NO3	160	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**C2b (1805005-23) Matrix: Water Sampled: Apr-30-18 16:14 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	2.75	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-10-18
Nitrate - NO3	12.2	(H), J	0.04	0.12	"	"	B18E016	"	"

**C3a (1805005-24) Matrix: Water Sampled: Apr-30-18 14:16 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	23.2	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-10-18
Nitrate - NO3	103	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**C3b (1805005-25) Matrix: Water Sampled: Apr-30-18 14:26 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	1.72	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-10-18
Nitrate - NO3	7.62	(H), J	0.04	0.12	"	"	B18E016	"	"

**C5Aa (1805005-26) Matrix: Water Sampled: May-01-18 06:29 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	38.5	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-10-18
Nitrate - NO3	170	(E), (H), J	0.04	0.12	"	"	B18E016	"	"



**Environmental Protection Agency Region 5  
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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Aug-22-18 13:08
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**Anions by Ion Chromatography, EPA 300.0 (modified)  
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**C5Ab (1805005-27) Matrix: Water Sampled: May-01-18 06:43 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	62.6	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	277	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**C6a (1805005-28) Matrix: Water Sampled: May-01-18 07:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	38.3	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	170	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**C6b (1805005-29) Matrix: Water Sampled: May-01-18 07:15 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	25.4	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	112	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**C7a (1805005-30) Matrix: Water Sampled: May-01-18 07:48 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	34.0	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	151	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**C7b (1805005-31) Matrix: Water Sampled: May-01-18 08:02 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	38.0	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	168	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**FB2 (1805005-32) Matrix: Water Sampled: May-01-18 07:39 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	U	(H), UJ		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	U	(H), UJ	0.04	0.12	"	"	B18E016	"	"

**C7 equip (1805005-33) Matrix: Water Sampled: May-01-18 07:38 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	U	(H), UJ		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18



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## Anions by Ion Chromatography, EPA 300.0 (modified) US EPA Region 5 Chicago Regional Laboratory

**C7 equip (1805005-33) Matrix: Water Sampled: May-01-18 07:38 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate - NO3	U	U, (H)	0.04	0.12	mg/L	1	B18E016	May-08-18	May-09-18

**C7b Dup (1805005-34) Matrix: Water Sampled: May-01-18 08:02 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	38.8	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	172	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**C8a (1805005-35) Matrix: Water Sampled: May-01-18 08:35 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	18.2	(H), (MS), J, L		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	80.5	(H), (MS), J, L	0.04	0.12	"	"	B18E016	"	"

**C8b (1805005-36) Matrix: Water Sampled: May-01-18 08:42 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	2.49	J, (H)		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	11.0	(H), J	0.04	0.12	"	"	B18E016	"	"

**C9a (1805005-37) Matrix: Water Sampled: May-01-18 10:00 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	2.29	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	10.1	(H), J	0.04	0.12	"	"	B18E016	"	"

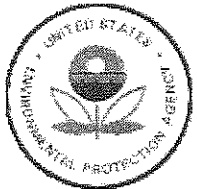
**C9b (1805005-38) Matrix: Water Sampled: May-01-18 10:21 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	0.565	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	2.50	(H), J	0.04	0.12	"	"	B18E016	"	"

**C10a (1805005-39) Matrix: Water Sampled: May-01-18 11:05 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	6.90	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	30.5	(H), J	0.04	0.12	"	"	B18E016	"	"





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**Anions by Ion Chromatography, EPA 300.0 (modified)  
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**C10b (1805005-40) Matrix: Water Sampled: May-01-18 11:12 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	16.9	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	75.0	(H), J	0.04	0.12	"	"	B18E016	"	"

**C11a (1805005-41) Matrix: Water Sampled: May-01-18 11:46 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	U	(H), UJ		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	U	(H), UJ	0.04	0.12	"	"	B18E016	"	"

**C11b (1805005-42) Matrix: Water Sampled: May-01-18 11:52 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	0.347	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	1.54	(H), J	0.04	0.12	"	"	B18E016	"	"

**C12a (1805005-43) Matrix: Water Sampled: May-01-18 12:41 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	U	(H), UJ		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	U	(H), UJ	0.04	0.12	"	"	B18E016	"	"

**C12b (1805005-44) Matrix: Water Sampled: May-01-18 12:47 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	U	(H), UJ		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	U	(H), UJ	0.04	0.12	"	"	B18E016	"	"

**C13a (1805005-45) Matrix: Water Sampled: May-01-18 13:30 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	U	(H), UJ		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	U	(H), UJ	0.04	0.12	"	"	B18E016	"	"

**C13b (1805005-46) Matrix: Water Sampled: May-01-18 13:39 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	U	(H), UJ		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18



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Project: Central Sands  
Project Number: CB022018  
Project Manager: Cheryl Burdett

Reported:  
Aug-22-18 13:08

## Anions by Ion Chromatography, EPA 300.0 (modified) US EPA Region 5 Chicago Regional Laboratory

**C13b (1805005-46) Matrix: Water Sampled: May-01-18 13:39 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate - NO3	U	(H), (U)	0.04	0.12	mg/L	1	B18E016	May-08-18	May-09-18

**D1a (1805005-47) Matrix: Water Sampled: May-01-18 14:19 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	U	(H), (U)		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	U	(H), (U)	0.04	0.12	"	"	B18E016	"	"

**D1b (1805005-48) Matrix: Water Sampled: May-01-18 14:26 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	U	(H), (U)		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	U	(H), (U)	0.04	0.12	"	"	B18E016	"	"

**D2a (1805005-49) Matrix: Water Sampled: May-01-18 15:00 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	2.56	(H), (J)		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	11.3	(H), (J)	0.04	0.12	"	"	B18E016	"	"

**D2b (1805005-50) Matrix: Water Sampled: May-01-18 15:06 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	34.0	(E), (H), (J)		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	150	(E), (H), (J)	0.04	0.12	"	"	B18E016	"	"

**D3a (1805005-51) Matrix: Water Sampled: May-01-18 15:41 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	21.8	(E), (H), (J)		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	96.3	(E), (H), (J)	0.04	0.12	"	"	B18E016	"	"

**D3b (1805005-52) Matrix: Water Sampled: May-01-18 15:48 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	22.3	(E), (H), (J)		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	98.6	(E), (H), (J)	0.04	0.12	"	"	B18E016	"	"



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**Anions by Ion Chromatography, EPA 300.0 (modified)  
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**D4a (1805005-53) Matrix: Water Sampled: May-01-18 16:19 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	21.4	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	94.7	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**D4b (1805005-54) Matrix: Water Sampled: May-01-18 16:26 Received: May-02-18 09:55**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	55.4	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	245	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**D5a (1805007-01) Matrix: Water Sampled: May-02-18 06:38 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	0.477	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	2.11	(H), J	0.04	0.12	"	"	B18E016	"	"

**D5b (1805007-02) Matrix: Water Sampled: May-02-18 06:46 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	1.52	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	6.74	(H), J	0.04	0.12	"	"	B18E016	"	"

**D6a (1805007-03) Matrix: Water Sampled: May-02-18 07:17 Received: May-04-18 10:00**

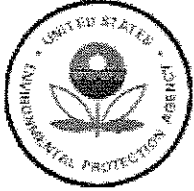
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	49.0	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	217	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**D6b (1805007-04) Matrix: Water Sampled: May-02-18 07:29 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	27.0	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	119	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**D7 equip (1805007-05) Matrix: Water Sampled: May-02-18 08:01 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	0.0427	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18



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## Anions by Ion Chromatography, EPA 300.0 (modified) US EPA Region 5 Chicago Regional Laboratory

**D7 equip (1805007-05) Matrix: Water Sampled: May-02-18 08:01 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate - NO3	0.19	(H), J	0.04	0.12	mg/L	1	B18E016	May-08-18	May-09-18

**FB3 (1805007-06) Matrix: Water Sampled: May-02-18 08:03 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	U	(H), UJ		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	U	(H), UJ	0.04	0.12	"	"	B18E016	"	"

**D7a Dup (1805007-07) Matrix: Water Sampled: May-02-18 08:12 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	38.2	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	169	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**D7a (1805007-08) Matrix: Water Sampled: May-02-18 08:12 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	38.1	(E), (H), (MS), J, L		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	168	(E), (H), (MS), J, L	0.04	0.12	"	"	B18E016	"	"

**D7b (1805007-09) Matrix: Water Sampled: May-02-18 08:19 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	39.4	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	174	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**D8a (1805007-10) Matrix: Water Sampled: May-02-18 08:55 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	48.9	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	216	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**D8b (1805007-11) Matrix: Water Sampled: May-02-18 09:11 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	48.2	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18



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## Anions by Ion Chromatography, EPA 300.0 (modified) US EPA Region 5 Chicago Regional Laboratory

**D8b (1805007-11) Matrix: Water Sampled: May-02-18 09:11 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate - NO3	213	(E), (H), J	0.04	0.12	mg/L	1	B18E016	May-08-18	May-09-18

**D9a (1805007-12) Matrix: Water Sampled: May-02-18 09:45 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	31.4	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-09-18
Nitrate - NO3	139	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**D9b (1805007-13) Matrix: Water Sampled: May-02-18 09:54 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	2.87	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	12.7	(H), J	0.04	0.12	"	"	B18E016	"	"

**D10a (1805007-14) Matrix: Water Sampled: May-02-18 10:29 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	13.3	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	58.8	(H), J	0.04	0.12	"	"	B18E016	"	"

**D10a Dup (1805007-15) Matrix: Water Sampled: May-02-18 10:29 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	10.3	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	45.4	(H), J	0.04	0.12	"	"	B18E016	"	"

**D10b (1805007-16) Matrix: Water Sampled: May-02-18 10:41 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	15.1	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	67.0	(H), J	0.04	0.12	"	"	B18E016	"	"

**D10b Dup (1805007-17) Matrix: Water Sampled: May-02-18 10:41 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	14.7	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	65.0	(H), J	0.04	0.12	"	"	B18E016	"	"



# Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605  
Phone: (312) 353-8370 Fax: (312) 886-2591

Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Aug-22-18 13:08
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## Anions by Ion Chromatography, EPA 300.0 (modified) US EPA Region 5 Chicago Regional Laboratory

**D11a (1805007-18) Matrix: Water Sampled: May-02-18 11:19 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	30.2	(E), (H), (MS), J, L		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	134	(E), (H), (MS), J, L	0.04	0.12	"	"	B18E016	"	"

**D11b (1805007-19) Matrix: Water Sampled: May-02-18 11:42 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	22.7	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	101	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**E1a (1805007-20) Matrix: Water Sampled: May-02-18 12:41 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	24.8	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	110	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**E1b (1805007-21) Matrix: Water Sampled: May-02-18 12:58 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	23.8	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	105	(H), J, (E)	0.04	0.12	"	"	B18E016	"	"

**E2a (1805007-22) Matrix: Water Sampled: May-02-18 13:28 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	1.37	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	6.06	(H), J	0.04	0.12	"	"	B18E016	"	"

**E2b (1805007-23) Matrix: Water Sampled: May-02-18 13:37 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	2.83	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	12.5	(H), J	0.04	0.12	"	"	B18E016	"	"

**E2a Dup (1805007-24) Matrix: Water Sampled: May-02-18 13:28 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N									
Nitrate - NO3									



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Aug-22-18 13:08
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**Anions by Ion Chromatography, EPA 300.0 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**E2a Dup (1805007-24) Matrix: Water Sampled: May-02-18 13:28 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	1.44	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	6.39	(H), J	0.04	0.12	"	"	B18E016	"	"

**E2b Dup (1805007-25) Matrix: Water Sampled: May-02-18 13:37 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	2.84	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	12.6	(H), J	0.04	0.12	"	"	B18E016	"	"

**E3a (1805007-26) Matrix: Water Sampled: May-02-18 14:03 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	6.17	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	27.3	(H), J	0.04	0.12	"	"	B18E016	"	"

**E3b (1805007-27) Matrix: Water Sampled: May-02-18 14:09 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	7.60	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	33.6	(H), J	0.04	0.12	"	"	B18E016	"	"

**E4a (1805007-28) Matrix: Water Sampled: May-02-18 14:37 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	22.6	(E), (H), (MS), J, L		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	100	(MS), J, L, (E), (H)	0.04	0.12	"	"	B18E016	"	"

**E4b (1805007-29) Matrix: Water Sampled: May-02-18 14:43 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	25.1	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	111	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**E5a (1805007-30) Matrix: Water Sampled: May-02-18 15:08 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed





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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Aug-22-18 13:08
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**Anions by Ion Chromatography, EPA 300.0 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**E5a (1805007-30) Matrix: Water Sampled: May-02-18 15:08 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	35.1	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	155	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**E5b (1805007-31) Matrix: Water Sampled: May-02-18 15:13 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	24.5	(E), (H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	108	(E), (H), J	0.04	0.12	"	"	B18E016	"	"

**E6a (1805007-32) Matrix: Water Sampled: May-02-18 15:38 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	0.144	(CCV), (H), J, K		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	0.64	(CCV), (H), J, K	0.04	0.12	"	"	B18E016	"	"

**E6b (1805007-33) Matrix: Water Sampled: May-02-18 15:44 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	0.0856	(CCV), (H), J, K		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	0.38	(H), J, K, (CCV)	0.04	0.12	"	"	B18E016	"	"

**E7a (1805007-34) Matrix: Water Sampled: May-02-18 16:09 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	21.5	(CCV), (E), (H), J, K		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	95.0	(CCV), (E), (H), J, K	0.04	0.12	"	"	B18E016	"	"

**E7b (1805007-35) Matrix: Water Sampled: May-02-18 16:35 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	22.4	(CCV), (E), (H), J, K		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	98.9	(CCV), (E), (H), J, K	0.04	0.12	"	"	B18E016	"	"



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**Anions by Ion Chromatography, EPA 300.0 (modified)  
US EPA Region 5 Chicago Regional Laboratory**

**E8a (1805007-36) Matrix: Water Sampled: May-03-18 08:40 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	19.1	J, K, (CCV), (H)		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	84.5	(CCV), (H), J, K	0.04	0.12	"	"	B18E016	"	"

**E8b (1805007-37) Matrix: Water Sampled: May-03-18 08:48 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	25.7	(CCV), (E), (H), J, K		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	114	(CCV), (E), (H), J, K	0.04	0.12	"	"	B18E016	"	"

**E10a (1805007-38) Matrix: Water Sampled: May-03-18 07:15 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	1.06	(CCV), (H), J, K		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	4.69	(CCV), (H), J, K	0.04	0.12	"	"	B18E016	"	"

**E10a Dup (1805007-39) Matrix: Water Sampled: May-03-18 07:15 Received: May-04-18 10:00**

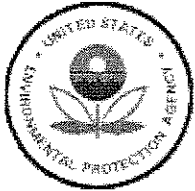
Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	1.01	(CCV), (H), J, K		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	4.48	(CCV), (H), J, K	0.04	0.12	"	"	B18E016	"	"

**E10b (1805007-40) Matrix: Water Sampled: May-03-18 07:27 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	0.0459	(CCV), (H), J, K		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	0.20	(CCV), (H), J, K	0.04	0.12	"	"	B18E016	"	"

**FB4 (1805007-41) Matrix: Water Sampled: May-03-18 07:36 Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	U	(CCV), (H), UJ		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Aug-22-18 13:08
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## Anions by Ion Chromatography, EPA 300.0 (modified) US EPA Region 5 Chicago Regional Laboratory

**FB4 (1805007-41)                      Matrix: Water                      Sampled: May-03-18 07:36                      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate - NO3	U	(CCV), (H), UJ	0.04	0.12	mg/L	1	B18E016	May-08-18	May-11-18

**E10 Equip (1805007-42)                      Matrix: Water                      Sampled: May-03-18 07:13                      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	U	(H), UJ		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	U	(H), UJ	0.04	0.12	"	"	B18E016	"	"

**E9a (1805007-43)                      Matrix: Water                      Sampled: May-03-18 09:53                      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	16.0	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	70.7	(H), J	0.04	0.12	"	"	B18E016	"	"

**E9b (1805007-44)                      Matrix: Water                      Sampled: May-03-18 10:02                      Received: May-04-18 10:00**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate as N	16.8	(H), J		0.0282	mg/L	1	[CALC]	May-08-18	May-11-18
Nitrate - NO3	74.2	(H), J	0.04	0.12	"	"	B18E016	"	"



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Water Division, WECA Region 5 77 West Jackson Boulevard Chicago IL, 60604	Project: Central Sands Project Number: CB022018 Project Manager: Cheryl Burdett	Reported: Aug-22-18 13:08
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### Notes and Definitions

- UJ The analyte was not detected at or above the reported limit. The reported limit is an estimate.
- L The identification of the analyte is acceptable; the reported value may be biased low. The actual value is expected to be greater than the reported value.
- K The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value.
- J The identification of the analyte is acceptable; the reported value is an estimate.
- (MS) Matrix spike recovery criteria not met for this analyte
- (H) Holding time exceeded for sample preparation and/or analysis; Target analyte concentrations and/or reporting limits may not be accurate
- (E) This analyte exceeded the calibration range
- (CCV) Continuing calibration verification criteria not met for this analyte
- U Not Detected
- NR Not Reported
- Q QC limit Exceeded



# Water Sciences Laboratory

## Analytical Report



# Nebraska Water Center

Daugherty Water for Food Global Institute

Nebraska Water Center, a part of the  
Robert B. Daugherty Water for Food Global Institute at the University of Nebraska  
e: [dsnow1.unl.edu](mailto:dsnow1.unl.edu) | p: 1 402.472.7539 | f: 1 402.472.9599 | c: 1 402.304.3748

Results Reported To:

Jessica Gray  
Eastern Research Group, Inc.  
14555 Avion Parkway Suite 200  
Chantilly, VA 20151  
(703) 633-1625  
[jessica.gray@erg.com](mailto:jessica.gray@erg.com)

**Project: ERG CSD GROUNDWATER SAMPLING**

Sampled By: Juan Rogers  
Received: 05/01/2018  
Received By: David Cassada  
Batch: **W18196**

**Protocol: 02\_03\_01**

Nitrate\_Nitrite Cd-Reduction EPA 353.2

Protocol Reference:

Seal Analytical Nitrate-N + Nitrite-N in  
Drinking and Surface Waters Domestic and  
Industrial Wastes.

**\*\*\*\* Results of Analysis \*\*\*\***

Lab ID	Sample ID	Collection Date	NO3+NO2-N (mg/L)	Analysis Date
18-1774	A1A	04/30/2018	*0.000	05/07/2018
18-1775	A1B	04/30/2018	0.052	05/07/2018
18-1777	A2A	04/30/2018	*0.000	05/07/2018
18-1778	A2B	04/30/2018	*0.006	05/07/2018
18-1779	A3A	04/30/2018	0.021	05/07/2018
18-1780	A3B	04/30/2018	0.047	05/07/2018
18-1781	A4A	04/30/2018	0.568	05/07/2018
18-1782	A4B	04/30/2018	0.124	05/07/2018
18-1783	B1A	04/30/2018	0.018	05/07/2018
18-1784	B1B	04/30/2018	0.043	05/07/2018
18-1785	B2A	04/30/2018	*0.000	05/07/2018
18-1786	B2B	04/30/2018	0.082	05/07/2018
18-1787	B3A	04/30/2018	1.28	05/07/2018
18-1788	B3B	04/30/2018	*0.000	05/07/2018
18-1789	B4A	04/30/2018	17.5	05/07/2018
18-1790	B4B	04/30/2018	8.81	05/07/2018
18-1791	C3A	04/30/2018	9.08	05/07/2018
18-1792	C3B	04/30/2018	0.440	05/07/2018
18-1793	C1A	04/30/2018	*0.000	05/07/2018
18-1794	C1B	04/30/2018	0.045	05/07/2018
18-1795	C2A	04/30/2018	22.8	05/07/2018
18-1796	C2B	04/30/2018	0.866	05/07/2018

Detection Limit: 0.01





# Water Sciences Laboratory

## Analytical Report



# Nebraska Water Center

Daugherty Water for Food Global Institute

Nebraska Water Center, a part of the  
Robert B. Daugherty Water for Food Global Institute at the University of Nebraska  
e: [dsnow1.unl.edu](mailto:dsnow1.unl.edu) | p: 1 402.472.7539 | f: 1 402.472.9599 | c: 1 402.304.3748

Results Reported To:

Jessica Gray  
Eastern Research Group, Inc.  
14555 Avion Parkway Suite 200  
Chantilly, VA 20151  
(703) 633-1625  
[jessica.gray@erg.com](mailto:jessica.gray@erg.com)

**Project: ERG CSD GROUNDWATER SAMPLING**  
Sampled By: Juan Rogers  
Received: 05/01/2018  
Received By: David Cassada  
Batch: **W18197**

**Protocol: 12\_02\_11\_01**  
Nitrogen and Oxygen Isotopes using azide reduction and Trace gas Preconcentrator Method  
Protocol Reference:  
1. Tu, Y.; Fang, Y.; Liu, D.; Pan, Y. (2016) Modifications to the azide method for nitrate isotope analysis. *Rapid Commun. Mass Sp.*, 30(10), 1213-1222.  
2. McIlvin, Matthew R. Altabet, Mark A. (2005) Chemical conversion of nitrate and nitrite to nitrous oxide for nitrogen and oxygen isotopic analysis in freshwater and seawater. *Anal. Chem.*, 77, 5589-5595.

\*\*\*\* Results of Analysis \*\*\*\*

Lab ID	Sample ID	Collection Date	$\delta^{15}\text{N-NO}_3$ (%)	$\delta^{18}\text{O-NO}_3$ (%)	Analysis Date
18-1775	A1B	04/30/2018	-4.94	+9.19	05/14/2018
18-1780	A3B	04/30/2018	-4.15	+12.5	05/14/2018
18-1781	A4A	04/30/2018	+4.76	+5.27	05/14/2018
18-1782	A4B	04/30/2018	+3.23	+0.699	05/14/2018
18-1784	B1B	04/30/2018	-3.89	+17.6	05/14/2018
18-1786	B2B	04/30/2018	-7.73	+2.04	05/14/2018
18-1787	B3A	04/30/2018	-4.83	-3.64	05/14/2018
18-1790	B4B	04/30/2018	+1.41	+2.66	05/14/2018
18-1791	C3A	04/30/2018	+3.88	+4.41	05/14/2018
18-1792	C3B	04/30/2018	+0.805	-1.22	05/14/2018
18-1794	C1B	04/30/2018	-11.4	+1.50	05/14/2018
18-1795	C2A	04/30/2018	+0.753	+2.30	05/14/2018
18-1796	C2B	04/30/2018	+3.22	+1.51	05/14/2018

$$\delta (\text{‰}) = \frac{R_{\text{sample}} - R_{\text{standard}}}{R_{\text{standard}}} \times 1000$$

Rstandard: D/H= 0.00015575, 18O/16=0.0020052; Standard Mean Ocean Water; 15N/14N=0.0036765 Atmospheric Nitrogen



# Water Sciences Laboratory

## Analytical Report



# Nebraska Water Center

Daugherty Water for Food Global Institute

Nebraska Water Center, a part of the  
Robert B. Daugherty Water for Food Global Institute at the University of Nebraska  
e: [dsnow1.unl.edu](mailto:dsnow1.unl.edu) | p: 1 402.472.7539 | f: 1 402.472.9599 | c: 1 402.304.3748

Results Reported To:

Jessica Gray  
Eastern Research Group, Inc.  
14555 Avion Parkway Suite 200  
Chantilly, VA 20151  
(703) 633-1625  
[jessica.gray@erg.com](mailto:jessica.gray@erg.com)

**Project: ERG CSD GROUNDWATER  
SAMPLING**

Sampled By: Cheryl Burdett  
Received: 05/02/2018  
Received By: David Cassada  
Batch: **W18199**

**Protocol: 02\_03\_01**

Nitrate\_Nitrite Cd-Reduction EPA 353.2

Protocol Reference:

Seal Analytical Nitrate-N + Nitrite-N in  
Drinking and Surface Waters Domestic and  
Industrial Wastes.

**\*\*\*\* Results of Analysis \*\*\*\***

Lab ID	Sample ID	Collection Date	NO3+NO2-N (mg/L)	Analysis Date
18-1806	C12A	05/01/2018	*0.000	05/07/2018
18-1808	C12B	05/01/2018	*0.000	05/07/2018
18-1809	C13A	05/01/2018	*0.000	05/07/2018
18-1810	C13B	05/01/2018	*0.000	05/07/2018
18-1811	D1A	05/01/2018	*0.000	05/07/2018
18-1812	D1B	05/01/2018	*0.000	05/07/2018
18-1813	D2A	05/01/2018	1.65	05/07/2018
18-1814	D2B	05/01/2018	13.5	05/07/2018
18-1815	D3A	05/01/2018	8.98	05/07/2018
18-1816	D3B	05/01/2018	13.1	05/07/2018
18-1817	D4A	05/01/2018	10.2	05/07/2018
18-1818	D4B	05/01/2018	17.7	05/07/2018
18-1819	C5AA	05/01/2018	13.1	05/07/2018
18-1820	C5AB	05/01/2018	22.0	05/07/2018
18-1821	C6A	05/01/2018	15.1	05/07/2018
18-1822	C6B	05/01/2018	11.7	05/07/2018
18-1823	C7A	05/01/2018	19.5	05/07/2018
18-1824	C7B	05/01/2018	14.7	05/07/2018
18-1825	C8A	05/01/2018	6.64	05/07/2018
18-1826	C8B	05/01/2018	2.39	05/07/2018
18-1827	C9A	05/01/2018	2.47	05/07/2018
18-1828	C9B	05/01/2018	0.646	05/07/2018
18-1829	C10A	05/01/2018	7.76	05/07/2018
18-1830	C10B	05/01/2018	15.6	05/07/2018
18-1831	C11A	05/01/2018	*0.000	05/07/2018
18-1832	C11B	05/01/2018	0.119	05/07/2018

Detection Limit: 0.01



# Water Sciences Laboratory

## Analytical Report



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Daugherty Water for Food Global Institute

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e: [dsnow1.unl.edu](mailto:dsnow1.unl.edu) | p: 1 402.472.7539 | f: 1 402.472.9599 | c: 1 402.304.3748

Results Reported To:

Jessica Gray  
Eastern Research Group, Inc.  
14555 Avion Parkway Suite 200  
Chantilly, VA 20151  
(703) 633-1625  
[jessica.gray@erg.com](mailto:jessica.gray@erg.com)

**Project: ERG CSD GROUNDWATER SAMPLING**  
Sampled By: Cheryl Burdett  
Received: 05/02/2018  
Received By: David Cassada  
Batch: **W18200**

**Protocol: 12\_02\_11\_01**  
Nitrogen and Oxygen Isotopes using azide reduction and Trace gas Preconcentrator Method  
Protocol Reference:  
McIlvin, Matthew R Altabet, Mark A (2005) Chemical conversion of nitrate and nitrite to nitrous oxide for nitrogen and oxygen isotopic analysis in freshwater and seawater. *Anal. Chem.*, 77, 5589-5595.

\*\*\*\* Results of Analysis \*\*\*\*

Lab ID	Sample ID	Collection Date	δ <sup>15</sup> N-NO <sub>3</sub> (‰)	δ <sup>18</sup> O-NO <sub>3</sub> (‰)	Analysis Date
18-1813	D2A	05/01/2018	+17.1	+8.63	05/14/2018
18-1814	D2B	05/01/2018	+6.94	+0.877	05/14/2018
18-1815	D3A	05/01/2018	+1.07	+0.470	05/14/2018
18-1816	D3B	05/01/2018	+1.46	+1.57	05/14/2018
18-1817	D4A	05/01/2018	+1.33	-0.252	05/14/2018
18-1818	D4B	05/01/2018	+1.64	-1.72	05/14/2018
18-1819	C5AA	05/01/2018	+2.32	-1.91	05/14/2018
18-1820	C5AB	05/01/2018	+3.42	-0.803	05/14/2018
18-1821	C6A	05/01/2018	+2.40	-0.950	05/14/2018
18-1822	C6B	05/01/2018	+1.19	+0.788	06/06/2018
18-1823	C7A	05/01/2018	+0.446	-0.847	05/14/2018
18-1824	C7B	05/01/2018	+0.780	+2.17	05/14/2018
18-1825	C8A	05/01/2018	+1.99	+10.4	05/14/2018
18-1826	C8B	05/01/2018	+6.53	+1.34	05/14/2018
18-1827	C9A	05/01/2018	+1.81	+3.76	05/14/2018
18-1828	C9B	05/01/2018	-6.33	+4.59	05/14/2018
18-1829	C10A	05/01/2018	-1.46	+5.69	05/14/2018
18-1830	C10B	05/01/2018	+3.03	+5.99	05/14/2018
18-1832	C11B	05/01/2018	+6.10	+12.3	05/14/2018

$$\delta (\text{‰}) = \frac{R_{\text{sample}} - R_{\text{standard}}}{R_{\text{standard}}} \times 1000$$

Rstandard: D/H= 0.00015575, 18O/16=0.0020052; Standard Mean Ocean Water; 15N/14N=0.0036765 Atmospheric Nitrogen



# Water Sciences Laboratory

## Analytical Report



**Nebraska  
Water Center**  
Daugherty Water for Food Global Institute

Nebraska Water Center, a part of the  
Robert B. Daugherty Water for Food Global Institute at the University of Nebraska  
e: dsnow1.unl.edu | p: 1 402.472.7539 | f: 1 402.472.9599 | c: 1 402.304.3748

Results Reported To:

Jessica Gray  
Eastern Research Group, Inc.  
14555 Avion Parkway Suite 200  
Chantilly, VA 20151  
(703) 633-1625  
jessica.gray@erg.com

**Project: ERG CSD GROUNDWATER  
SAMPLING**

Sampled By: Juan Rogers  
Received: 05/03/2018  
Received By: David Cassada  
Batch: **W18205**

**Protocol: 02\_03\_01**

Nitrate\_Nitrite Cd-Reduction EPA 353.2

Protocol Reference:  
Seal Analytical Nitrate-N + Nitrite-N in  
Drinking and Surface Waters Domestic and  
Industrial Wastes.

\*\*\*\* *Results of Analysis* \*\*\*\*

Lab ID	Sample ID	Collection Date	NO3+NO2-N (mg/L)	Analysis Date
18-1865	D5A	05/02/2018	0.451	05/09/2018
18-1867	D5B	05/02/2018	1.18	05/09/2018
18-1868	D6A	05/02/2018	41.1	05/09/2018
18-1869	D6B	05/02/2018	24.5	05/09/2018
18-1870	D7A	05/02/2018	30.7	05/09/2018
18-1871	D7B	05/02/2018	32.2	05/09/2018
18-1872	D8A	05/02/2018	48.8	05/09/2018
18-1873	D8B	05/02/2018	39.0	05/09/2018
18-1874	D9A	05/02/2018	30.3	05/09/2018
18-1875	D9B	05/02/2018	1.52	05/09/2018
18-1876	D10A	05/02/2018	8.79	05/09/2018
18-1877	D10B	05/02/2018	8.40	05/09/2018
18-1878	D11A	05/02/2018	28.0	05/09/2018
18-1879	D11B	05/02/2018	14.5	05/09/2018
18-1880	E1A	05/02/2018	11.7	05/09/2018
18-1881	E1B	05/02/2018	11.8	05/09/2018
18-1882	E2A	05/02/2018	0.995	05/09/2018
18-1883	E2B	05/02/2018	2.58	05/09/2018
18-1884	E3A	05/02/2018	3.83	05/09/2018
18-1885	E3B	05/02/2018	6.14	05/09/2018
18-1886	E4A	05/02/2018	26.1	05/09/2018
18-1887	E4B	05/02/2018	20.0	05/09/2018
18-1888	E5A	05/02/2018	28.3	05/09/2018
18-1889	E5B	05/02/2018	17.5	05/09/2018
18-1890	E6A	05/02/2018	0.149	05/09/2018
18-1891	E6B	05/02/2018	0.093	05/09/2018
18-1892	E7A	05/02/2018	16.1	05/09/2018
18-1893	E7B	05/02/2018	13.8	05/09/2018





# Water Sciences Laboratory

## Analytical Report



# Nebraska Water Center

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e: [dsnow1.unl.edu](mailto:dsnow1.unl.edu) | p: 1 402.472.7539 | f: 1 402.472.9599 | c: 1 402.304.3748

Results Reported To:

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Eastern Research Group, Inc.  
14555 Avion Parkway Suite 200  
Chantilly, VA 20151  
(703) 633-1625  
[jessica.gray@erg.com](mailto:jessica.gray@erg.com)

**Project: ERG CSD GROUNDWATER  
SAMPLING**

Sampled By: Juan Rogers  
Received: 05/03/2018  
Received By: David Cassada  
Batch: **W18206**

**Protocol: 12\_02\_11\_01**

Nitrogen and Oxygen Isotopes using azide reduction and Trace gas Preconcentrator Method  
Protocol Reference:  
McIlvin, Matthew R Altabet, Mark A (2005)  
Chemical conversion of nitrate and nitrite to nitrous oxide for nitrogen and oxygen isotopic analysis in freshwater and seawater.  
*Anal. Chem.*, 77, 5589-5595.

\*\*\*\* Results of Analysis \*\*\*\*

Lab ID	Sample ID	Collection Date	$\delta^{15}\text{N-NO}_3$ (‰)	$\delta^{18}\text{O-NO}_3$ (‰)	Analysis Date
18-1865	D5A	05/02/2018	-0.684	+1.22	05/23/2018
18-1867	D5B	05/02/2018	-8.93	-4.10	06/06/2018
18-1868	D6A	05/02/2018	-0.828	-2.95	05/23/2018
18-1869	D6B	05/02/2018	-2.70	-0.508	05/23/2018
18-1870	D7A	05/02/2018	-2.62	+1.53	05/23/2018
18-1871	D7B	05/02/2018	-4.99	-3.17	05/23/2018
18-1872	D8A	05/02/2018	+8.24	+4.86	06/06/2018
18-1873	D8B	05/02/2018	+0.232	+2.27	05/23/2018
18-1874	D9A	05/02/2018	-1.65	+1.23	05/23/2018
18-1875	D9B	05/02/2018	+2.72	+1.35	05/23/2018
18-1876	D10A	05/02/2018	-6.75	-3.01	06/06/2018
18-1877	D10B	05/02/2018	-1.72	+0.082	05/23/2018
18-1878	D11A	05/02/2018	+1.96	+5.26	05/23/2018
18-1879	D11B	05/02/2018	+5.06	+2.47	05/24/2018
18-1880	E1A	05/02/2018	+3.35	+6.17	05/24/2018
18-1881	E1B	05/02/2018	+6.84	+5.39	05/24/2018
18-1882	E2A	05/02/2018	+2.63	+6.36	05/24/2018
18-1883	E2B	05/02/2018	+1.89	-0.204	05/24/2018
18-1884	E3A	05/02/2018	-0.027	+1.74	05/24/2018
18-1885	E3B	05/02/2018	+0.684	+1.59	05/24/2018
18-1886	E4A	05/02/2018	+3.69	+5.12	05/24/2018
18-1887	E4B	05/02/2018	-0.840	+4.71	05/24/2018
18-1888	E5A	05/02/2018	+1.29	+4.91	05/24/2018
18-1889	E5B	05/02/2018	+2.59	+5.44	05/24/2018
18-1890	E6A	05/02/2018	-6.39	+3.20	05/24/2018
18-1891	E6B	05/02/2018	-2.48	+4.47	05/24/2018
18-1892	E7A	05/02/2018	+3.76	+7.91	05/24/2018
18-1893	E7B	05/02/2018	-4.23	-2.39	05/24/2018

$$\delta (\text{‰}) = \frac{R_{\text{sample}} - R_{\text{standard}}}{R_{\text{standard}}} \times 1000$$

Rstandard: D/H= 0.00015575, 18O/16=0.0020052; Standard Mean Ocean Water; 15N/14N=0.0036765 Atmospheric Nitrogen



# Water Sciences Laboratory

## Analytical Report



# Nebraska Water Center

Daugherty Water for Food Global Institute

Nebraska Water Center, a part of the  
Robert B. Daugherty Water for Food Global Institute at the University of Nebraska  
e: [dsnow1.unl.edu](mailto:dsnow1.unl.edu) | p: 1 402.472.7539 | f: 1 402.472.9599 | c: 1 402.304.3748

Results Reported To:

Jessica Gray  
Eastern Research Group, Inc.  
14555 Avion Parkway Suite 200  
Chantilly, VA 20151  
(703) 633-1625  
[jessica.gray@erg.com](mailto:jessica.gray@erg.com)

**Project: ERG CSD GROUNDWATER  
SAMPLING**

Sampled By: Cheryl Burdett  
Received: 05/04/2018  
Received By: David Cassada  
Batch: **W18216**

**Protocol: 12\_02\_11\_01**

Nitrogen and Oxygen Isotopes using azide reduction and Trace gas Preconcentrator Method  
Protocol Reference:  
McIlvin, Matthew R Altabet, Mark A (2005)  
Chemical conversion of nitrate and nitrite to nitrous oxide for nitrogen and oxygen isotopic analysis in freshwater and seawater.  
*Anal. Chem.*, 77, 5589-5595.

\*\*\*\* Results of Analysis \*\*\*\*

Lab ID	Sample ID	Collection Date	$\delta^{15}\text{N}-\text{NO}_3$ (‰)	$\delta^{18}\text{O}-\text{NO}_3$ (‰)	Analysis Date
18-2011	E10A	05/03/2018	-4.15	+2.91	06/07/2018
18-2013	E10B	05/03/2018	+12.6	+35.9	05/30/2018
18-2014	E8A	05/03/2018	+11.5	+16.0	05/30/2018
18-2015	E8B	05/03/2018	+6.01	+9.17	05/30/2018
18-2016	E9A	05/03/2018	+29.6	+22.8	05/30/2018
18-2017	E9B	05/03/2018	+9.39	+13.2	05/30/2018
18-2018	S01	05/03/2018	+7.33	+9.15	05/30/2018
18-2019	S02	05/03/2018	+4.76	+8.57	05/30/2018
18-2020	S04	05/03/2018	+3.70	+5.16	05/30/2018
18-2021	S05	05/03/2018	+4.90	+9.20	05/30/2018
18-2022	S03	05/03/2018	+4.14	+6.25	05/30/2018

$$\delta (\text{‰}) = \frac{R_{\text{sample}} - R_{\text{standard}}}{R_{\text{standard}}} \times 1000$$

Rstandard: D/H= 0.00015575, 18O/16=0.0020052; Standard Mean Ocean Water; 15N/14N=0.0036765 Atmospheric Nitrogen





# Laboratory Report

D.F. Kurtycz, M.D., Medical Director - Prof. James J. Schauer, Ph.D., Director

Environmental Health Division

WDNR LAB ID: 113133790    NELAP LAB ID: E37658    EPA LAB ID: WI00007, WI00008    WI DATCP ID: 105-415

**WSLH Sample: 379802001**

Report To:  
JESSICA GRAY  
ERG  
14555 AVION PARKWAY SUITE 200  
CHANTILLY, VA 20151

Invoice To:  
TRINITA WHITE  
ERG  
14555 AVION PARKWAY SUITE 200  
CHANTILLY, VA 20151  
Customer ID: 352929

Field #: S01  
Project No:  
Collection End: 5/3/2018 11:06:00 AM  
Collection Start:  
Collected By: CHERYL BURDETT  
Date Received: 5/3/2018  
Date Reported: 5/18/2018  
Sample Reason:

ID#:  
Sample Location:  
Sample Description: (b) (6)  
Sample Type: PO-PRIVATE WELL  
Waterbody:  
Point or Outfall:  
Sample Depth:  
Program Code:  
Region Code:  
County:

## Sample Comments

ACID TRACEABILITY INFORMATION NOT SUBMITTED WITH TEST REQUEST FORM

## Microbiology

Analyte	Analysis Method	Result	Units	LOD	LOQ
Prep Date 05/03/18    Analysis Date 05/04/18					
E. Coli	SM9223BMPN	< 1	MPN/100 mL		1

## Inorganic Chemistry

Analyte	Analysis Method	Result	Units	LOD	LOQ
Prep Date 05/04/18    Analysis Date 05/04/18					
Nitrate + Nitrite (as N)	EPA 353.2	34.4	mg/L	0.900	3.00
Nitrate (as N)- EPA353.2 Calc.	EPA 353.2	34.4	mg/L	0.900	3.00
Prep Date 05/04/18    Analysis Date 05/04/18					
Nitrite (as N)	SM4500 NO2B	ND	mg/L	0.0500	0.150
Prep Date 05/16/18    Analysis Date 05/16/18					
Chloride	SM4500-CL-E	32.6	mg/L	1.00	3.20



D.F. Kortycz, M.D., Medical Director - Prof. James J. Schauer, Ph.D., Director

Environmental Health Division

WDNR LAB ID: 113133790

NELAP LAB ID: E37658

EPA LAB ID: WI00007, WI00008 WI DATCP ID: 105-415

**WSLH Sample: 379802001**

## Inorganic Chemistry, Dissolved

Analyte	Analysis Method	Result	Units	LOD	LOQ
Prep Date 05/04/18	Analysis Date 05/16/18				
Ammonia	EPA 350.1	0.0150F	mg/L	0.0150	0.0480

### List of Abbreviations:

LOD = Level of detection

LOQ = Level of quantification

ND = None detected. Results are less than the LOD

F next to result = Result is between LOD and LOQ

Z next to result = Result is between 0 (zero) and LOD

if LOD=LOQ, Limits were not statistically derived

Test results for NELAP accredited tests are certified to meet the requirements of the NELAC standards. For a list of accredited analytes see <http://www.slh.wisc.edu/about/compliance/nelac-laboratory-accreditation>

Results, LOD and LOQ values have been adjusted for analytical dilutions and percent moisture where applicable.

Results relate only to the items tested.

This Laboratory Report shall not be reproduced except in full, without written approval of the laboratory.

The water microbiology unit analyzes samples as received and not all samples are tested for preservation before analysis is performed.

## Previous Reports

This sample was previously reported under the following report ID(s): 5241133

## Responsible Party

Microbiology: Sharon Kluender, Lab Manager, 608-224-6262

Inorganic Chemistry: DeWayne Kennedy-Parker, Lab Manager, 608-224-6282

Metals: DeWayne Kennedy-Parker, Lab Manager, 608-224-6282

Organic Chemistry: Al Spallato, Lab Manager, 608-224-6269

Emergency Chemical Response: Noel Stanton, Lab Manager, 608-224-6251

Environmental Toxicology: Tracy Hanke, Lab Manager, 608-224-6270





Environmental Health Division

WDNR LAB ID: 113133790    NELAP LAB ID: E37658    EPA LAB ID: WI00007, WI00008    WI DATCP ID: 105-415

WSLH Sample: 379802002

Report To:  
JESSICA GRAY  
ERG  
14555 AVION PARKWAY SUITE 200  
CHANTILLY, VA 20151

Invoice To:  
TRINITA WHITE  
ERG  
14555 AVION PARKWAY SUITE 200  
CHANTILLY, VA 20151  
Customer ID: 352929

Field #: S02  
Project No:  
Collection End: 5/3/2018 11:38:00 AM  
Collection Start:  
Collected By: CHERYL BURDETT  
Date Received: 5/3/2018  
Date Reported: 5/18/2018  
Sample Reason:

ID#:  
Sample Location:  
Sample Description: (b) (6)  
Sample Type: PO-PRIVATE WELL  
Waterbody:  
Point or Outfall:  
Sample Depth:  
Program Code:  
Region Code:  
County:

### Sample Comments

ACID TRACEABILITY INFORMATION NOT SUBMITTED WITH TEST REQUEST FORM

### Microbiology

Analyte	Analysis Method	Result	Units	LOD	LOQ
Prep Date 05/03/18    Analysis Date 05/04/18					
E. Coli	SM9223BMPN	< 1	MPN/100 mL		1

### Inorganic Chemistry

Analyte	Analysis Method	Result	Units	LOD	LOQ
Prep Date 05/04/18    Analysis Date 05/04/18					
Nitrate + Nitrite (as N)	EPA 353.2	34.3	mg/L	0.900	3.00
Nitrate (as N)- EPA353.2 Calc.	EPA 353.2	34.3	mg/L	0.900	3.00
Prep Date 05/04/18    Analysis Date 05/04/18					
Nitrite (as N)	SM4500 NO2B	ND	mg/L	0.0500	0.150
Prep Date 05/16/18    Analysis Date 05/16/18					
Chloride	SM4500-CL-E	49.6	mg/L	1.00	3.20



Environmental Health Division

WDNR LAB ID: 113133790

NELAP LAB ID: E37658

EPA LAB ID: WI00007, WI00008 WI DATCP ID: 105-415

**WSLH Sample: 379802002**

## Inorganic Chemistry, Dissolved

Analyte	Analysis Method	Result	Units	LOD	LOQ
Prep Date 05/04/18	Analysis Date 05/16/18				
Ammonia	EPA 350.1	ND	mg/L	0.0150	0.0480

### List of Abbreviations:

LOD = Level of detection

LOQ = Level of quantification

ND = None detected. Results are less than the LOD

F next to result = Result is between LOD and LOQ

Z next to result = Result is between 0 (zero) and LOD

if LOD=LOQ, Limits were not statistically derived

Test results for NELAP accredited tests are certified to meet the requirements of the NELAC standards. For a list of accredited analytes see <http://www.slh.wisc.edu/about/compliance/nelac-laboratory-accreditation>

Results, LOD and LOQ values have been adjusted for analytical dilutions and percent moisture where applicable.

Results relate only to the items tested.

This Laboratory Report shall not be reproduced except in full, without written approval of the laboratory.

The water microbiology unit analyzes samples as received and not all samples are tested for preservation before analysis is performed.

## Previous Reports

This sample was previously reported under the following report ID(s): 5241133

## Responsible Party

Microbiology: Sharon Kluender, Lab Manager, 608-224-6262

Inorganic Chemistry: DeWayne Kennedy-Parker, Lab Manager, 608-224-6282

Metals: DeWayne Kennedy-Parker, Lab Manager, 608-224-6282

Organic Chemistry: Al Spallato, Lab Manager, 608-224-6269

Emergency Chemical Response: Noel Stanton, Lab Manager, 608-224-6251

Environmental Toxicology: Tracy Hanke, Lab Manager, 608-224-6270



# Laboratory Report

D.F. Kurtycz, M.D., Medical Director - Prof. James J. Schauer, Ph.D., Director

Environmental Health Division

WDNR LAB ID: 113133790

NELAP LAB ID: E37658

EPA LAB ID: WI00007, WI00008 WI DATCP ID: 105-415

WSLH Sample: 379802003

Report To:

JESSICA GRAY  
ERG  
14555 AVION PARKWAY SUITE 200  
CHANTILLY, VA 20151

Invoice To:

TRINITA WHITE  
ERG  
14555 AVION PARKWAY SUITE 200  
CHANTILLY, VA 20151  
Customer ID: 352929

Field #: S04  
Project No:  
Collection End: 5/3/2018 12:13:00 PM  
Collection Start:  
Collected By: CHERYL BURDETT  
Date Received: 5/3/2018  
Date Reported: 5/18/2018  
Sample Reason:

ID#:  
Sample Location:  
Sample Description: (b) (6)  
Sample Type: PO-PRIVATE WELL  
Waterbody:  
Point or Outfall:  
Sample Depth:  
Program Code:  
Region Code:  
County:

## Sample Comments

ACID TRACEABILITY INFORMATION NOT SUBMITTED WITH TEST REQUEST FORM

## Microbiology

Analyte	Analysis Method	Result	Units	LOD	LOQ
Prep Date 05/03/18	Analysis Date 05/04/18				
E. Coli	SM9223BMPN	< 1	MPN/100 mL		1

## Inorganic Chemistry

Analyte	Analysis Method	Result	Units	LOD	LOQ
Prep Date 05/04/18	Analysis Date 05/04/18				
Nitrate + Nitrite (as N)	EPA 353.2	40.4	mg/L	0.900	3.00
Nitrate (as N)- EPA353.2 Calc.	EPA 353.2	40.3	mg/L	0.900	3.00
Prep Date 05/04/18	Analysis Date 05/04/18				
Nitrite (as N)	SM4500 NO2B	ND	mg/L	0.0500	0.150
Prep Date 05/16/18	Analysis Date 05/16/18				
Chloride	SM4500-CL-E	39.7	mg/L	1.00	3.20



D.F. Kurtycz, M.D., Medical Director - Prof. James J. Schauer, Ph.D., Director

Environmental Health Division

WDNR LAB ID: 113133790    NELAP LAB ID: E37658    EPA LAB ID: WI00007, WI00008    WI DATCP ID: 105-415

**WSLH Sample: 379802003**

## Inorganic Chemistry, Dissolved

Analyte	Analysis Method	Result	Units	LOD	LOQ
Prep Date    05/04/18	Analysis Date    05/16/18				
Ammonia	EPA 350.1	ND	mg/L	0.0150	0.0480

### List of Abbreviations:

LOD = Level of detection  
 LOQ = Level of quantification  
 ND = None detected. Results are less than the LOD  
 F next to result = Result is between LOD and LOQ  
 Z next to result = Result is between 0 (zero) and LOD  
 if LOD=LOQ, Limits were not statistically derived

Test results for NELAP accredited tests are certified to meet the requirements of the NELAC standards. For a list of accredited analytes see <http://www.sih.wisc.edu/about/compliance/nelac-laboratory-accreditation>  
 Results, LOD and LOQ values have been adjusted for analytical dilutions and percent moisture where applicable.  
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D.F. Kurtycz, M.D., Medical Director - Prof. James J. Schauer, Ph.D., Director

Environmental Health Division

WDNR LAB ID: 113133790    NELAP LAB ID: E37658    EPA LAB ID: WI00007, WI00008    WI DATCP ID: 105-415

**WSLH Sample: 379802004**

Report To:  
JESSICA GRAY  
ERG  
14555 AVION PARKWAY SUITE 200  
CHANTILLY, VA 20151

Invoice To:  
TRINITA WHITE  
ERG  
14555 AVION PARKWAY SUITE 200  
CHANTILLY, VA 20151  
Customer ID: 352929

Field #: S05  
Project No:  
Collection End: 5/3/2018 12:46:00 PM  
Collection Start:  
Collected By: CHERYL BURDETT  
Date Received: 5/3/2018  
Date Reported: 5/18/2018  
Sample Reason:

ID#:  
Sample Location:  
Sample Description: (b) (6)  
Sample Type: PO-PRIVATE WELL  
Waterbody:  
Point or Outfall:  
Sample Depth:  
Program Code:  
Region Code:  
County:

### Sample Comments

ACID TRACEABILITY INFORMATION NOT SUBMITTED WITH TEST REQUEST FORM

### Microbiology

Analyte	Analysis Method	Result	Units	LOD	LOQ
Prep Date 05/03/18    Analysis Date 05/04/18					
E. Coli	SM9223BMPN	< 1	MPN/100 mL		1

### Inorganic Chemistry

Analyte	Analysis Method	Result	Units	LOD	LOQ
Prep Date 05/04/18    Analysis Date 05/04/18					
Nitrate + Nitrite (as N)	EPA 353.2	29.1	mg/L	0.300	1.00
Nitrate (as N)- EPA353.2 Calc.	EPA 353.2	29.1	mg/L	0.300	1.00
Prep Date 05/04/18    Analysis Date 05/04/18					
Nitrite (as N)	SM4500 NO2B	ND	mg/L	0.0500	0.150
Prep Date 05/16/18    Analysis Date 05/16/18					
Chloride	SM4500-CL-E	36.8	mg/L	1.00	3.20



Environmental Health Division

WDNR LAB ID: 113133790    NELAP LAB ID: E37658    EPA LAB ID: WI00007, WI00008    WI DATCP ID: 105-415

**WSLH Sample: 379802004**

## Inorganic Chemistry, Dissolved

Analyte	Analysis Method	Result	Units	LOD	LOQ
Prep Date 05/04/18	Analysis Date 05/16/18				
Ammonia	EPA 350.1	ND	mg/L	0.0150	0.0480

### List of Abbreviations:

LOD = Level of detection  
 LOQ = Level of quantification  
 ND = None detected. Results are less than the LOD  
 F next to result = Result is between LOD and LOQ  
 Z next to result = Result is between 0 (zero) and LOD  
 if LOD=LOQ, Limits were not statistically derived

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 Environmental Toxicology: Tracy Hanke, Lab Manager, 608-224-6270



# Laboratory Report

D.F. Kurtycz, M.D., Medical Director - Prof. James J. Schauer, Ph.D., Director

Environmental Health Division

WDNR LAB ID: 113133790

NELAP LAB ID: E37658

EPA LAB ID: WI00007, WI00008 WI DATCP ID: 105-415

**WSLH Sample: 379802005**

Report To:

JESSICA GRAY  
ERG  
14555 AVION PARKWAY SUITE 200  
CHANTILLY, VA 20151

Invoice To:

TRINITA WHITE  
ERG  
14555 AVION PARKWAY SUITE 200  
CHANTILLY, VA 20151

Customer ID: 352929

Field #: S03  
Project No:  
Collection End: 5/3/2018 1:14:00 PM  
Collection Start:  
Collected By: CHERYL BURDETT  
Date Received: 5/3/2018  
Date Reported: 5/18/2018  
Sample Reason:

ID#:  
Sample Location:  
Sample Description (b) (6)  
Sample Type: PO-PRIVATE WELL  
Waterbody:  
Point or Outfall:  
Sample Depth:  
Program Code:  
Region Code:  
County:

## Sample Comments

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## Microbiology

Analyte	Analysis Method	Result	Units	LOD	LOQ
Prep Date 05/03/18	Analysis Date 05/04/18				
E. Coli	SM9223BMPN	< 1	MPN/100 mL		1

## Inorganic Chemistry

Analyte	Analysis Method	Result	Units	LOD	LOQ
Prep Date 05/04/18	Analysis Date 05/04/18				
Nitrate + Nitrite (as N)	EPA 353.2	21.9	mg/L	0.300	1.00
Nitrate (as N)- EPA353.2 Calc.	EPA 353.2	21.9	mg/L	0.300	1.00
Prep Date 05/04/18	Analysis Date 05/04/18				
Nitrite (as N)	SM4500 NO2B	ND	mg/L	0.0500	0.150
Prep Date 05/16/18	Analysis Date 05/16/18				
Chloride	SM4500-CL-E	24.7	mg/L	1.00	3.20





D.F. Kurtycz, M.D., Medical Director - Prof. James J. Schauer, Ph.D., Director

Environmental Health Division

WDNR LAB ID: 113133790

NELAP LAB ID: E37658

EPA LAB ID: WI00007, WI00008 WI DATCP ID: 105-415

**WSLH Sample: 379802005**

## Inorganic Chemistry, Dissolved

Analyte	Analysis Method	Result	Units	LOD	LOQ
Prep Date 05/04/18	Analysis Date 05/16/18				
Ammonia	EPA 350.1	ND	mg/L	0.0150	0.0480

### List of Abbreviations:

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 Emergency Chemical Response: Noel Stanton, Lab Manager, 608-224-6251  
 Environmental Toxicology: Tracy Hanke, Lab Manager, 608-224-6270

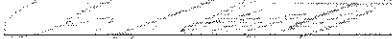
**APPENDIX 3:**  
**U.S EPA, REGION 5**  
**QUALITY ASSURANCE PROJECT**  
**PLAN/ SAMPLING PLAN FOR**  
**ENVIRONMENTAL COMPLIANCE**  
**ASSESSMENT**

**Sampling Dates:**

**April 30, 2018 through May 4, 2018**



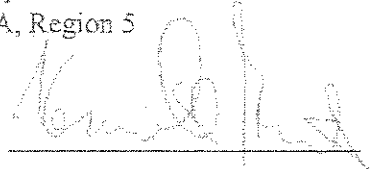
U.S. EPA, Region 5  
QUALITY ASSURANCE PROJECT PLAN/SAMPLING PLAN  
FOR ENVIRONMENTAL COMPLIANCE ASSESSMENT

PREPARED BY: 

Cheryl Burdett, Inspector  
WECAB, U.S. EPA, Region 5

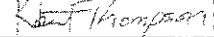
4-26-18

Date

REVIEWED AND APPROVED BY: 

Kenneth Gunter, QAC/Enforcement Officer  
WECAB, U.S. EPA, Region 5

Date

REVIEWED BY: 

Robert Thompson, Chemist  
U.S. EPA, Region 5, CRL Laboratory

Date

Date

APPROVED BY: 

Ryan Bahr, Section 2 Chief  
WECAB, U.S. EPA, Region 5

Date

4/26/18

Site Locations: Central Sands Area  
Juneau County, Wisconsin

Sampling Dates: April 30 – May 4, 2018

## Table of Contents

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- Attachment A – Groundwater Sampling Locations
- Attachment B – GeoProbe Job Hazard Analysis
- Attachment C – Private Well locations
- Attachment D- GeoProbe SOP
- Attachment E – Nitrogen and Oxygen Isotope QAPP (University of Nebraska laboratory)

**I. DISTRIBUTION LIST (Initial after reading)**

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Recipients on this distribution list will be sent updated version of this document or copies of minor changes letters for this document immediately after they are approved. Recipients listed may also obtain the most current copy of the approved Quality Assurance Project Plan (QAPP) by contacting Cheryl Burdett by e-mail at [Burdett.cheryl@epa.gov](mailto:Burdett.cheryl@epa.gov)



## 2. PROJECT ORGANIZATION

The following individuals are responsible for the design and implementation of this project, and/or will be the primary data users and decision makers:

- Cheryl Burdett, EPA Region 5 WECAB Project Lead, is responsible for overseeing the project and the sampling events.
- Dean Maraldo, EPA Region 5, WECAB Environmental Scientist, is responsible for coordinating sampling locations and working with Region 7 on Geoprobe

## 3. PROBLEM, PURPOSE, SCOPE

### 3.1 PROBLEM

The groundwater and surface water in Northern Juneau County, WI is highly contaminated with nitrate and some samples have indicated the presence of coliform bacterial contamination. The groundwater at Central Sands Dairy LLC (CSD) has been tested and had nitrate-nitrite levels of up to 77 mg/L. Groundwater is the major source of drinking water in the area due to its rural location. Sampling efforts in the area have mainly been conducted by third party private and other local government organizations or individuals with a focus on nitrate, because of the established drinking water standard for that compound (10 mg/L).

The local surface water has also become contaminated with high Phosphorus levels leading to blue-green algae blooms that have become a common occurrence in Petenwell Lake, which is recharged in part by the local ground water.

### 3.2 PURPOSE

The purpose of this project is to determine the source of the contamination in the local drinking water aquifer and Petenwell Lake. The purpose is also to collect enough information to develop an enforcement case if determined to be an appropriate mechanism in an effort to provide filtration to homes in the area and lower the contamination of local ground and surface water.

### 3.3 SCOPE

Several residents with wells downgradient of CSD have reported high nitrate levels in their drinking water. CSD applies manure and wastewater to its local fields. The very sandy and permeable soil and shallow water table of this region allows for water to infiltrate the water table quickly.

This investigation requires EPA employees to use a Geoprobe to collect groundwater samples at approximately 41 locations. EPA has set-up transects up-gradient and downgradient of the Central Sands Dairy, LLC production area and fields. EPA will use the Geoprobe to collect samples at varying depths in the ground to characterize the

groundwater to determine where the nitrate contamination in the groundwater is coming from.

EPA will also collect samples from private domestic drinking water wells that are near the transects outlined in the Attachment A.

#### **4.0 PROJECT DESCRIPTION**

##### **4.1 Project/Task Description and Schedule**

This QAPP provides information regarding the collection and analysis of water samples from the groundwater in northwest Juneau County and private drinking wells, to help determine the source of nitrate and phosphorus contamination in groundwater, private wells and local waterbodies. The basic field and analytical tasks required to achieve the objectives of this project are:

1. Collect grab samples of water from designated groundwater locations in Juneau County, Wisconsin listed in Attachment A.
  - a. Anions – Bromide, Chloride, Fluoride, Sulfate
  - b. Total Metals – (Exclude – Mercury and Hexavalent Chromium)
  - c. Nutrients – Total Phosphorus, Ammonia-Nitrogen, TKN, Nitrate-Nitrite, TOCs
  - d. N15 Isotope
  - e. E. coli – If the detection of manure is noted in the groundwater (color, smell, nearby land application) and for private wells
  - f. Total Dissolved Solids, Nitrates
2. Collect samples from faucet or spigots of private drinking water wells listed in Attachment C:
  - a. Nitrate-Nitrite
  - b. N15 Isotope
  - c. E. coli
  - d. Chloride
  - e. Ammonia-Nitrogen
3. Collect and analyze samples for the presence of parameters associated with the Central Sands Groundwater Sampling Project which will begin in April 2018 and is expected to be completed in May 2018. Samples will be collected at 41 locations at varying depths within the ground for approximately 80 -100 samples. Samples will also be taken from a total of 5- 10 private sites (Attachment C). The samples will be analyzed along with one duplicate sample (every 10 samples collected), one equipment blank (per day) and one field blank for QA/QC purposes per day. Below is a schedule for conducting tasks related to this project. The schedule is a guideline only as it is possible that unforeseen circumstances and conditions will require adjustments. A sampling schedule with specific dates and any subsequent changes will be communicated to the EPA lab staff prior to sample collection. The anticipated start date for this project is April 30, 2018.

Task	April 2018										
	18	19	20	24	25	26	27	28	29	30	1
QAPP Approval											
Sample Collection starts										x	X
Lab Analysis starts											X
Ship Samples (CRL)										X	X
Ship Samples (UNL)*										X	X
Task	May 2018										
	2	3	4	5	6	7					
Sample Collection (groundwater)	X	X	X								
Sample Collection (private well)		X									
Ship Samples(CRL)	X	X									
Ship Samples (UNL)	X	X	X								
Hand Deliver (CRL)						x					
Hand Deliver (WSLH)		X									

Hand Deliver to Wisconsin State Laboratory of Hygiene (WSLH) on May 3<sup>rd</sup> and CRL Laboratory on May 7<sup>th</sup>.

\*University of Nebraska Laboratory

#### 4.2 Special Training

Region 7 field personnel are responsible for the use of the Geoprobe to collect samples from varying depths within identified locations as identified in Attachment A. Region 7 are trained in the use of the Geoprobe and will advise Region 5 staff and provide a safety briefing prior to the use of the equipment on April 30, 2018. (Attachment B is Job Hazard Analysis (JHAs) on safety precautions of the Geoprobe)

**4.3 Site Description:** EPA will collect samples up-gradient and downgradient of Central Sands Dairy, LLC within Juneau County, Wisconsin within the defined transects documented in Attachment A.

## 5.0 DATA GENERATION AND ACQUISITION

The elements in this section ensure that the appropriate methods for sampling, measurement, and analysis, data collection, data handling, and QA/QC activities are employed and documented.

### **5.1 Sampling Design (Experimental Design)**

The CRL Laboratory will analyze up to 110 groundwater samples over the course of the project, including quality control samples. There will be 41 locations with 2 samples collected at each location. Duplicates will be taken every 10 samples. Field blanks will be collected each day. One equipment blank will be done each day. Matrix Spike/Matrix Spike Duplicate will be done for every 20 samples. This will be taken directly from the Environmental Sample. EPA staff will collect groundwater samples using a Geoprobe that will collect from groundwater at two depths. EPA will collect samples from private wells either from an outside spigot or faucet. Photographs will be taken of the samples collected at the locations that they were collected. EPA will note in a logbook for photographs: the sample location and groundwater depths for the samples collected. Private wells will have the sample location (address) and where the sample was collected from (e.g. outside spigot, kitchen faucet, etc.) The samples will be shipped to the EPA Region 5 CRL Laboratory, except samples collected on a Friday will be held over the weekend by EPA Project Leader or by the person designated to monitor for preservation requirements. The samples will hand-have delivered to CRL Laboratory personnel the following Monday, May 7, 2018. Samples will be shipped daily to CRL Laboratory that have holding times of 48 hours or less. Samples with holding times equal to or less than 48 hours collected on Friday will be driven to Wisconsin Laboratory of Hygiene.

The sampling locations are identified in Attachment A.

The sampling period was selected based on conditions that are suitable for groundwater flow and manure applications.

If sample sites become inaccessible, a nearby, safely accessible, representative location may be sampled instead. Sampling at a location different from the designated sample site will be noted on field datasheets and chain-of-custody forms. Participants will be informed of sampling at a different, representative location.

#### **5.1.1 Sampling Schedule**

All sites will be sampled during the week of April 30 through May 5, 2018.

#### **5.1.2. Health and Safety**

During sample collection, field personnel are exposed to water that is likely to be contaminated with bacteria and other pathogens. Although coliforms are not usually pathogenic themselves, their presence is an indicator of potential pathogenic bacterial or viral contamination. It is expected that field personnel will use good hygiene and good sense in undertaking sampling activities. Powder-free rubber or latex gloves are available for use. Hands are washed thoroughly with soap and water or antibacterial hand sanitizer as soon as possible after sampling at sites that may be contaminated with biological pathogens, and again prior to eating or drinking. Sampling equipment are cleaned and dried after use.

No water quality measurement is worth risking injury or death. Field personnel must be aware of the environment and safety requirements around the Geoprobe, use common sense and training, and not exceed their abilities or limits. Field work is never conducted alone. All EPA safety requirements and guidelines will be followed at all times while conducting fieldwork.

Adverse weather (high winds/lightening/etc.) may delay or prevent sampling from occurring for health and safety concerns

(Attachment B -JHAs for Geoprobe). Safety procedures in the Region 5 Health and Safety Manual -R1440 (May 2000 edition) are followed during the inspection

## **5.2 Sample Identification**

Sampling locations and site identifications have been assigned by EPA. Each sample collected by the EPA Region5 field staff will be assigned a unique laboratory sample number. Sample numbers will be assigned by the letter of the transect followed by a number.

A-E (1-13): Identified Transect (Groundwater)

a-b: Water Table Depth – (a=deep, b = shallow)

S01-S07 – Private Well

Prior to collecting a sample, the Sample bottles are labeled with the following information:

- Region 5 Sample ID (the unique field staff sample ID identified above)
- Sample collection date and time
- Laboratory analysis requested

## **5.3 Sampling Method**

### **5.3.1 Sample Bottles**

All bottles are listed in Section 6.0 and are provided by CRL Laboratory and/or Wisconsin Laboratory of Hygiene.

### 5.3.2 Sample Collection and Handling - Geoprobe

Sample collection will be done using a Geoprobe. When arriving at a sample site, identify the location (flattest ground) Geoprobe will be pushed into the ground at depths between 40 – 80 feet. The Geoprobe will purge approximately one gallon of water. Next a small sample will be collected and analyzed for ambient parameters, such as pH and temperature at this time. Hach test strips will be used to screen for the presence of chloride (30-600 mg/L) and nitrate-nitrite (0 -50 mg/L) in the groundwater. Further samples will be pulled and collected directly into the identified bottle for the parameters to be analyzed (see Section 6.0). The Geoprobe will again purge approximately 1 gallon of water. It will be pulled up to the next sampling depth anywhere from 10 -30 feet below the ground. The Geoprobe will be purged again approximately 1-gallon of water. A small amount of water will be collected to be analyze for ambient parameters, such as pH and temperature. Along with using Hach test strips for nitrates and chloride. Following these tests the sample parameters listed under Section 6.0 will be collected at sample locations in the order of Attachment A. Sample tubing will be discarded at completion of sampling at each sampling location. Review Attachment E for decontamination procedures of the Geoprobe. At each sample location, EPA field staff will use new sample tubing for the.

### 5.3.3. Sample Collection and Handling – Private Well

EPA will also be collecting samples for the identified parameters under section 6.0 from either a spigot or faucet from the identified private wells identified under Attachment C. Always follow standard operating procedures, when handling a sample.

### 5.3.4. Groundwater Sampling Procedures

EPA will use a Geoprobe -which is a diesel track mounted probe on the inside of a government pickup truck. The Direct Push-Technique (DPT) is operated by use of a hydraulic pump and powered by a gasoline or diesel engine (typically the engine for the truck or the standalone track-mounted rig). The DPT unit, fitted with a percussion hammer, is often capable of exerting over 37000 pounds of downward force, with the weight of the vehicle/frame providing most of the force.

We will be using the “protected screen tools” on page 8 of the “Standard Operating Procedure No. 4230.7C Geoprobe Operation May 2017”. (Attachment D)

- a. Parameters such as pH and temperature will be recorded using a probe, along with Hach Nitrate and Chloride test strips at each sampling point. The probe is calibrated each day prior to use in the field. Records from this calibration are kept in booklets dedicated to the project.
- b. Before taking the first sample assemble the bottle set for this sample site. **Complete the bottle labels with the time and date, parameters, water depth, and preservation method.** Then place clear tape over each label. Then place the bottles in zip lock bags.

- c. The Geoprobe will push the water from the groundwater up through a hose, EPA will wear gloves and put the appropriate bottle under the stream of water coming to collect the sample.
- d. Collect the samples into HDPE sample bottles for the appropriate size as specified under section 6.0.
- e. EPA will collect an equipment blank at the end of each day of the project.
- f. EPA will collect a field blank at the 1<sup>st</sup> sampling location and the start of each new day.
- g. EPA will collect a duplicate at the start for the 1<sup>st</sup> sample and every 10 samples thereafter to verify method and analyses are consistent for each parameter.
- h. EPA will mark on the chain-of-custody which sample will be used for the matrix sample (this is not a separate sample, but QA check on a Environmental Sample already collected) and this will be done every 20 samples.
- i. Following sampling and preservation. EPA immediately packs sample bottles in coolers and chills them to less than 6 degrees Celsius. EPA will make best efforts to collect samples for delivery to CRL on (May 1<sup>st</sup>, 2, and 3<sup>rd</sup>). EPA will hand-deliver the samples to the lab that were collected on May 4, 2018 on May 7, 2018. EPA will continue to check samples to verify ice is keeping the samples at 6 degrees Celsius over the weekend (May 5-6).

Under section 6.0 of the QAPP/SAMP contains a listing of parameters to be analyzed, analytical methods, preservatives, and containers to be used during this project. EPA inspectors contact the CRL and Wisconsin State Laboratory of Hygiene at the end of each business day to inform them that samples will be shipped and the number of samples the laboratory should expect for analysis.

- j. Each hole drilled by the geo-probe will be filled in using sodium bentonite.

#### **5.3.5 Private Well Sampling Procedures**

- a. Private wells unfiltered samples will be collected directly from the faucet or other sampling point. Make sure not to touch the bottles to spigot or faucet. Sampling from an outdoor hose bib is acceptable.
- b. Parameters such as pH and temperature will be recorded using a Hach probe. The probe is calibrated each day prior to use in the field. Records from this calibration are kept in booklets dedicated to the project.

- c. Parameters to be collected are located under section 6.0 of QAPP/SAMP where the numbers of containers, the preservation and much other data useful to the sampling crew is located.
- d. Before taking your first sample assemble the bottle set for this sample. **Complete the bottle labels with the time and date, parameters, and preservation method.** Then place clear tape over each label. Then place the bottles in zip lock bags.
- e. The team will make certain that no water softening equipment or reverse-osmosis treatment units are in use. If such equipment is present, the sample will be obtained before (upstream) of the softening or RO unit. Filtered samples will not be collected.
- f. For setup, a table may be temporarily placed near the sampling location. Any filter or aerator will be removed from the faucet prior to sampling and replaced after sampling.
- g. The selected household cold water faucets/taps will be purged for a minimum of 1-2 minutes prior to sampling. The purpose of purging is to clear the delivery system of stagnant water and provide fresh water for sampling.
- h. Take a nitrate-nitrite (0-50mg/L) and chloride (30-600 mg/L) test strip and pH and temperature measurement. Record the values on the field data sheet.
- i. Wearing nitrile gloves. Fill the entire bottle set for this location. The bottles are to be filled in the order specified on the field data sheet. Hold the caps in one hand and the bottle in the other – do not place the caps on any surface. Screw the caps securely onto each bottle after it is filled. Note the time of sampling on the field data form.
- j. Some samples require preservation. Nutrient sample needs addition of H<sub>2</sub>SO<sub>4</sub> (sulfuric acid) to pH less than 2. Metals sample needs addition of Nitric Acid and pH less than 2. All samples on ice < 6 degrees F.
- k. Sample pH will be spot-checked in the field to determine adequate preservation, and additional acid will be added if needed. Sample preservation requirements are included under 6.0. For the spot check, pour a small amount of the acidified sample into a clean 50 ml beaker and using a multi-indicator test strip, make sure the pH is less than 2. If so, cap the bottle, if not add more acid and recheck.
- l. Samples will be placed in coolers as described under section 6.0 for shipment or hand-delivery to each designated laboratory.



### 5.3.6 Decontamination Procedures:

Geoprobe will be rinsed off with water and new sampling tube will be used at every sample location. Every sample site the tube will be purged with 1 gallon of groundwater prior to the collection of the sample. Decontamination procedures are generally necessary for this sampling activity.

### 5.3.7 Sample Packaging and Transport

EPA puts all samples in zip lock bags and packs them in the cooler. Samples will be packed in zip lock bags and surround the samples. EPA places a chain of custody form inside a zip lock bag, taped to the top of the inside lid of the sample cooler. EPA tapes each sample cooler shut and places custody seals on 2 -4 sides of the cooler. Alternatively, EPA may place the samples in a plastic garbage bag inside the cooler, seal the garbage bag with tape, and place a custody seal around the tape. EPA inspectors will ship and deliver samples to CRL.

## 5.4 Sampling Handling, Custody, and Documentation

The samples are stored on ice and preserved with the specified preservation methods upon collection and are shipped or driven to the specified lab within 24 – 72 of collection to the EPA Region 5 CRL or the approved contract laboratory Wisconsin Laboratory of Hygiene. Region 5 field staff will either ship or drive the samples depending on holding times and/or day of collection in different coolers.

Region 5 CRL Laboratory must receive all samples no later than Friday of the sampling week to allow sufficient time for filtration and initial processing of the samples without staff overtime or compensatory time charges. Samples are accepted for analysis only if the temperature control measures below 6°C but above freezing at the time the samples are received by EPA Region 5 CRL Laboratory staff. The Region 5 field staff and lab staff are notified of the anticipated field sampling schedule prior to collection and are provided with the required shipment information on the day of each sample shipment (e.g., air bill or tracking number, number of samples for analysis, project code, date shipped).

Bottles are labeled with the unique sample site identifier prior to sampling.

An EPA Region 5 chain-of-custody form accompanies the samples, and includes the following for each sample:

- Site location information
- Sample number (the EPA Region 5 field staff sample ID)
- Site description/ID (street name and side of street)
- Date sample collected
- Time sample collected
- EPA Project Code
- Water Sample Depth

- Private well samples will include location of sample (outside spigot, basement, kitchen sink, etc.)

The chain-of-custody form is signed and dated for relinquishment of custody upon shipment to the EPA Region 5 laboratory and/or Wisconsin Laboratory of Hygiene. A copy of the chain-of-custody form is attached as Appendix E.

### 6.0 Chain-of-Custody, Storage, and Transportation

All samples will be tagged with an ID which indicates the general location of the sample. Standard chain of custody forms will be used. Fecal coliform or E. coli and nitrate samples will be transported by car to the appropriate independent laboratory listed below in Section 6.0.

All other samples will be transported to EPA Region 5 Chicago Regional Laboratory:

Chicago Regional Laboratory  
10<sup>th</sup> Floor  
536 S. Clark  
Chicago, IL 60605

### 6.1 Sample Parameters to Be shipped and analyzed and hand-delivered to CRL Laboratory (Groundwater Only)

Total Number of Samples	Matrix	Bottle size	Parameters/Analytical Method	Preservation	Holding Time	Sample Collection	Duplicates
82	AQ (water)	500 mL HDPE bottle	Ammonia - SM4500-NH3 B/H, TOCS - EPA 5310B Nitrate + Nitrite - NECI Method N07-0003 Total Phosphorus- EPA 365.4 TKN-EPA 351.2	H2SO4 to pH<2 <6 degrees	28 days	Grab	8
82	AQ (water)	500 mL HDPE bottle	Total Metals EPA 200.7/200.8	HN03 to pH<2 <6 degrees	180 days	Grab	8
82	AQ (water)	1 L HDPE Bottle	Anions (Br, Cl, F, SO4,) EPA 300.0 TDS Method SM 2540C	<6 degrees	Anions - 28 days TDS - 7 days	Grab	8

6.2 Sample Parameter to be shipped and analyzed by:

University of Nebraska Laboratory (Groundwater and Private Wells)

Nitrate and N15 isotope	
Bottle Type	250 ml high-density polyethylene cylinder-round with polyethylene unlined cap (liquids). Grab sample
Preservation	Stored on dry ice at -20 F
Holding Times	Maximum holding time 48 hours
Number of samples	89
Duplicates	None

6.3 Samples to be hand-delivered to and analyzed by Wisconsin Laboratory of Hygiene (Private Wells Only – except for Nitrates as needed due to holding time)

Wisconsin Laboratory of Hygiene  
2601 Agriculture Drive, PO Box 7904 Madison, WI 53718

E. coli	Drinking Water method
Bottle Type	250 mL autoclaved polyethylene bottles.
Preservation	Stored on ice at 6 degrees Celsius.
Holding Time	Maximum holding time is 6 hours.
Number of samples	5 -15
Collection Method	Grab

Nitrates+Nitrites, Nitrites and Ammonia- Nitrogen	Drinking Water Method
Bottle Type	250 mL polyethylene bottles.
Preservation	Stored on ice at 6 degrees Celsius. H2SO4, pH <2
Holding Time	Maximum holding time is 48 hours.
Number of Samples	5- 7
Collection Method	Grab

chloride	Drinking Water Method
Bottle Type	250 mL polyethylene bottles.
Preservation	Stored on ice at 6 degrees Celsius.
Holding Time	Maximum holding time is 48 hours.
Number of samples	5-7
Collection Method	Grab

- 6.6 Safety Equipment for Collecting Samples:
- Nitrile gloves
  - Long pants
  - Lineman gloves
  - Steel Toe boots
  - Safety Glasses

Ear Plugs  
Hard Hats

6.6.1 EQUIPMENT:

Equipment	Location	Contact
Steel toe boots and Nitrile Gloves, Ear plugs, Safety glasses	10 <sup>th</sup> Floor Safety Supply Closet	John Glover
Sample bottles	CRL Lab 7 <sup>th</sup> floor Common Use Room	Amanda Wroble Rob Snyder
pH buffers	15 <sup>th</sup> floor north side copy room closet	Cheryl Burdett Joan Rogers
Sulfuric Acid	CRL	Amanda Wroble Rob Snyder
Nitric Acid	CRL	Amanda Wroble Rob Snyder
Duct Tap	15 <sup>th</sup> floor north side copy room closet	Cheryl Burdett Joan Rogers
Chain of Custody Forms	15 <sup>th</sup> floor north side copy room closet	Cheryl Burdett Joan Rogers
Sample Labels	15 <sup>th</sup> floor north side copy room closet	Cheryl Burdett Joan Rogers
Rite in the rain notebooks	15 <sup>th</sup> floor file cabinet	Cheryl Burdett Joan Rogers
Sharpies	15 <sup>th</sup> floor north side copy room closet	Cheryl Burdett Joan Rogers
DI- Water = Gallons	CRL	Amanda Wroble Rob Snyder
Tap Water	Nearby source	Region 7 and nearby sources
pH Test Strips	CRL	Amanda Wroble Rob Snyder
Nitrate Hach Strips	15 <sup>th</sup> Floor Metcalf	Joan Rogers
Chloride Hach Strips	15 <sup>th</sup> Floor Metcalf	Joan Rogers
pH Test Strips	CRL	Amanda Wroble Rob Snyder
Clear Tape	Mail Room	13 <sup>th</sup> Floor
Bentonite	Allied COOP	Scott Thurs

6.6.2 Quality Control

QA/QC Type	Description	Number of Samples for the Project
Environmental Sample	A sample of any material that is collected from the environmental sources (i.e. groundwater and/or faucet or spigot)	82 samples of groundwater and 5 samples at private wells
Duplicate	Environmental sample collected after the primary sample. Environmental Duplicate indicates field variability and laboratory precision	10% of samples collected (8 duplicates) analyzed as separate sample

Equipment Blank	Prepared in the field by pouring DI water through/over the sampling equipment (Geoprobe).	One per day; analyzed as separate sample
Field Blank	A clean sample (e.g. DI Water) prepared in the field and exposed to field conditions (e.g. bottle caps removed, preservatives added) and treated as an environmental sample.	One each day; analyzed as separate sample
Matrix Spike/ Matrix spike duplicate	Environmental sample will be analyzed for MS/MSD to establish the applicability of the overall analytical approach (e.g. preparative, clean-up, and determinative method) to the specific matrix from the site of interest.	One per 20 samples analyzed as part of the sample collected

## 7. ACRONYMS AND ABBEVIATIONS

CAFO	Concentrated Animal Feeding Operation
COC	Chain of Custody
CRL	Chicago Regional Laboratory
CSD	Central Sands Dairy LLC
DNR	Wisconsin Department of Natural Resources
EPA	United States Environmental Protection Agency
QAPP	Quality Assurance Project Plan
QA	Quality Assurance
QC	Quality Control
QA/QC	Quality Assurance/Quality Control
SOP	Standard Operating Procedure

ATTACHMENT A – Sampling Locations

Location	Y	X	Distance from center of street _ Ft	Side of the street	Street
A1	44.24912	-89.96744	17	South	1 <sup>st</sup> street
A2	44.24886	-89.97647	17	West	22 <sup>nd</sup> Avenue North
A3	44.24193	-89.98285	17	North	2 <sup>nd</sup> Street
A4	44.23856	-89.99124	17	West	Cranberry Rock Road
B1	44.22733	-89.99613	22	East	20 <sup>th</sup> Street
B2	44.22744	-89.98546	17	South	3 <sup>rd</sup> Street
B3	44.22756	-89.9762	18	North	3 <sup>rd</sup> Street
B4	44.22749	-89.96628	17	South	3 <sup>rd</sup> Street
C1	44.24207	-89.95537	25	South	2 <sup>nd</sup> Street
C2	44.23465	-89.9558	20	West	Nelson Road
C3	44.22753	-89.95797	17	South	3 <sup>rd</sup> Street
C4	NO C4 -IT IS SKIPPED				
C5	NO C5 -IT IS SKIPPED				
C5A	44.22239	-89.95595	20	West	Nelson Road
C6	44.21665	-89.95596	20	West	Nelson Road
C7	44.21313	-89.95805	18	North	4 <sup>th</sup> Street
C8	44.21312	-89.96479	18	North	4 <sup>th</sup> Street
C10	44.21312	-89.98337	18	North	4 <sup>th</sup> Street
C11	44.21345	-89.99601	18	East	20 <sup>th</sup> Avenue

C12	44.21318	-90.01629	15	East	19 <sup>th</sup> Avenue
C13	44.21308	-90.03365	15	South	4 <sup>th</sup> Street
D1	44.19875	-90.03886	18	North	5 <sup>th</sup> Street
D2	44.19854	-90.01042	18	South	5 <sup>th</sup> Street
D3	44.19852	-89.99729	18	South	5 <sup>th</sup> Street
D4	44.19852	-89.98148	18	South	5 <sup>th</sup> Street
D5	44.19855	-89.96628	18	South	5 <sup>th</sup> Street
D6	44.19859	-89.95596	21	South	5 <sup>th</sup> street
D7	44.19706	-89.93847	15	East	23 <sup>rd</sup> Avenue
D8	44.20438	-89.9387	15	West	23 <sup>rd</sup> Avenue
D9	44.21466	-89.93884	15	West	23 <sup>rd</sup> Avenue
D10	44.22618	-89.93877	16	East	23 <sup>rd</sup> Avenue
D11	44.23955	-89.93899	15	West	23 <sup>rd</sup> Avenue
E1	44.18826	-89.93861	15	East	23 <sup>rd</sup> Avenue
E2	44.18509	-89.94872	17	East	Porter Road
E3	44.17225	-89.94896	18	North	7 <sup>th</sup> Street
E4	44.1732	-89.96368	19	North	7 <sup>th</sup> street
E5	44.17337	-89.97885	18	North	7 <sup>th</sup> Street
E6	44.17351	-89.9958	17	East	20 <sup>th</sup> Avenue
E7	44.16974	-90.01134	17	East	7 <sup>th</sup> Street
E8	44.16973	-90.02793	19	North	7 <sup>th</sup> Street
E9	44.16969	-90.04472	18	North	7 <sup>th</sup> Street
E10	44.15513	-90.06304	15	North	8 <sup>th</sup> street





Attachment B

1. JOB HAZARD ANALYSIS

Hazard Types (HT)		Job Task:	Geoprobe® Operations																													
1. Toxic Chemical 2. Flammable Chemicals 3. Corrosive Chemicals 4. Environmental 5. Explosion (Chemical Reaction) 6. Explosion (Over-pressurization) 7. Mechanical/Vibration 8. Electrical (Shock, Short Circuit) 9. Electrical (Fire) 10. Electrical (Static, ESD) 11. Electrical (Loss of Power) 12. Ergonomic (Overexertion) 13. Ergonomic (Human Error) 14. Vibration	15. Fall (Slips/Trips) 16. Fall (To a Different Level) 17. Excavation (Collapse) 18. Fire, Heat, Thermal, Cold 19. Noise 20. Radiation (Ionizing/Non-ionizing) 21. Visibility 22. Weather 23. Caught (In, On, Between) 24. Struck (By, Against) 25. Driving 26. Confined Space 27. Other	Job Frequency/Duration: 10 – 12 weeks per year  Tools Used: Geoprobe® Equipment  PPE Used Leather Gloves Hard Hat Steel-toed Boots Hi-vis Clothing/and or reflective vests Safety Glasses Hearing Protection Tyvek or latex boot covers as needed	CRITICAL TO SAFETY (CTS)  Risk Estimation Matrix: <table border="1"> <thead> <tr> <th rowspan="2">Probability of Occurrence of Harm</th> <th colspan="4">SEVERITY OF HARM</th> </tr> <tr> <th>Catastrophic</th> <th>Serious</th> <th>Moderate</th> <th>Minor</th> </tr> </thead> <tbody> <tr> <th>VERY LIKELY</th> <td>Extreme</td> <td>High</td> <td>High</td> <td>Medium</td> </tr> <tr> <th>LIKELY</th> <td>High</td> <td>High</td> <td>Medium</td> <td>Low</td> </tr> <tr> <th>UNLIKELY</th> <td>Medium</td> <td>Medium</td> <td>Low</td> <td>Very Low</td> </tr> <tr> <th>REMOTE</th> <td>Low</td> <td>Low</td> <td>Very Low</td> <td>Very Low</td> </tr> </tbody> </table> <p>* High = CTS tasks should receive engineering controls prior to assigning administrative or PPE controls.</p>	Probability of Occurrence of Harm	SEVERITY OF HARM				Catastrophic	Serious	Moderate	Minor	VERY LIKELY	Extreme	High	High	Medium	LIKELY	High	High	Medium	Low	UNLIKELY	Medium	Medium	Low	Very Low	REMOTE	Low	Low	Very Low	Very Low
Probability of Occurrence of Harm	SEVERITY OF HARM																															
	Catastrophic	Serious	Moderate	Minor																												
VERY LIKELY	Extreme	High	High	Medium																												
LIKELY	High	High	Medium	Low																												
UNLIKELY	Medium	Medium	Low	Very Low																												
REMOTE	Low	Low	Very Low	Very Low																												

Job Description: Personnel utilize Geoprobe® to conduct sampling operations to substantiate releases to the environment.

Step	Procedures (LOP Procedure Step)	Potential Hazards	HT	Check	Recommended Safe Practice	PPE
1	Mobilization/Demobilization - Equipment loading	-Equipment & supplies loading/unloading; struck by equipment; potential pinch points & obstructions;	12, 23, 24	Low	- Use remote for operation of Geoprobe® during loading / unloading on trailer; awareness of personnel / equipment movement. -Use mechanical equipment for lifting whenever possible. - Use the buddy system when lifting heavy tools and supplies.	Leather Gloves & Steel Toed Boots

		- Heavy lifting, dropped objects.			- Use proper lifting techniques, i.e., bending at knees, keeping your back straight, keeping the load close to your body, and using your legs.  - Stretch / warm-up before heavy lifting.	
2	Mobilization/Demobilization	Slip, Trips, Falls	15, 16	Low	Awareness of surroundings/work area; keep staging/loading/unloading area organized with clear paths to vehicle(s)/trailer(s)	Leather Gloves and Steel Toed Boots
3	Driving to and from the field site	Motor Vehicle Accident	21, 22	Low	Stay alert, be aware of traffic around you. Obey all traffic laws, reduce speed for inclement weather conditions; not texting while driving, hands-free cellular set-up, or preferably, stop at appropriate location to make phone calls and check messages.	None
4	Towing and Trailing	Unsecured or improperly secured load.	13, 21, 22, 24, 25	Low	Increase stopping distance if you have a heavy trailer load. Be aware of restricted vision with a tall trailer. Suitable training and/or experience for towing trailer; pre-trip check of trailer/hitch for road-worthiness; spare tire & jack present and functional; all equipment & materials stowed & secured. Ensure all items are secured and will not become untied or bounce off trailer.	None
5	Hitching/unhitching		23, 24	Low	Complete trailer pre-check of lights, tire pressure,	None
6	Site Set Up/Prep	Brush & Site Clearing, work on/near roadway; potential injury from equipment/terrain/rain/traffic	12, 8	Low	Proper use of power equipment, e.g., chain saw, requires appropriate experience and/or training; implement traffic control measures if/as needed.	Safety Glasses & steel toed boots. Hearing PPE & hard hat may be required.  Hi-vis clothing and/or reflective vests if on/near roadway/traffic areas
7	Site Set Up/Prep	Underground Utilities	8	Low	Call before you dig! Before proceeding with any subsurface investigation call 811 or visit <a href="http://www.call811.com">www.call811.com</a> to get connected with local one call center for the state where project activities will	As above

					occur. Underground utilities, if present, will be marked by the service. ALSO, contact city utilities, sometimes street lights/ water line is not identified by one call.	
8.	Site Set Up/Prep	Ground Obstructions, if present	12	Low	Use suitable equipment and/or proper siting techniques to remove obstruction(s) prior to positioning Geoprobe®	As above
9.	Site Set Up/Prep	Overhead obstructions/ utilities	8	Low	Evaluate clearance to overhead obstruction(s); maintain adequate clearance from electrical wires.	As above
10.	Geoprobe® Operation – General Precautions	Injury during Geoprobe® Operation	1, 4, 7, 12, 13, 14, 19, 22, 23, 24	Medium	<ul style="list-style-type: none"> <li>- Entry to work zone only by authorized personnel</li> <li>- Stay alert, observant, and maintain effective communications between all team members on site.</li> <li>- No work will occur during electrical storms.</li> <li>- Read all safety tips in the Geoprobe® Owner's Manual.</li> <li>- Operator should have copy of owner's manual and site safety plan near Geoprobe®.</li> <li>- Air monitoring may be required on site dependent on contaminants present. This should be covered in Site Health and Safety Plan.</li> <li>- Untrained personnel should be assisted / trained by a qualified operator.</li> <li>- ALWAYS know the location of buried or underground utilities and services BEFORE pushing tools at any job site.</li> <li>- Heed all CAUTION, WARNING, and DANGER decals posted on the machine.</li> <li>- In the event of a problem, the operator should release all control levers and hit the kill switch. The spring-loaded levers will automatically return to the neutral position and machine operation will cease.</li> <li>- Do not wear loose clothing while operating this machine. Severe injury can result if clothing becomes entangled in moving parts.</li> <li>- Operating controls and gauges should be kept free of debris, grease, oil, etc.</li> </ul>	<p>During Geoprobe® operation, the following eye, ear, foot and head protection are required:</p> <p>Safety glasses, hearing protection, safety-toen boots, and hard hat <u>must</u> be worn during Geoprobe® operation.</p> <p>Leather gloves should be worn when handling metal tooling.</p> <p>For the safety boots, a sturdy, over-the-ankle pair is recommended.</p> <p>Tyvek® or latex boot covers may be needed / desirable if site is contaminated and/or muddy</p>

					<ul style="list-style-type: none"> <li>- Familiarize site personnel with location of Geoprobe® Emergency Kill switch button, in case of emergency.</li> <li>- Do not make modifications or add attachments to this machine which are not approved by Geoprobe® Systems.</li> <li>- Avoid hydraulic fluid leaks. Pressurized fluid may be injected into the skin resulting in serious bodily injury.</li> </ul>	Hi-Vis clothing and/or reflective vests if on/ near roadway / traffic area
11.	Geoprobe® Operation – Driving	Injury during Geoprobe® driving	16, 24	Medium	<ul style="list-style-type: none"> <li>- The unit should only be driven when both outriggers are fully raised.</li> <li>- Do not drive with winch mast/probe cylinder extended; be sure of overhead clearance before raising Geoprobe® winch mast/probe cylinder.</li> <li>- Use special caution when moving the Geoprobe® on/off trailer/truck using ramps when wet or icy as it is significantly easier for the tracks to slip under such conditions.</li> <li>- Lower engine speed to provide more precise control of the track assemblies when maneuvering the unit in close quarters. USE caution as Geoprobe® tends to die if RPMs are too low which allows unit to “free wheel” and roll.</li> <li>- Do not attempt to drive the unit on slopes of more than 30 degrees. Always drive straight up or down steep grades. Avoid sideslopes whenever possible. Continuous operation should be limited to slopes of less than 20 degrees to avoid engine damage.</li> </ul>	As above
12.	Geoprobe® Operation/Tool Handling – Pushing tools and/or auguring at the borehole location.	Injury during Geoprobe® operation/tool handling	7, 14, 23, 24	Medium	<ul style="list-style-type: none"> <li>- Designate one person to operate the machine while probing or auguring. This will avoid injuries from having someone unexpectedly engage the machine controls while another person is working near the machine / tools.</li> <li>- Operator must stand to the control side of the machine, clear of the probe foot and derrick, while operating the controls. Never reach across the probe assembly to manipulate the machine controls.</li> <li>- When using an assistant to assemble tool-string, ensure hands are clear when engaging tower on either the pull cup or drive head.</li> <li>- Ensure all personnel clear of all moving parts before starting the Geoprobe®.</li> </ul>	As Above

					<ul style="list-style-type: none"> <li>- Keep feet clear when lowering probe foot.</li> <li>- Never place your hands on top of the tool string while raising or lowering the GH60 hammer.</li> <li>- Limit the rate at which the GH60 hammer is lowered while advancing the tool string to avoid raising the probe foot more than approximately 5 inches off of the ground surface.</li> <li>- Never move the probe assembly (swing, extend, fold, etc.) or operate the tracks while anyone is in physical contact with the tool string.</li> <li>- When operating the unit on sloped surfaces, always position the unit parallel with the slope. This provides the greatest degree of stability and will limit shifting during probing or auguring operations. Position the track-mounted machine with the control panel uplope whenever possible so the machine will roll away from the operator if it becomes unstable and moves unexpectedly.</li> <li>- Do not extend the outriggers such that the tracks are raised off of the ground more than one or two inches. Raising the tracks several inches off of the ground surface decreases the stability of the machine and provides no operational advantage.</li> <li>- Never raise the machine foot more than a few inches from the ground surface with the probe cylinder and/or winch most fully extended. If the foot must be raised significantly, first lower the hammer and winch.</li> <li>- Use caution when probing on loose or soft surfaces. Reduced weight on the tracks may allow the unit to shift or slide under such conditions.</li> </ul> <p>Always place the machine foot firmly on the ground when pulling tools from the subsurface.</p> <ul style="list-style-type: none"> <li>- When operating inside buildings consider diesel exhaust and vent accordingly.</li> </ul>
13.	Geoprobe® Operation/Tool Handling – On-going Operational Support	Injury during Geoprobe® operation/tool and supply handling	12, 24	Low	<ul style="list-style-type: none"> <li>- Use mechanical equipment for lifting whenever possible.</li> <li>- Use the buddy system when lifting heavy tools and supplies.</li> </ul>

					<ul style="list-style-type: none"> <li>- Use proper lifting techniques, i.e., bending at knees, keeping your back straight, keeping the load close to your body, and using your legs.</li> <li>- Stretch / warm-up before heavy lifting</li> <li>- Rotating parts can cause serious injuries. - Shut off the engine before attempting to clean or service the unit.</li> </ul>	
14.	Sampling & Geoprobe/Equipment Decon	Exposure to contaminants during sample/equipment handling and/or decon operations; exposure to reagents during sample analysis/preservation; spray or splash into eyes	1, 4	Low	<ul style="list-style-type: none"> <li>- Wear PPE appropriate for the contaminant(s) of concern (COC) and/or reagents that are present/used at the site.</li> <li>- Decon activities should only be conducted in designated area with spill containment and/or proper drainage.</li> </ul>	As described in Site Health and Safety Plan.

**HAZARDS --NOTE ALL POTENTIAL HAZARDS ASSOCIATED WITH THE JOB (CHECK ALL THAT APPLY)**

Physical				
General	<input checked="" type="checkbox"/>	thermal stress	<input checked="" type="checkbox"/> cold	<input checked="" type="checkbox"/> noise
	<input type="checkbox"/>	explosion	<input type="checkbox"/> fire	<input checked="" type="checkbox"/> weather
	<input checked="" type="checkbox"/>	fatigue	<input type="checkbox"/> violence	<input checked="" type="checkbox"/> illness/injury
Radiation	<input checked="" type="checkbox"/>	ionizing	<input type="checkbox"/> microwave	<input type="checkbox"/> light
Vehicles	<input checked="" type="checkbox"/>	traffic	<input type="checkbox"/> heavy equip	<input type="checkbox"/> forklift
	<input type="checkbox"/>	helicopter	<input type="checkbox"/> small aircraft	<input checked="" type="checkbox"/> Boat
Boat Ops	<input type="checkbox"/>	sediment sampling	<input type="checkbox"/> rapid water	<input type="checkbox"/> open water
	<input type="checkbox"/>	diving	<input type="checkbox"/> electrofish	
Industrial	<input type="checkbox"/>	comp gas	<input type="checkbox"/> electricity	<input type="checkbox"/> confined space
	<input type="checkbox"/>	equip	<input type="checkbox"/> moving parts	
Overhead	<input checked="" type="checkbox"/>	obstruction	<input type="checkbox"/> falling objects	
Elevation	<input type="checkbox"/>	roof	<input type="checkbox"/> scaffold	<input type="checkbox"/> ladder
	<input type="checkbox"/>	stairs	<input type="checkbox"/> catwalk	
Slips/trips	<input checked="" type="checkbox"/>	terrain	<input checked="" type="checkbox"/> debris	<input checked="" type="checkbox"/> slippery
	<input type="checkbox"/>	trench	<input checked="" type="checkbox"/> pits/holes	
Other physical hazards:		<input type="checkbox"/>	UXO	

Biological				
Agriculture	<input type="checkbox"/>	CAFO	<input type="checkbox"/> fish	<input type="checkbox"/> farm animals
Animals	<input checked="" type="checkbox"/>	dogs	<input checked="" type="checkbox"/> feral animals	<input checked="" type="checkbox"/> snakes
Insects	<input checked="" type="checkbox"/>	spiders	<input checked="" type="checkbox"/> mosquitoes	<input checked="" type="checkbox"/> wasp/hornet
	<input checked="" type="checkbox"/>	bees		
Pathogens	<input type="checkbox"/>	bloodborne	<input type="checkbox"/> sewage	<input type="checkbox"/> med/lab
Other Biological:	<input checked="" type="checkbox"/>	poisonous plants, domestic animals, scorpions		

Chemical				
Containers	<input type="checkbox"/>	ammonia	<input type="checkbox"/> chlorine	<input type="checkbox"/> other
VOCs	<input type="checkbox"/>	solvents	<input checked="" type="checkbox"/> fuel	<input type="checkbox"/> oils
Wastes	<input type="checkbox"/>	sewer	<input type="checkbox"/> landfill	<input type="checkbox"/> smoke/dust/fume
	<input type="checkbox"/>	metals	<input type="checkbox"/> PCBs	<input type="checkbox"/> paints/surfacing
Particulates	<input type="checkbox"/>	fibers	<input type="checkbox"/> diesel	<input type="checkbox"/> asbestos
Sampling	<input type="checkbox"/>	acids	<input type="checkbox"/> bases	
Other Chemicals:	<input type="checkbox"/>	VOCs, SVOCs, pesticides, herbicides, radionuclide, explosives, perchlorate; chemistry laboratories with abandoned chemicals		

**PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED (CHECK ALL THAT APPLY)**

**OTHER REQUIRED SAFETY EQUIPMENT/TRAINING**

Feet:	<input type="checkbox"/>	safety boots	<input checked="" type="checkbox"/>	steel-toe boots	<input type="checkbox"/>	shank
	<input type="checkbox"/>	rubber boots	<input type="checkbox"/>	waders	<input type="checkbox"/>	Other:
Gloves:	<input checked="" type="checkbox"/>	leather	<input type="checkbox"/>	cotton	<input checked="" type="checkbox"/>	cut-resistant
	<input type="checkbox"/>	chemical resist	<input checked="" type="checkbox"/>	disposable		
Body:	<input checked="" type="checkbox"/>	safety vest	<input type="checkbox"/>	pdf	<input type="checkbox"/>	harness
	<input checked="" type="checkbox"/>	tyvek	<input checked="" type="checkbox"/>	sarnex-tyvek	<input type="checkbox"/>	coveralls
Eyes:	<input checked="" type="checkbox"/>	safety glasses	<input checked="" type="checkbox"/>	sunglasses	<input type="checkbox"/>	goggles
Head:	<input checked="" type="checkbox"/>	hard hat	<input checked="" type="checkbox"/>	hearing protection	<input type="checkbox"/>	respirator

<input checked="" type="checkbox"/>	dosimetry	<input checked="" type="checkbox"/>	communication	<input type="checkbox"/>	decon
<input checked="" type="checkbox"/>	first aid kit	<input type="checkbox"/>	fire extinguish	<input type="checkbox"/>	flares
<input type="checkbox"/>	chains/studs	<input type="checkbox"/>	eye wash/shower		

<input type="checkbox"/>	24 hr HAZWOPER	<input checked="" type="checkbox"/>	40 hr HAZWOPER	<input checked="" type="checkbox"/>	HAZWOPER Annual Refresher
<input type="checkbox"/>	TLD Program	<input checked="" type="checkbox"/>	RPP Program	<input checked="" type="checkbox"/>	Medical Surveillance
<input checked="" type="checkbox"/>	1 <sup>st</sup> Aid/CPR	<input checked="" type="checkbox"/>	Other: 1) Defensive Driving; 2) Radiation Safety; 3) Boat Operations Training		

**COMMENTS:**

Personnel may be potentially exposed to a wide variety of contaminants during Geoprobe® sampling activities. Personnel are exposed to hazardous noise when operating or being in the vicinity of this type of sampling; however, exact sound levels are not known at this time. Personnel are required to wear ear plugs and/or muffs while working around hazardous noise sources. Employees engage in field activities during all types of weather conditions, to include extreme heat and cold. Thermal stress is a viable hazard; therefore personnel must ensure adequate hydration and appropriate field gear is worn while engaging in field activities. In addition, field activities are conducted on various terrain and in remote locations where pits, holes, and trenches are encountered. Personnel need to be cognizant of their surroundings and take evasive actions to avoid contact with such hazards. Driving, trailer towing, ergonomics, lifting, slips, trips and falls are all identified hazards of this work. REFERENCE PPE HAZARD ASSESSMENT FORM FOR SPECIFIC EXPLANATION OF HAZARDS ASSOCIATED WITH THIS JOB HAZARD ANALYSIS.

**CERTIFICATION OF HAZARD ASSESSMENT**

**SUPERVISOR:**

**DATE:**

**SAFETY/HEALTH REPRESENTATIVE:**

**DATE:**



3. PERSONAL PROTECTIVE EQUIPMENT RECOMMENDATIONS

Where engineering and administrative controls are not feasible or sufficient for controlling hazards, PPE must be used to protect workers. The following PPE are recommended for the noted tasks above:

**Eye and Face Protection**

<input checked="" type="checkbox"/>	Safety glasses with side shields		Reflective goggles/face shield
	Chemical splash goggles		Cutting/brazing/welding eye protection
	Face shield	<input checked="" type="checkbox"/>	Other: Sunglasses

**Head Protection**

<input checked="" type="checkbox"/>	Hard hat		Helmet, cowl, hood
	Welding helmet/mask		Other:

**Foot Protection**

<input checked="" type="checkbox"/>	Steel-toed safety shoes/boots		Other:
	Chemical-resistant boots		

**Body Protection**

	Apron (splash, work)		Head-reflective garments
	Lab coat		Sleeves (cut-resistant)
<input checked="" type="checkbox"/>	Coveralls (work, chemical-resistant) Type chemical: Various Type coverall: Tyvek/Sarnex	<input checked="" type="checkbox"/>	Other: Appropriate field gear for the weather, to include rain gear (thermal/cold stress); USCG Personal Flotation Device (Type I, II, or III)

**Respiratory Protection**

	Respirator		Type of respirator: Full-face
--	------------	--	-------------------------------

**Hand Protection**

<input checked="" type="checkbox"/>	Rubber insulating gloves		Rubber insulating sleeves
	Rubber insulating hoods	<input checked="" type="checkbox"/>	Other: Chemical Resistant Gloves (i.e. Nitrile or Neoprene); Cut Resistant Gloves (contact with plants); Leather gloves

**Other:**

Reflective Safety Vest  
Ear plugs and/or muffs  
Sunscreen

Insect repellent

If needed, chemical resistant gloves must be selected based upon adequate breakthrough times for specific chemicals of concern.

PPE Hazard Assessment Form

HEALTH AND SAFETY HAZARDS		
Chemical Hazards		Description/Mitigation
X	Vapors/gases	Personnel may be potentially exposed to a wide variety of hazardous materials during sampling activities
X	Dusts/mists/fumes	Personnel may be potentially exposed to a wide variety of hazardous materials during sampling activities
	Liquid splash	Personnel may be potentially exposed to a wide variety of hazardous materials during sampling activities
<p><b>Comments:</b> Contaminants on site may include but are not limited to, VOCs, SVOCs, pesticides, herbicides, solvents, fuel, radionuclide, metals, and acids/bases. Personal air sampling data is not available to document potential inhalation exposures. Personnel are required to wear, at a minimum, Level D (tyvek or sarnex coveralls). If a higher level of protection is warranted, this will be addressed in the Site Health and Safety Plan</p>		
Physical Hazards		Description/Mitigation
X	Ergonomics	Personnel may experience repetitive motions, frequent or heavy lifting, pushing, pulling, or carrying of heavy objects; and prolonged awkward postures. Vibration and cold may add risk to these work conditions. The level of risk depends on the intensity, frequency, and duration of the exposure to these conditions. Careful lifting techniques along with secure grips and packing at <del>desk level or higher will reduce potential exposures</del>
X	Heat —high temperatures	Employees engage in field activities during all types of weather conditions, to include extreme heats. Thermal stress is a viable hazard; therefore personnel must ensure adequate hydration and appropriate field gear is worn while engaging in field activities.
X	Cold —Cold temperatures	Employees engage in field activities during all types of weather conditions, to include cold weather. Although field activities are performed in temperate climates, cold weather may be a potential hazard. Appropriate field gear must be worn.
X	Electricity	Although rare, employees may be exposed to a variety of electrical components while on-site. Personnel need to be cognizant of their surroundings and take evasive actions to avoid contact with such electrical hazards
X	Noise	Personnel are occasionally exposed to various sources of hazardous noise, to include various industrial equipment. Personnel are required to wear ear plugs and/or muffs while working around hazardous noise sources
X	Slips/Trips/Falls	Slips/trips/falls are always probable conducting field visits, outside where pits, holes, and various terrains are encountered. Personnel need to be cognizant of their surroundings and take evasive actions to avoid contact with such hazards

Completed

X	Elevation - Falls	Personnel may climb units, greater than 4 feet above ground surface, to observe potential deficiencies. Personnel climb stairways with appropriate handrails and/or ladders affixed to various units. Personnel must inspect stairways/walkways to ensure structural integrity and/or question site personnel regarding structural stability prior to climbing. Personnel will not climb ladders.
X	Other	Vehicular accidents and traffic are potential hazards encountered while driving to and from municipal plants. In addition, personnel may ride as passengers in small boats. Personnel are required to take Defensive Driving Training and Boat Operations Training. Personnel should also
<b>Biological Hazards</b>		<b>Description/Mitigation</b>
X	Animals/Insects	Employees may encounter a variety of insects and snakes while in the field. These include snakes, mosquitos, bees, wasps, spiders, feral animals, scorpions, etc. Personnel need to be cognizant of their surroundings and take evasive actions to avoid contact with such animals/insects.
X	Other	Employees are often in remote locations, in which poison ivy and other infectious plants are present. Personnel must be trained to ensure they are aware of the surroundings and avoid plants to prevent injury/illness. Cut-resistant gloves should also be utilized to reduce potential

by:

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

SHEMP Review \_\_\_\_\_

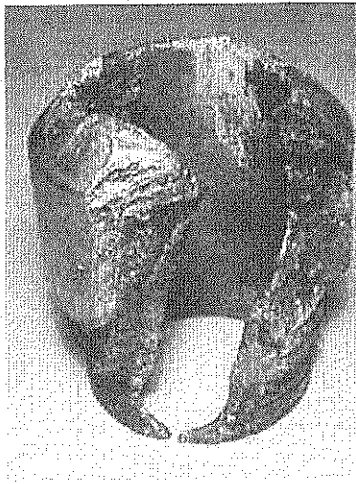
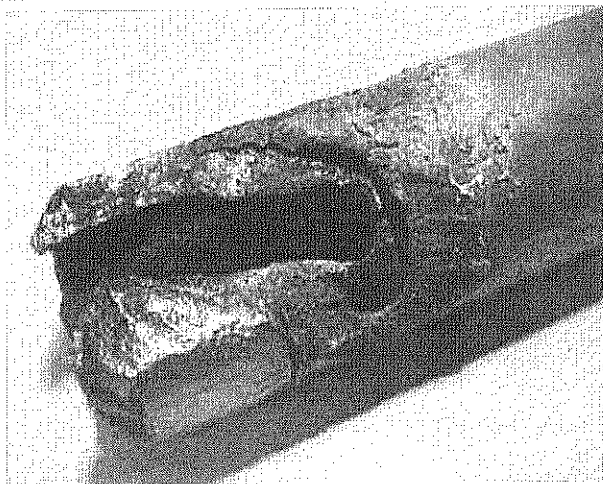
Date: \_\_\_\_\_

References:

Job Hazard Analysis – Geoprobe, Patrick Mills, USGS, 7 Mar 2005, <<http://il.water.usgs.gov/proj/geoprobe/jhageoprobe1.htm>>, Accessed 23 Jun 2010.

Geoprobe Systems®, Geoprobe® Safety Information, <<http://www.geoprobe.com/service/safety.htm>>, Accessed 23 Jun 2010.

### Why is it important to check underground utilities?



This meltdown could have been a serious tragedy for the probe machine operator. A main power line was missed during the underground utility investigations, but wasn't missed by this Macro-Core® sampler! The cable was encountered about 5 feet below the surface, and luckily, no one was injured. The actual size of the power line was

unknown, but the line was being fed from one plant building to another, and was fed from a distribution panel to a 2000 amp, 3-phase, sub-panel. The arcing did not trip a breaker ... it just arced/melted the sampler.

**Be safe at your job. Accidents are preventable; don't overlook details that put you or your personnel in danger. Replacement copies of your Geoprobe® owner's manual can be ordered through Geoprobe® Customer Service at 1-800-436-7762.**

ATTACHMENT D  
Region 7's Geoprobe SOP





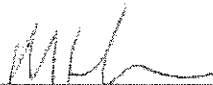
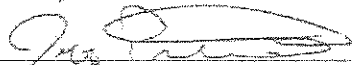
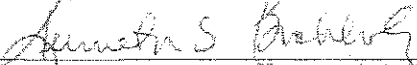
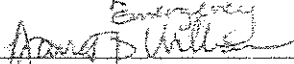
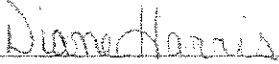
STANDARD OPERATING PROCEDURE

No. 4230.7C

GEOPROBE OPERATION

May 2017

APPROVED:

Preparer	 Randy Schademann, OSC Response and Removal North Branch	<u>5-30-17</u> Date
Peer Reviewer	 Jeffrey Pritchard, OSC Response and Removal North Branch	<u>5-30-17</u> Date
	 Kenneth S. Buchholz, Chief <sup>AERL</sup> Assessment Response and Removal (AERL)	<u>5/30/2017</u> Date
	 David Williams, Chief <sup>Emergency</sup> Response and Removal North Branch Sector	<u>6/2/2017</u> Date
	 Dianne Harris Regional Quality Assurance Manager	<u>06/12/2017</u> Date

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### List of Attachments

Attachment A: Summary of Changes (1 page)

## 1.0 PURPOSE AND APPLICABILITY

The purpose of this Standard Operating Procedure (SOP) is to establish uniform procedures for basic operation and application of direct-push technology (DPT) hydraulic sampling machines (e.g., manufactured by Geoprobe® Systems [Geoprobe]) and associated tooling. This equipment is designed for collection of subsurface environmental samples and application of other investigation techniques to assess subsurface conditions. Although DPT machines are now available with augering capabilities, this SOP pertains only to direct-push methodologies. Guidance and procedures outlined in this SOP are applicable for all personnel from EPA Region 7 and its contractors who utilize DPT equipment for site assessment activities in support of Region 7 programs.

## 2.0 SUMMARY OF METHOD

DPT rigs such as Geoprobe machines are hydraulically powered sampling devices that are generally mounted on or inside service vehicles (e.g., pickup truck, box truck, etc.) or on track-mounted frames. The DPT machine is operated by use of a hydraulic pump and powered by a gasoline or diesel engine (typically the engine for the truck or the standalone track-mounted rig). The DPT unit, fitted with a percussion hammer, is often capable of exerting over 15,000 pounds of downward force, with the weight of the vehicle/frame providing most of the force. The hydraulics push 3- to 5-foot lengths of steel rods with threaded joints into the ground. Sampling devices or direct imaging tools/attachments are typically connected to the bottom of the rod string; however, tooling may also be used to create boreholes for installation of groundwater monitoring wells or to provide conduits to suspend sensors for downhole measurements of geophysical, radiological, or chemical parameters. The rod string is advanced (pushed/hammered) by adding successive steel rods until the desired depth is reached. Carbide- and diamond-tipped drill bits and coring bits are also available for penetration of asphalt and concrete surfaces, through which the steel rods and sampling/direct imaging tools can be driven. A DPT machine provides a convenient, cost-effective, and safe means for conducting soil gas surveys, collecting subsurface soil and groundwater samples, and performing field assessments via direct imaging applications to rapidly acquire physical and/or chemical data.

## 3.0 DEFINITIONS

**Direct Imaging Tools** – These tools are driven into the subsurface by the DPT machine to acquire data such as hydraulic conductivity, electrical conductivity, hydrostatic pressure, and approximate concentrations of volatile organic compounds (VOC). Cone penetration tools are also commercially available for determination of subsurface stratigraphy and estimation of geotechnical parameters.

**Direct-Push Technology (DPT)** – This type of equipment utilizes a hydraulic apparatus to push/hammer successive steel rods into the ground to collect environmental samples or obtain in situ physical or chemical data.

**Environmental Samples** – These are samples that may be collected by use of DPT machines and specially designed tooling; environmental samples typically include soil, groundwater, and soil gas media.

#### 4.0 HEALTH AND SAFETY WARNINGS

Health and safety issues regarding site-specific physical and chemical hazards should be addressed in Health and Safety Plans (HASP), Safe Work Practices, Job Hazard Analyses, etc. The buddy system should always be employed during DPT operations. One person is usually designated as the primary operator, and the second serves as the operator's assistant. The primary operator controls the hydraulics, and the assistant typically handles the rods and sampling/direct imaging tools. Safe operation of the DPT machine requires appropriate personal protective equipment (PPE) and other safety equipment, including the following:

- Steel-toed boots, safety glasses, hard hats, hearing protection (Occupational Safety and Health Administration [OSHA]-approved for sound levels exceeding 85 decibels [dba] is recommended), and orange safety vests should be donned by the DPT operator and assistant, as needed (and as required by the agency/company performing the DPT work).
- A first aid kit should be on site, within the vicinity of DPT operations.
- Tire blocks should be placed under the front wheels of the parked DPT vehicle to limit its movement during operation (if the DPT apparatus is mounted in a truck).
- To stabilize the DPT machine (if the DPT unit is on a track-mounted frame), outriggers should be deployed before tooling is driven into the ground.
- Care should be exercised when maneuvering the machine over rough or very wet/saturated terrain.

In addition, the following safety precautions should be observed during operation of the DPT unit:

- Always set the vehicle's parking brake before starting DPT operations.
- Never place hands on top of a rod while it is under the machine.
- The primary operator should stand to the side of the machine's controls, clear of the DPT foot and mast, while operating the controls.
- Never exert down pressure on the probe rods to lift the machine's foot more than 6 inches off the ground, as the vehicle may shift and cause injury.
- The hydraulic system and vehicle engine should be turned off before an attempt to clean or service the equipment.
- Avoid accidental engagement of the DPT machine, which may cause injury.
- Be familiar with the location of the kill switch.

Low-hanging overhead utility lines and other overhead obstructions should be avoided within the proposed work area. Buried utilities should also be located before any tooling is pushed into the ground. The state's One Call system must be notified to contact participating utility companies and request marking locations of any buried lines near the anticipated sampling areas. Coordination with all identified utility companies is critical to identify the exact location of each utility line. Private businesses may also be utilized to locate buried utilities, particularly on private properties where buried lines are often not marked by public utility companies.

Some cities may require special safety precautions during work near roadways, such as use of worker signs, flashing lights, or orange pylons. Municipal engineering departments can often provide information regarding local safety requirements. Work near railways also typically requires similar safety precautions.

## 5.0 CAUTIONS

The following precautions should be taken to avoid equipment damage and/or impacts on sample integrity:

- If the vehicle is parked on a loose or soft surface, do not fully raise the portion of the vehicle nearest the DPT machine's foot, as the vehicle may shift and damage the rod string/tooling.
- If a pickup truck cap (topper) is used, always extend the DPT unit out from the vehicle to clear the cap's roof line before folding the unit down to the operating position.
- Make sure all tooling is clear of the DPT apparatus when returning the mast to its storage position.
- Use caution when operating over dry grass or other combustible material, as the vehicle's exhaust system may present a fire hazard.

## 6.0 INTERFERENCES

Interferences associated with DPT investigations may involve cross-contamination between sampling/direct imaging locations. Sufficient decontamination of all tooling must occur after work at each location to limit potential carryover of contaminants of concern (see Section 9.3). Frequent changing of outer gloves (e.g., after work at each sampling location) should also help minimize cross-contamination of samples and/or DPT tooling.

## 7.0 PERSONNEL QUALIFICATIONS

A primary DPT operator must have acquired significant experience with the type of machine to be used, be familiar with the proposed sampling techniques/tooling and all relevant health and safety issues, and be knowledgeable of activities that could result in equipment damage and/or impacts on sample integrity (see Sections 4.0, 5.0, and 6.0). It is EPA Region 7 policy: a) that all EPA personnel who operate a Geoprobe shall have completed a 1-day orientation course and b) that all EPA personnel who trailer a Geoprobe shall have completed a trailering course.

DPT operators should consult state requirements regarding work at locations where the equipment will be used to determine if personal/corporate licensing or registration of the DPT unit is necessary. Such licenses/registrations and associated fees may not be required at EPA Superfund sites.

## 8.0 EQUIPMENT AND SUPPLIES

At a minimum, general DPT tooling typically includes 3- to 5-foot steel rods, a drive cap, and a pull cap or rod grip puller. Rod diameters generally range from 1 to 4.5 inches.

In addition to the basic operational tools, specialized sampling equipment is also required for soil, soil gas, and groundwater sampling, as well as for direct imaging applications. These specialized tools are best suited for use in certain types of physical settings and subsurface conditions. Therefore, it is imperative to know site-specific soil conditions in order to ensure that the most effective investigative techniques and equipment will be used. Other materials required for efficient DPT operation include pipe wrenches, standard and Phillips screwdrivers, various sizes and types of hammers, pliers and vice grips, wire/tubing cutters, and various types of tape (electrical, duct, Teflon<sup>®</sup>, etc.).

Development of new and improved DPT sampling equipment occurs constantly. However, the principles for use of new equipment are often fundamentally similar to those for use of existing equipment. Therefore, equipment and procedures described herein will be applicable to and sufficient for the purposes of this SOP.

## 9.0 PROCEDURES

Procedures discussed in this section pertain to setup and operation of DPT machines to conduct subsurface investigations.

### 9.1 SETUP FOR DPT OPERATION

Basic steps for setting up most DPT machines are detailed below; however, the operator's manual should be consulted for the specific DPT model being used.

1. Position the vehicle over the sampling location.
2. Set the parking brake, and then check and confirm that the vehicle is on a level surface. Because the vehicle provides the DPT machine with much of its torque, positioning the vehicle at a slight angle (with the rear of the vehicle at lowest position) increases the unit's power while providing a safe base for operation. Place tire blocks behind the front wheels of the vehicle (if applicable).
3. Open the rear truck/cap doors or remove the pickup tailgate to gain access to the DPT unit, as needed. Secure the doors so that wind or vibration will not cause them to slam shut.

4. Turn the ignition key to start the DPT machine's engine (which powers the hydraulic pump). This may be the engine of a pickup or other truck housing the DPT machine, or the engine of a track-mounted standalone rig. Switch the DPT rig's electrical control to the position that engages the clutch of the hydraulic system.
5. Extend and unfold the mast to a vertical position.
6. Move the foot down to securely rest it on the ground surface.
7. Raise the DPT mast to its maximum height, so that the lead rod and any attached sampling/direct imaging device can be inserted beneath it.

## 9.2 DPT OPERATION

Information regarding collection of environmental samples, use of direct imaging tools, installation of groundwater monitoring wells, and advancement of DPT tooling through hard surfaces is discussed in the following sections.

### 9.2.1 Soil Sampling

Tools are available to collect soil samples from discrete depths and also continuous soil cores. Sample collection is achieved by pushing/hammering a hollow, metal tube (with a cutting shoe attached to the base of the tube) into the subsurface. The tube contains a liner (polyvinyl chloride [PVC], Teflon, polyethylene terephthalate [PETG], stainless steel, brass, etc.) into which the soil is pushed within the desired sampling interval. Then, either the liner is retrieved, capped, and submitted for laboratory analysis, or the soil is removed for field evaluation and/or transfer to sample containers for laboratory analysis. Soil sampling equipment can be categorized into two primary types—single rod and dual rod systems.

#### *Single Rod Systems*

In stable soils, single rod systems may be used for open-tube sampling from the ground surface to the desired depth to collect continuous soil cores. Single rod samplers typically range in length from 2 to 5 feet, and diameters generally range from 1 to 3 inches. By this method, the open-tube sampler is repeatedly inserted into the same borehole to obtain successive cores. In unstable soils with tendency to collapse, use of single rod systems may require a stop-pin and piston rod apparatus to prevent soil from entering the sampler as it advances to the desired sampling interval; the stop-pin holds the piston and a pointed tip in place at the leading edge of the sampler. Once the desired sampling depth is reached, steel extension rods are inserted into the rod string and used to extract the stop-pin. The sampler is then driven to the bottom of the sampling interval to fill the liner with soil, as the piston and attached tip are displaced upward into the sample tube. After the sample liner has been filled, the sampler and rod string are retrieved from the borehole (Geoprobe 2011b, c).

### *Dual Rod Systems*

Dual rod sampling systems utilize an outer series of rods to serve as a casing for the borehole, and an inner rod string that is repeatedly advanced and retrieved from the casing to collect continuous soil cores. This system limits potential for loose soils to slough from the borehole walls and cross-contaminate samples at greater depths, and also improves sampling speed (compared to single rod systems) at depths exceeding 20 feet. The smaller-diameter inner rods hold a sample liner in place as the outer casing and inner rods are driven the distance of the sampling interval. The inner rods are then retracted to retrieve the filled liner (Geoprobe 2010b, 2011a, 2013a).

### **9.2.2 Groundwater Sampling**

Various methods may be implemented for collection of groundwater samples from unconsolidated sediments by temporary installation of specialized sampling tools. These tools are designed for installation at a desired location only until adequate groundwater can be collected; the tools are then removed, decontaminated, and reused at the next location. Groundwater sampling tools may be divided into three primary categories—protected screen, exposed/retractable screen, and specialized tools/systems.

#### *Protected Screen Tools*

This common method of groundwater sampling involves use of a wire-wound stainless steel screen or slotted PVC screen enclosed in an outer metal sheath and driven to the desired sampling depth. The screen is then exposed to the surrounding sediments by retraction of the outer sheath while extension rods hold the screen in place, allowing groundwater to flow into the screen for withdrawal by use of various collection tools (discussed later in this section). This method utilizes the outer sheath to form an annular seal above the screened interval, and is generally used to conduct sampling at a discrete depth (Geoprobe 2006b, 2010a).

#### *Exposed/Retractable Screen Tools*

For vertical profiling, wire-wound stainless steel screens or mill-slotted rods may be used to allow collection of groundwater samples at multiple depths within the same borehole. Mill-slotted rods are driven from the ground surface to the desired groundwater sampling depth(s) while in direct contact with surrounding sediments along the entire boring depth. Specialized groundwater profilers may enable use of a dual-tube system, whereby an outer series of rods are driven to the top of the desired sampling depth, and then a slotted stainless steel screen (typically no longer than 1 foot) attached to an inner rod string may be inserted into the outer casing and successively driven to greater depths while continuously exposed to the surrounding sediments. Because the screens (or slotted rods) are in direct contact with surrounding sediments during advancement to the sampling depths, this method is most suitable for use in sediments with minimal silt and clay, which can plug openings of the screens/slotted rods.



Dual rod systems for vertical profiling are also available that involve concurrently driving outer and inner rod strings (with an expendable drive point) to the top of the desired sampling interval, removing the inner rods, and inserting a PVC or stainless steel screen (typically no longer than 1 foot) attached to extension rods through the outer rod string. The outer rods are retracted while the screen is held in place to expose it to the surrounding sediments, enabling groundwater to flow into the screen for collection. After sampling, the screen is withdrawn from the borehole and replaced with the inner rods (and expendable drive point), which may be driven to the next sampling depth where the process is repeated.

### *Specialized Systems*

Specialized DPT tools have been developed that incorporate probes with direct imaging sensors and also screened ports that enable collection of groundwater samples by use of a built-in bladder pump. These devices allow acquisition of direct imaging data (e.g., electrical conductivity, hydrostatic pressure, hydraulic conductivity, etc.) at depths where groundwater sampling may also occur by use of the same tooling. These systems also enable sampling at multiple depths within the same borehole.

### Groundwater Sampling Pumps, Check Valves, and Bailers

Groundwater samples may be collected in conjunction with the aforementioned protected screen and exposed/retractable screen tools by use of peristaltic pumps, bladder pumps, tubing check valves, or mini-bailers—all designed to retrieve groundwater samples through DPT rods. The appropriate sampling method will depend on (1) sampling depth (e.g., peristaltic pumps are not able to retrieve groundwater at depths exceeding approximately 30 feet), (2) required sample volume (e.g., capacity of mini-bailers may be restricted to 20 milliliters), (3) contaminants of interest (e.g., if sampling for analysis for VOCs, bladder pumps may be the preferred method to limit turbulence and potential loss of analytes during sampling procedures), and (4) efficiency of available sampling options (e.g., use of tubing check valves requires minimal setup and decontamination time).

### **9.2.3 Soil Gas Sampling**

DPT machines may ease the task of soil gas sampling to investigate subsurface contamination (Geoprobe 2006a). Notably, not all soil types are conducive to soil gas sampling. If no soils at a site are appropriate for soil gas sampling, investigators should consider collection of alternative media (soil and/or groundwater) to assess presence of contaminants. Soil gas sampling methods can be categorized into two primary tooling systems—temporary systems for grab sampling, and permanent implants to serve as repeatable sampling points.

### *Temporary Systems*

Collection of soil gas samples most often proceeds by attaching an expendable point holder to the bottom of a rod string, inserting an expendable point, and driving the rods to the desired sampling depth. The rod string is then retracted to expel the point and expose a void space from which to collect soil gas. Polyethylene tubing is attached to a metal tubing adapter (e.g., Geoprobe Post-Run Tubing [PRT] adaptor), which is then inserted into the rod string and threaded into the expendable point holder. A vacuum pump is connected to the top end of the tubing and used to purge ambient vapors from the tubing, which is then connected to the selected sample container/media (SUMMA canister, Tedlar bag, sorbent tube, etc.). Collection of soil gas samples may also occur directly through the rod string by connecting tubing to a fitting attached to the top rod. If this technique is used, O-rings should be placed between each rod to ensure an airtight seal at each rod joint. If a pre-evacuated sample container (e.g., SUMMA canister) is used, the soil gas sample will be collected when a valve on the container is opened. Otherwise, use of a sampling pump will likely be required to enable collection of the sample.

If moist and/or fine-grained soils are encountered that prohibit soil gas sampling, the rod string may be slowly raised while a vacuum is applied to the system (either by use of a vacuum pump with an in-line vacuum gauge, or an attached SUMMA canister with a vacuum gauge) until a zone is reached that yields soil gas (as indicated by the vacuum gauge response).

### *Permanent Implants*

Cylindrical stainless steel screens with attached tubing may be inserted through the rod string to serve as permanent/repeatable soil gas sampling points. These screens typically range in length from 6 inches to 2 feet, with pore size between 0.1 and 0.2 millimeter. Tubing for these implants may be polyethylene, Teflon, or stainless steel. After the screen has been secured to a drive point/anchor at the bottom of the rod string, the rods are removed, and the annulus of the borehole is backfilled as the top of the attached tubing is allowed to protrude above the ground surface. A porous material (e.g., glass beads) is used to backfill the annulus around the screen, while the overlying annulus is typically backfilled with a bentonite-based material. Surface completions that house the top portion of the tubing may consist of aboveground protective casings or below-grade vaults. Soil gas sampling may occur when needed, as previously described for temporary soil gas systems.

#### **9.2.4 Direct Imaging Tools**

DPT tools are available for acquiring in situ data to determine soil types, estimate concentrations of contaminants such as VOCs or petroleum-related substances, and obtain other information regarding physical/chemical characteristics of subsurface soil and/or groundwater. These direct imaging data are generally obtained by attaching probes/sensors to the DPT rod string, and driving them to depth(s) of interest. Field computers and

analytical instrumentation are used to store and interpret the results. Direct imaging data may be obtained to determine the following:

**Soil Type** – In situ electrical conductivity measurements may be taken to interpret soil types and develop a soil profile log (Geoprobe 2008).

**Hydraulic Conductivity** – This may be determined from results of pneumatic slug tests (Geoprobe 2011d) or based on injection pressure data (Geoprobe 2013b). Knowledge of hydraulic conductivity can be useful in groundwater investigations for estimation of groundwater flow velocity, contaminant transport times, etc.

**VOCs** – Relative magnitude of VOC concentrations in the subsurface may be determined in situ by use of a downhole probe containing a heated membrane and a carrier gas that transports contaminants to analytical instruments at the surface (Geoprobe 2012).

**Water Table Elevation** – This may be estimated based on hydrostatic pressure measurements by use of subsurface DPT tooling (Geoprobe 2013b).

**Geotechnical Parameters** – These parameters, which include soil resistance and pore pressure, may be determined by use of cone penetration testing tools that have been adapted to DPT application.

#### 9.2.5 Installation of Groundwater Monitoring Wells

DPT machines may be used to install groundwater monitoring wells by use of direct-push tooling (ASTM International 2001). Depending on the size of available tooling, well casings for DPT applications typically range from 0.5 to 2 inches in diameter, and are usually constructed of threaded PVC sections. For permanent wells, a factory-slotted PVC screen is generally used that may contain an outer mesh material to hold filter pack sand. The filter pack sand may already be included with the purchased screen (prepacked screen), or it can be added by the well installer. Multiple lengths of well screen can be screwed together to obtain the desired total length of screened interval for the well. A bottom plug (or snap lock connector) is attached to the base of the screen, the top of the screen is attached to PVC risers, and the assembly is lowered into the borehole created by advancement of DPT rods and an expendable point. As the rods are retracted, a grout barrier can be created by natural collapse of sediments above the screen, or a barrier material may be introduced through the rods. Granular bentonite or bentonite slurry is then added in the remaining well annulus to form a seal. Flush-mount or aboveground completions may be utilized to protect the top access to the well. Specific state monitoring well standards may need to be consulted.

If a DPT well is installed for temporary use only (e.g., 1-7 days), a factory-slotted PVC pipe section may be attached to PVC risers and inserted into a borehole. For this type of temporary well, introduction of filter pack

and/or grout within the annulus may be optional, depending on anticipated duration of the well, nature and stability of formation materials, knowledge of contaminated soils or groundwater above the screened interval, regulatory requirements, etc. These types of wells may be beneficial if a grab sample is desired, but groundwater recharge is slow. These wells are typically removed soon after collection of groundwater samples.

#### 9.2.6 Drilling/Coring through Hard Surfaces

A breaker or coring bit is used for penetrating concrete, asphalt, or other hard surface, such as frozen ground or hard-packed gravel. Either a diamond- or carbide-tipped bit attached to a steel shaft may be driven through the surface material to allow access to underlying soils by use of aforementioned DPT tools (Geoprobe 2000). Breaker/drill bits typically range from 2 to 4 inches in diameter, while coring bits are available up to at least 8 inches in diameter. Use of these bits requires rotation of the DPT drive assembly to turn the bit as it is lowered onto the hard surface to initiate grinding through the material. However, care must be taken to limit down pressure on the bit, as too much pressure can cause the tooling to bind and stop rotating. Also, application of water to cool the bit may be necessary to limit damage to the bit if drilling/coring occurs for an extended period of time.

### 9.3 DECONTAMINATION

Decontamination procedures for DPT rigs and tooling may vary, depending on the type of sampling/investigation and nature of contamination at the site. Care should be taken during the sampling process to ensure that clean or decontaminated equipment is segregated from contaminated or used equipment, so that cross-contamination does not occur. Although decontamination methods should be addressed in site-specific planning documents, general procedures for decontamination are detailed as follows:

**Groundwater Samplers:** The groundwater sampling sheath, rods, and reusable screens should be decontaminated by use of soap and water to remove dirt, oil, or other substances. Brushes and/or pressure washers may be used to assist with decontamination procedures. This is typically followed by a tap water and/or deionized water rinse. If sampling for VOC analysis is required, consideration may also be given to heating sampling tools after work at each location.

**Soil Samplers:** Use of disposable liners with soil samplers greatly reduces the amount of decontamination needed. In most instances that disposable liners are used, only the exterior of the sampler and the cutting shoe must be decontaminated (as described above for groundwater sampling tools).

**Soil Gas Sampling Apparatus:** Utilization of a PRT-type system for soil gas collection nearly eliminates need to decontaminate sampling equipment. Because soil gas samples are collected from an isolated source point at the base of the rod string, the only hardware items in direct contact with soil gas vapors at the sampling point are the

tubing adapter and the expendable point holder. The polyethylene tubing is discarded after use at the sampling point. External decontamination typically consists of using a wire or bristle brush to remove any soil adhering to DPT rods. If soil gas sampling proceeds through the rods themselves (instead of by use of a PRT-type system), further decontamination (heating rods, etc.) may be warranted after sampling at each location.

**Other Tooling:** Decontamination procedures for other DPT tooling (direct imaging probes, drill bits, etc.) depend on the type of tooling, and nature and levels of suspected contamination. These decontamination procedures should be specified in a site-specific work plan and/or HASP.

#### 9.4 BOREHOLE ABANDONMENT

All DPT boreholes should be backfilled in accordance with state regulations. At a minimum, all borehole void space should be filled with granular bentonite. Cement and/or bentonite grout slurry may be required to plug boreholes by use of a grout pump. Project managers should refer to state statutes to ensure that closure procedures comply with existing regulations.

#### 9.5 INVESTIGATION-DERIVED WASTE

Investigation-derived waste (IDW) generated from DPT activities may include environmental media (soil cores, purged groundwater, etc.), used sampling supplies (tubing, soil liners, etc.), and used PPE (gloves, Tyvek coveralls, etc.). Handling and disposal of IDW should be addressed in site-specific work plans and/or HASPs, and should consider the nature and approximate anticipated concentrations of contaminants of concern, regulatory/agency requirements, field screening data, visual observations, etc. If necessary, IDW may have to be containrized and sampled for laboratory analyses to ensure proper disposal.

#### 10.0 DATA AND RECORDS MANAGEMENT

Permits may be required by the city, county, and/or state where DPT activities occur. Adequate time should be allotted to ensure acquisition of these permits prior to work activities. Other records such as boring logs, well registration forms (for permanent wells), and well abandonment forms may also be required by state agencies.

Documentation to accompany environmental samples may include field sheets, chain-of-custody records, and shipping airbills. Other records documenting field activities may include field logbooks and photo logs.

Geographic coordinates of all sampling locations should be recorded. Electronic forms/applications may also be used to manage site-related data if approved by the user/agency. Direct imaging data are typically saved in electronic files.

## 11.0 QUALITY ASSURANCE AND QUALITY CONTROL

Quality assurance/quality control (QA/QC) procedures regarding sampling-related issues should be addressed in site-specific work plans. These procedures typically apply to collection of field duplicates, field blanks, trip blanks, and/or equipment rinsate blanks to evaluate (1) reproducibility of analytical results, (2) contamination introduced during collection and transportation of samples, and/or (3) efficiency of decontamination techniques for reusable sampling tools.

If direct imaging data (e.g., electrical conductivity measurements) are used to indicate subsurface soil types across a site, collection of a few soil cores may be warranted to "standardize" the results in order to ensure correct interpretation of in situ readings. If direct imaging/field screening tools are used to evaluate subsurface VOCs or other contaminants of concern, split sampling for laboratory confirmation analysis may be warranted to compare field results with laboratory data.

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**ATTACHMENT A**

Summary of Changes

Version x → y	Description of Change	Justification
4230.07B to 4230.07C	Updated signature page	To reflect current organization
4230.07B to 4230.07C	Updated Section 7.0	To include requirement for completing a trailering course for all those who trailer a Geoprobe
4230.07B to 4230.07C	Added Attachment A	To track changes and provide an easily accessible history of changes for SOP users



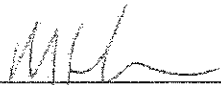
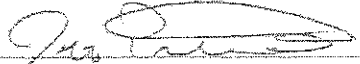

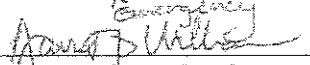

STANDARD OPERATING PROCEDURE

No. 4230.7C

GEOPROBE OPERATION

May 2017

APPROVED:

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**List of Attachments**

Attachment A: Summary of Changes (1 page)

## 1.0 PURPOSE AND APPLICABILITY

The purpose of this Standard Operating Procedure (SOP) is to establish uniform procedures for basic operation and application of direct-push technology (DPT) hydraulic sampling machines (e.g., manufactured by Geoprobe® Systems [Geoprobe]) and associated tooling. This equipment is designed for collection of subsurface environmental samples and application of other investigation techniques to assess subsurface conditions. Although DPT machines are now available with augering capabilities, this SOP pertains only to direct-push methodologies. Guidance and procedures outlined in this SOP are applicable for all personnel from EPA Region 7 and its contractors who utilize DPT equipment for site assessment activities in support of Region 7 programs.

## 2.0 SUMMARY OF METHOD

DPT rigs such as Geoprobe machines are hydraulically powered sampling devices that are generally mounted on or inside service vehicles (e.g., pickup truck, box truck, etc.) or on track-mounted frames. The DPT machine is operated by use of a hydraulic pump and powered by a gasoline or diesel engine (typically the engine for the truck or the standalone track-mounted rig). The DPT unit, fitted with a percussion hammer, is often capable of exerting over 15,000 pounds of downward force, with the weight of the vehicle/frame providing most of the force. The hydraulics push 3- to 5-foot lengths of steel rods with threaded joints into the ground. Sampling devices or direct imaging tools/attachments are typically connected to the bottom of the rod string; however, tooling may also be used to create boreholes for installation of groundwater monitoring wells or to provide conduits to suspend sensors for downhole measurements of geophysical, radiological, or chemical parameters. The rod string is advanced (pushed/hammered) by adding successive steel rods until the desired depth is reached. Carbide- and diamond-tipped drill bits and coring bits are also available for penetration of asphalt and concrete surfaces, through which the steel rods and sampling/direct imaging tools can be driven. A DPT machine provides a convenient, cost-effective, and safe means for conducting soil gas surveys, collecting subsurface soil and groundwater samples, and performing field assessments via direct imaging applications to rapidly acquire physical and/or chemical data.

## 3.0 DEFINITIONS

**Direct Imaging Tools** – These tools are driven into the subsurface by the DPT machine to acquire data such as hydraulic conductivity, electrical conductivity, hydrostatic pressure, and approximate concentrations of volatile organic compounds (VOC). Cone penetration tools are also commercially available for determination of subsurface stratigraphy and estimation of geotechnical parameters.

**Direct-Push Technology (DPT)** – This type of equipment utilizes a hydraulic apparatus to push/hammer successive steel rods into the ground to collect environmental samples or obtain in situ physical or chemical data.

**Environmental Samples** – These are samples that may be collected by use of DPT machines and specially designed tooling; environmental samples typically include soil, groundwater, and soil gas media.

#### 4.0 HEALTH AND SAFETY WARNINGS

Health and safety issues regarding site-specific physical and chemical hazards should be addressed in Health and Safety Plans (HASP), Safe Work Practices, Job Hazard Analyses, etc. The buddy system should always be employed during DPT operations. One person is usually designated as the primary operator, and the second serves as the operator's assistant. The primary operator controls the hydraulics, and the assistant typically handles the rods and sampling/direct imaging tools. Safe operation of the DPT machine requires appropriate personal protective equipment (PPE) and other safety equipment, including the following:

- Steel-toed boots, safety glasses, hard hats, hearing protection (Occupational Safety and Health Administration [OSHA]-approved for sound levels exceeding 85 decibels [dba] is recommended), and orange safety vests should be donned by the DPT operator and assistant, as needed (and as required by the agency/company performing the DPT work).
- A first aid kit should be on site, within the vicinity of DPT operations.
- Tire blocks should be placed under the front wheels of the parked DPT vehicle to limit its movement during operation (if the DPT apparatus is mounted in a truck).
- To stabilize the DPT machine (if the DPT unit is on a track-mounted frame), outriggers should be deployed before tooling is driven into the ground.
- Care should be exercised when maneuvering the machine over rough or very wet/saturated terrain.

In addition, the following safety precautions should be observed during operation of the DPT unit:

- Always set the vehicle's parking brake before starting DPT operations.
- Never place hands on top of a rod while it is under the machine.
- The primary operator should stand to the side of the machine's controls, clear of the DPT foot and mast, while operating the controls.
- Never exert down pressure on the probe rods to lift the machine's foot more than 6 inches off the ground, as the vehicle may shift and cause injury.
- The hydraulic system and vehicle engine should be turned off before an attempt to clean or service the equipment.
- Avoid accidental engagement of the DPT machine, which may cause injury.
- Be familiar with the location of the kill switch.

Low-hanging overhead utility lines and other overhead obstructions should be avoided within the proposed work area. Buried utilities should also be located before any tooling is pushed into the ground. The state's One Call system must be notified to contact participating utility companies and request marking locations of any buried lines near the anticipated sampling areas. Coordination with all identified utility companies is critical to identify the exact location of each utility line. Private businesses may also be utilized to locate buried utilities, particularly on private properties where buried lines are often not marked by public utility companies.

Some cities may require special safety precautions during work near roadways, such as use of worker signs, flashing lights, or orange pylons. Municipal engineering departments can often provide information regarding local safety requirements. Work near railways also typically requires similar safety precautions.

## 5.0 CAUTIONS

The following precautions should be taken to avoid equipment damage and/or impacts on sample integrity:

- If the vehicle is parked on a loose or soft surface, do not fully raise the portion of the vehicle nearest the DPT machine's foot, as the vehicle may shift and damage the rod string/tooling.
- If a pickup truck cap (topper) is used, always extend the DPT unit out from the vehicle to clear the cap's roof line before folding the unit down to the operating position.
- Make sure all tooling is clear of the DPT apparatus when returning the mast to its storage position.
- Use caution when operating over dry grass or other combustible material, as the vehicle's exhaust system may present a fire hazard.

## 6.0 INTERFERENCES

Interferences associated with DPT investigations may involve cross-contamination between sampling/direct imaging locations. Sufficient decontamination of all tooling must occur after work at each location to limit potential carryover of contaminants of concern (see Section 9.3). Frequent changing of outer gloves (e.g., after work at each sampling location) should also help minimize cross-contamination of samples and/or DPT tooling.

## 7.0 PERSONNEL QUALIFICATIONS

A primary DPT operator must have acquired significant experience with the type of machine to be used, be familiar with the proposed sampling techniques/tooling and all relevant health and safety issues, and be knowledgeable of activities that could result in equipment damage and/or impacts on sample integrity (see Sections 4.0, 5.0, and 6.0). It is EPA Region 7 policy: a) that all EPA personnel who operate a Geoprobe shall have completed a 1-day orientation course and b) that all EPA personnel who trailer a Geoprobe shall have completed a trailering course.

DPT operators should consult state requirements regarding work at locations where the equipment will be used to determine if personal/corporate licensing or registration of the DPT unit is necessary. Such licenses/registrations and associated fees may not be required at EPA Superfund sites.

## 8.0 EQUIPMENT AND SUPPLIES

At a minimum, general DPT tooling typically includes 3- to 5-foot steel rods, a drive cap, and a pull cap or rod grip puller. Rod diameters generally range from 1 to 4.5 inches.

In addition to the basic operational tools, specialized sampling equipment is also required for soil, soil gas, and groundwater sampling, as well as for direct imaging applications. These specialized tools are best suited for use in certain types of physical settings and subsurface conditions. Therefore, it is imperative to know site-specific soil conditions in order to ensure that the most effective investigative techniques and equipment will be used. Other materials required for efficient DPT operation include pipe wrenches, standard and Phillips screwdrivers, various sizes and types of hammers, pliers and vice grips, wire/tubing cutters, and various types of tape (electrical, duct, Teflon<sup>®</sup>, etc.).

Development of new and improved DPT sampling equipment occurs constantly. However, the principles for use of new equipment are often fundamentally similar to those for use of existing equipment. Therefore, equipment and procedures described herein will be applicable to and sufficient for the purposes of this SOP.

## 9.0 PROCEDURES

Procedures discussed in this section pertain to setup and operation of DPT machines to conduct subsurface investigations.

### 9.1 SETUP FOR DPT OPERATION

Basic steps for setting up most DPT machines are detailed below; however, the operator's manual should be consulted for the specific DPT model being used.

1. Position the vehicle over the sampling location.
2. Set the parking brake, and then check and confirm that the vehicle is on a level surface. Because the vehicle provides the DPT machine with much of its torque, positioning the vehicle at a slight angle (with the rear of the vehicle at lowest position) increases the unit's power while providing a safe base for operation. Place tire blocks behind the front wheels of the vehicle (if applicable).
3. Open the rear truck/cap doors or remove the pickup tailgate to gain access to the DPT unit, as needed. Secure the doors so that wind or vibration will not cause them to slam shut.

4. Turn the ignition key to start the DPT machine's engine (which powers the hydraulic pump). This may be the engine of a pickup or other truck housing the DPT machine, or the engine of a track-mounted standalone rig. Switch the DPT rig's electrical control to the position that engages the clutch of the hydraulic system.
5. Extend and unfold the mast to a vertical position.
6. Move the foot down to securely rest it on the ground surface.
7. Raise the DPT mast to its maximum height, so that the lead rod and any attached sampling/direct imaging device can be inserted beneath it.

## 9.2 DPT OPERATION

Information regarding collection of environmental samples, use of direct imaging tools, installation of groundwater monitoring wells, and advancement of DPT tooling through hard surfaces is discussed in the following sections.

### 9.2.1 Soil Sampling

Tools are available to collect soil samples from discrete depths and also continuous soil cores. Sample collection is achieved by pushing/hammering a hollow, metal tube (with a cutting shoe attached to the base of the tube) into the subsurface. The tube contains a liner (polyvinyl chloride [PVC], Teflon, polyethylene terephthalate [PETG], stainless steel, brass, etc.) into which the soil is pushed within the desired sampling interval. Then, either the liner is retrieved, capped, and submitted for laboratory analysis, or the soil is removed for field evaluation and/or transfer to sample containers for laboratory analysis. Soil sampling equipment can be categorized into two primary types—single rod and dual rod systems.

#### *Single Rod Systems*

In stable soils, single rod systems may be used for open-tube sampling from the ground surface to the desired depth to collect continuous soil cores. Single rod samplers typically range in length from 2 to 5 feet, and diameters generally range from 1 to 3 inches. By this method, the open-tube sampler is repeatedly inserted into the same borehole to obtain successive cores. In unstable soils with tendency to collapse, use of single rod systems may require a stop-pin and piston rod apparatus to prevent soil from entering the sampler as it advances to the desired sampling interval; the stop-pin holds the piston and a pointed tip in place at the leading edge of the sampler. Once the desired sampling depth is reached, steel extension rods are inserted into the rod string and used to extract the stop-pin. The sampler is then driven to the bottom of the sampling interval to fill the liner with soil, as the piston and attached tip are displaced upward into the sample tube. After the sample liner has been filled, the sampler and rod string are retrieved from the borehole (Geoprobe 2011b, c).

### *Dual Rod Systems*

Dual rod sampling systems utilize an outer series of rods to serve as a casing for the borehole, and an inner rod string that is repeatedly advanced and retrieved from the casing to collect continuous soil cores. This system limits potential for loose soils to slough from the borehole walls and cross-contaminate samples at greater depths, and also improves sampling speed (compared to single rod systems) at depths exceeding 20 feet. The smaller-diameter inner rods hold a sample liner in place as the outer casing and inner rods are driven the distance of the sampling interval. The inner rods are then retracted to retrieve the filled liner (Geoprobe 2010b, 2011a, 2013a).

### **9.2.2 Groundwater Sampling**

Various methods may be implemented for collection of groundwater samples from unconsolidated sediments by temporary installation of specialized sampling tools. These tools are designed for installation at a desired location only until adequate groundwater can be collected; the tools are then removed, decontaminated, and reused at the next location. Groundwater sampling tools may be divided into three primary categories—protected screen, exposed/retractable screen, and specialized tools/systems.

#### *Protected Screen Tools*

This common method of groundwater sampling involves use of a wire-wound stainless steel screen or slotted PVC screen enclosed in an outer metal sheath and driven to the desired sampling depth. The screen is then exposed to the surrounding sediments by retraction of the outer sheath while extension rods hold the screen in place, allowing groundwater to flow into the screen for withdrawal by use of various collection tools (discussed later in this section). This method utilizes the outer sheath to form an annular seal above the screened interval, and is generally used to conduct sampling at a discrete depth (Geoprobe 2006b, 2010a).

#### *Exposed/Retractable Screen Tools*

For vertical profiling, wire-wound stainless steel screens or mill-slotted rods may be used to allow collection of groundwater samples at multiple depths within the same borehole. Mill-slotted rods are driven from the ground surface to the desired groundwater sampling depth(s) while in direct contact with surrounding sediments along the entire boring depth. Specialized groundwater profilers may enable use of a dual-tube system, whereby an outer series of rods are driven to the top of the desired sampling depth, and then a slotted stainless steel screen (typically no longer than 1 foot) attached to an inner rod string may be inserted into the outer casing and successively driven to greater depths while continuously exposed to the surrounding sediments. Because the screens (or slotted rods) are in direct contact with surrounding sediments during advancement to the sampling depths, this method is most suitable for use in sediments with minimal silt and clay, which can plug openings of the screens/slotted rods.



Dual rod systems for vertical profiling are also available that involve concurrently driving outer and inner rod strings (with an expendable drive point) to the top of the desired sampling interval, removing the inner rods, and inserting a PVC or stainless steel screen (typically no longer than 1 foot) attached to extension rods through the outer rod string. The outer rods are retracted while the screen is held in place to expose it to the surrounding sediments, enabling groundwater to flow into the screen for collection. After sampling, the screen is withdrawn from the borehole and replaced with the inner rods (and expendable drive point), which may be driven to the next sampling depth where the process is repeated.

### *Specialized Systems*

Specialized DPT tools have been developed that incorporate probes with direct imaging sensors and also screened ports that enable collection of groundwater samples by use of a built-in bladder pump. These devices allow acquisition of direct imaging data (e.g., electrical conductivity, hydrostatic pressure, hydraulic conductivity, etc.) at depths where groundwater sampling may also occur by use of the same tooling. These systems also enable sampling at multiple depths within the same borehole.

### Groundwater Sampling Pumps, Check Valves, and Bailers

Groundwater samples may be collected in conjunction with the aforementioned protected screen and exposed/retractable screen tools by use of peristaltic pumps, bladder pumps, tubing check valves, or mini-bailers—all designed to retrieve groundwater samples through DPT rods. The appropriate sampling method will depend on (1) sampling depth (e.g., peristaltic pumps are not able to retrieve groundwater at depths exceeding approximately 30 feet), (2) required sample volume (e.g., capacity of mini-bailers may be restricted to 20 milliliters), (3) contaminants of interest (e.g., if sampling for analysis for VOCs, bladder pumps may be the preferred method to limit turbulence and potential loss of analytes during sampling procedures), and (4) efficiency of available sampling options (e.g., use of tubing check valves requires minimal setup and decontamination time).

### 9.2.3 Soil Gas Sampling

DPT machines may ease the task of soil gas sampling to investigate subsurface contamination (Geoprobe 2006a). Notably, not all soil types are conducive to soil gas sampling. If no soils at a site are appropriate for soil gas sampling, investigators should consider collection of alternative media (soil and/or groundwater) to assess presence of contaminants. Soil gas sampling methods can be categorized into two primary tooling systems—temporary systems for grab sampling, and permanent implants to serve as repeatable sampling points.

### *Temporary Systems*

Collection of soil gas samples most often proceeds by attaching an expendable point holder to the bottom of a rod string, inserting an expendable point, and driving the rods to the desired sampling depth. The rod string is then retracted to expel the point and expose a void space from which to collect soil gas. Polyethylene tubing is attached to a metal tubing adapter (e.g., Geoprobe Post-Run Tubing [PRT] adaptor), which is then inserted into the rod string and threaded into the expendable point holder. A vacuum pump is connected to the top end of the tubing and used to purge ambient vapors from the tubing, which is then connected to the selected sample container/media (SUMMA canister, Tedlar bag, sorbent tube, etc.). Collection of soil gas samples may also occur directly through the rod string by connecting tubing to a fitting attached to the top rod. If this technique is used, O-rings should be placed between each rod to ensure an airtight seal at each rod joint. If a pre-evacuated sample container (e.g., SUMMA canister) is used, the soil gas sample will be collected when a valve on the container is opened. Otherwise, use of a sampling pump will likely be required to enable collection of the sample.

If moist and/or fine-grained soils are encountered that prohibit soil gas sampling, the rod string may be slowly raised while a vacuum is applied to the system (either by use of a vacuum pump with an in-line vacuum gauge, or an attached SUMMA canister with a vacuum gauge) until a zone is reached that yields soil gas (as indicated by the vacuum gauge response).

### *Permanent Implants*

Cylindrical stainless steel screens with attached tubing may be inserted through the rod string to serve as permanent/repeatable soil gas sampling points. These screens typically range in length from 6 inches to 2 feet, with pore size between 0.1 and 0.2 millimeter. Tubing for these implants may be polyethylene, Teflon, or stainless steel. After the screen has been secured to a drive point/anchor at the bottom of the rod string, the rods are removed, and the annulus of the borehole is backfilled as the top of the attached tubing is allowed to protrude above the ground surface. A porous material (e.g., glass beads) is used to backfill the annulus around the screen, while the overlying annulus is typically backfilled with a bentonite-based material. Surface completions that house the top portion of the tubing may consist of aboveground protective casings or below-grade vaults. Soil gas sampling may occur when needed, as previously described for temporary soil gas systems.

#### **9.2.4 Direct Imaging Tools**

DPT tools are available for acquiring in situ data to determine soil types, estimate concentrations of contaminants such as VOCs or petroleum-related substances, and obtain other information regarding physical/chemical characteristics of subsurface soil and/or groundwater. These direct imaging data are generally obtained by attaching probes/sensors to the DPT rod string, and driving them to depth(s) of interest. Field computers and

analytical instrumentation are used to store and interpret the results. Direct imaging data may be obtained to determine the following:

**Soil Type** – In situ electrical conductivity measurements may be taken to interpret soil types and develop a soil profile log (Geoprobe 2008).

**Hydraulic Conductivity** – This may be determined from results of pneumatic slug tests (Geoprobe 2011d) or based on injection pressure data (Geoprobe 2013b). Knowledge of hydraulic conductivity can be useful in groundwater investigations for estimation of groundwater flow velocity, contaminant transport times, etc.

**VOCs** – Relative magnitude of VOC concentrations in the subsurface may be determined in situ by use of a downhole probe containing a heated membrane and a carrier gas that transports contaminants to analytical instruments at the surface (Geoprobe 2012).

**Water Table Elevation** – This may be estimated based on hydrostatic pressure measurements by use of subsurface DPT tooling (Geoprobe 2013b).

**Geotechnical Parameters** – These parameters, which include soil resistance and pore pressure, may be determined by use of cone penetration testing tools that have been adapted to DPT application.

#### 9.2.5 Installation of Groundwater Monitoring Wells

DPT machines may be used to install groundwater monitoring wells by use of direct-push tooling (ASTM International 2001). Depending on the size of available tooling, well casings for DPT applications typically range from 0.5 to 2 inches in diameter, and are usually constructed of threaded PVC sections. For permanent wells, a factory-slotted PVC screen is generally used that may contain an outer mesh material to hold filter pack sand. The filter pack sand may already be included with the purchased screen (prepacked screen), or it can be added by the well installer. Multiple lengths of well screen can be screwed together to obtain the desired total length of screened interval for the well. A bottom plug (or snap lock connector) is attached to the base of the screen, the top of the screen is attached to PVC risers, and the assembly is lowered into the borehole created by advancement of DPT rods and an expendable point. As the rods are retracted, a grout barrier can be created by natural collapse of sediments above the screen, or a barrier material may be introduced through the rods. Granular bentonite or bentonite slurry is then added in the remaining well annulus to form a seal. Flush-mount or aboveground completions may be utilized to protect the top access to the well. Specific state monitoring well standards may need to be consulted.

If a DPT well is installed for temporary use only (e.g., 1-7 days), a factory-slotted PVC pipe section may be attached to PVC risers and inserted into a borehole. For this type of temporary well, introduction of filter pack

and/or grout within the annulus may be optional, depending on anticipated duration of the well, nature and stability of formation materials, knowledge of contaminated soils or groundwater above the screened interval, regulatory requirements, etc. These types of wells may be beneficial if a grab sample is desired, but groundwater recharge is slow. These wells are typically removed soon after collection of groundwater samples.

### 9.2.6 Drilling/Coring through Hard Surfaces

A breaker or coring bit is used for penetrating concrete, asphalt, or other hard surface, such as frozen ground or hard-packed gravel. Either a diamond- or carbide-tipped bit attached to a steel shaft may be driven through the surface material to allow access to underlying soils by use of aforementioned DPT tools (Geoprobe 2000). Breaker/drill bits typically range from 2 to 4 inches in diameter, while coring bits are available up to at least 8 inches in diameter. Use of these bits requires rotation of the DPT drive assembly to turn the bit as it is lowered onto the hard surface to initiate grinding through the material. However, care must be taken to limit down pressure on the bit, as too much pressure can cause the tooling to bind and stop rotating. Also, application of water to cool the bit may be necessary to limit damage to the bit if drilling/coring occurs for an extended period of time.

## 9.3 DECONTAMINATION

Decontamination procedures for DPT rigs and tooling may vary, depending on the type of sampling/investigation and nature of contamination at the site. Care should be taken during the sampling process to ensure that clean or decontaminated equipment is segregated from contaminated or used equipment, so that cross-contamination does not occur. Although decontamination methods should be addressed in site-specific planning documents, general procedures for decontamination are detailed as follows:

**Groundwater Samplers:** The groundwater sampling sheath, rods, and reusable screens should be decontaminated by use of soap and water to remove dirt, oil, or other substances. Brushes and/or pressure washers may be used to assist with decontamination procedures. This is typically followed by a tap water and/or deionized water rinse. If sampling for VOC analysis is required, consideration may also be given to heating sampling tools after work at each location.

**Soil Samplers:** Use of disposable liners with soil samplers greatly reduces the amount of decontamination needed. In most instances that disposable liners are used, only the exterior of the sampler and the cutting shoe must be decontaminated (as described above for groundwater sampling tools).

**Soil Gas Sampling Apparatus:** Utilization of a PRT-type system for soil gas collection nearly eliminates need to decontaminate sampling equipment. Because soil gas samples are collected from an isolated source point at the base of the rod string, the only hardware items in direct contact with soil gas vapors at the sampling point are the

tubing adapter and the expendable point holder. The polyethylene tubing is discarded after use at the sampling point. External decontamination typically consists of using a wire or bristle brush to remove any soil adhering to DPT rods. If soil gas sampling proceeds through the rods themselves (instead of by use of a PRT-type system), further decontamination (heating rods, etc.) may be warranted after sampling at each location.

**Other Tooling:** Decontamination procedures for other DPT tooling (direct imaging probes, drill bits, etc.) depend on the type of tooling, and nature and levels of suspected contamination. These decontamination procedures should be specified in a site-specific work plan and/or HASP.

#### 9.4 BOREHOLE ABANDONMENT

All DPT boreholes should be backfilled in accordance with state regulations. At a minimum, all borehole void space should be filled with granular bentonite. Cement and/or bentonite grout slurry may be required to plug boreholes by use of a grout pump. Project managers should refer to state statutes to ensure that closure procedures comply with existing regulations.

#### 9.5 INVESTIGATION-DERIVED WASTE

Investigation-derived waste (IDW) generated from DPT activities may include environmental media (soil cores, purged groundwater, etc.), used sampling supplies (tubing, soil liners, etc.), and used PPE (gloves, Tyvek coveralls, etc.). Handling and disposal of IDW should be addressed in site-specific work plans and/or HASPs, and should consider the nature and approximate anticipated concentrations of contaminants of concern, regulatory/agency requirements, field screening data, visual observations, etc. If necessary, IDW may have to be containerized and sampled for laboratory analyses to ensure proper disposal.

#### 10.0 DATA AND RECORDS MANAGEMENT

Permits may be required by the city, county, and/or state where DPT activities occur. Adequate time should be allotted to ensure acquisition of these permits prior to work activities. Other records such as boring logs, well registration forms (for permanent wells), and well abandonment forms may also be required by state agencies.

Documentation to accompany environmental samples may include field sheets, chain-of-custody records, and shipping airbills. Other records documenting field activities may include field logbooks and photo logs.

Geographic coordinates of all sampling locations should be recorded. Electronic forms/applications may also be used to manage site-related data if approved by the user/agency. Direct imaging data are typically saved in electronic files.

## 11.0 QUALITY ASSURANCE AND QUALITY CONTROL

Quality assurance/quality control (QA/QC) procedures regarding sampling-related issues should be addressed in site-specific work plans. These procedures typically apply to collection of field duplicates, field blanks, trip blanks, and/or equipment rinsate blanks to evaluate (1) reproducibility of analytical results, (2) contamination introduced during collection and transportation of samples, and/or (3) efficiency of decontamination techniques for reusable sampling tools.

If direct imaging data (e.g., electrical conductivity measurements) are used to indicate subsurface soil types across a site, collection of a few soil cores may be warranted to "standardize" the results in order to ensure correct interpretation of in situ readings. If direct imaging/field screening tools are used to evaluate subsurface VOCs or other contaminants of concern, split sampling for laboratory confirmation analysis may be warranted to compare field results with laboratory data.

## 12.0 REFERENCES

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ATTACHMENT A

Summary of Changes

Version x → y	Description of Change	Justification
4230.07B to 4230.07C	Updated signature page	To reflect current organization
4230.07B to 4230.07C	Updated Section 7.0	To include requirement for completing a trailering course for all those who trailer a Geoprobe
4230.07B to 4230.07C	Added Attachment A	To track changes and provide an easily accessible history of changes for SOP users



**ATTACHMENT E**  
**Quality Assurance Plan**  
**Nitrogen and Oxygen ISOTOPE Methods**



# NITROGEN and OXYGEN ISOTOPE METHODS

*Nitrate, ammonia and phosphate in surface and groundwater*

## Quality Assurance Plan

UNL WATER SCIENCES LABORATORY

Revised July 22, 2015

### Sampling

Water samples for  $\delta^{15}\text{N}$  of nitrate and ammonia are collected and stored in 1-liter polyethylene bottles. Samples specifically collected for  $\delta^{15}\text{N}$  analysis of ammonia-N in ground-water may be acidified to  $\text{pH} < 2.0$  with concentrated sulfuric acid to prevent volatilization, samples for  $\delta^{15}\text{N}$  analysis of nitrate-N can be collected without acidification. Water samples for  $\delta^{18}\text{O}$  analysis of nitrate or phosphate must be collected and frozen with no acid preservation. Freezing is typically used as an alternative to field filtering and acidification for all three methods.

All samples should be stored and transported on ice. Samples must be frozen before transport if holding times beyond 24 hours are anticipated. As with other types of laboratory analyses, the objectives are that measurements be representative of the sample at the time of analysis, and that the results be comparable to those obtained by other laboratories when identical samples are analyzed. A representative sample is dependent upon proper collection, labeling, transport, storage, and analysis. The comparability of results is fostered through the use of accepted sampling and analytical protocols. The Water Sciences Laboratory cannot be responsible for the validity of sampling procedures when samples are not collected by WSL personnel.

All samples transported to the Water Sciences Laboratory will be brought to the attention of the laboratory director and the isotope chemist. Samples should be handled so that their integrity is assured. Personnel accepting samples and field records at the Water Sciences Laboratory are responsible for:

1. initiating the laboratory record of the samples and insuring that the handling of samples is documented;
2. logging sample information on tracking forms, and assigning a LIMS sample ID;
3. storing samples in the proper location;
4. alerting the analyst to the presence and status of the samples.

### Laboratory Quality Assurance

The goal of the quality assurance plan is to ensure that all environmental data are scientifically valid, defensible, and of known precision and accuracy. This goal is achieved by ensuring that adequate quality assurance steps and procedures are used throughout the entire analytical process. Under the supervision of the laboratory services director, laboratory personnel

1. receive and log-in samples for testing as specified in the standard operating procedure for sample receipt. Those samples not received under satisfactory conditions for testing are rejected according to established protocol. Samples of poor quality, as described in the criteria for rejection of samples in the approved laboratory protocol, will be accepted in the laboratory but may not be accepted for analysis and repeat sampling will be requested.

- If a sample is not acceptable, it will not be automatically discarded by the laboratory. Samples are scheduled for testing within accepted holding times.
2. perform analyses according to standard operating procedures (SOPs);
  3. maintain instruments, perform quality control program tasks, and other laboratory tasks according to laboratory position specifications;
  4. report laboratory results according to protocol. Test results are the property of the test requester, not the laboratory. The laboratory is the custodian of the results and must be responsible to the test requester for their handling. Test results are released only to the test requester. Release of results in any other manner (including subpoenas) must be arranged through the laboratory director. Questionable results (those significantly outside of the expected range or those where quality control indicates another test is necessary) will be held and, if appropriate, the sample will be retested.

### **Analytical Procedures**

*Nitrogen-15 analysis of nitrate and ammonia.* Sample preparation for nitrogen isotope analysis involves steam distillation, quantitative conversion to nitrogen gas which is purified and collected on a high vacuum preparation system, and measurement by isotope ratio mass spectrometry. Frozen samples are thawed immediately before analysis and shaken thoroughly to insure homogeneity prior to measurement of an aliquot into a distillation flask. In samples for determination of  $\delta^{15}\text{N}$  of nitrate-N, the pH of the solution is increased to 9.5-10 with the addition of magnesium oxide and ~50 mL of ammonia distillate are collected and discarded. Nitrate in the solution is then reduced to ammonia with Devardas alloy, 100 mL of distillate collected in a boric acid indicator solution, and the nitrate-N concentration determined titrimetrically with standardized sulfuric acid. In samples for  $\delta^{15}\text{N}$  determination of ammonia-N, an aliquot of the acidified sample is neutralized with a known amount of 1N sodium hydroxide. A second 100-mL aliquot is put on the distillation system, the predetermined amount of sodium hydroxide added to neutralize the sample, the pH increased to 9.5-10 with magnesium oxide, and 100 mL of ammonia distillate collected in a boric acid indicator solution. The ammonia-N concentration is determined titrimetrically with standardized sulfuric acid.

A nitrate-N standard, a blank, and an ammonium-N standard of known isotopic composition and concentration are distilled prior to beginning the day's analyses. After every fifth sample, the system is cleaned by steam distilling ethanol. One sample in twenty (5%) is analyzed in replicate to monitor precision. The distillates from both the ammonia and nitrate fractions are acidified with 1N sulfuric acid immediately after titration and evaporated to 1 to 2 mL on a hot plate. The concentrated distillate is reacted with lithium hypobromite on a high-vacuum preparation line and the ammonium quantitatively reduced to nitrogen gas, purified by passage through two liquid nitrogen cryotrap and a 400°C copper oven, and collected in a gas sample bulb. Atmospheric nitrogen standards are prepared on the same high-vacuum preparation line. With the exception of an additional copper oxide furnace trap, gas purification is similar to that of the samples. Ultrapure tank nitrogen is used as the working standard and is calibrated against the atmospheric nitrogen standard.

*Nitrogen Isotope Instrumentation.* All nitrogen isotope measurements are performed on either a VG Instruments OPTIMA or a GVI Isoprime dual inlet stable isotope ratio mass spectrometer

(IRMS). The OPTIMA was purchased in 1992 as a state-of-the-art IRMS with improved ion optics, amplifier design, and electronics which improved both the sensitivity and precision of nitrogen isotope ratio measurements. The instrument is capable of measurements in the mass range of 2-80 m/z, with a resolution (M/ΔM) of 100. It has an absolute sensitivity of 1500 molecules of CO<sub>2</sub> per mass 44 ion. It has been fitted with a nitrogen “cold finger” cryo-trap which reduces the sample size requirements for nitrogen to 20 bar μL, which is equivalent to ~23 μg N, or about 0.2 mg/L NO<sub>3</sub>-N in an unconcentrated sample. The internal precision of the OPTIMA is 0.01 ‰ (2σ<sub>10</sub>). The GVI Isoprime was purchased in 2007 with specifications that match or exceed the OPTIMA.

The isotopic composition of the purified nitrogen samples are measured and simultaneously compared to that of the working standard. The δ<sup>15</sup>N of the sample is the measured isotopic composition relative to the atmospheric standard expressed in parts per thousand (‰) using the equation:

$$\delta^{15}\text{N} (\text{‰}) = \frac{(^{15}\text{N}/^{14}\text{N})_{\text{sample}} - (^{15}\text{N}/^{14}\text{N})_{\text{standard}}}{(^{15}\text{N}/^{14}\text{N})_{\text{standard}}} \times 1000$$

The sample standard deviation for 20 preparations of an ammonium standard of known isotopic composition is ±0.5‰. The standard deviation of a similar number of nitrate-N working standards is ±0.6‰. The standard deviation for 216 preparations of the working gas standard was ±0.05‰. The relative percent difference from the analysis of 39 sets of duplicate samples was 0.59‰.

*Interlaboratory Comparison.* In 1993, the Water Sciences Laboratory participated in an interlaboratory comparison between 15 laboratories world-wide in the measurement of seven different reference materials for nitrogen isotope ratio analysis (Böhlke and Coplen, 1995). The following table lists the reported interlaboratory averages compared with the results submitted by the Water Sciences Laboratory:

Identification	Substance	δ <sup>15</sup> N (‰)	δ <sup>15</sup> N (‰)
		Interlaboratory Average	Water Sciences Laboratory
NSVEC	N <sub>2</sub> Gas	-2.77 ± 0.05	-2.70 ± 0.06
IAEA-N1	NH <sub>4</sub> (SO <sub>4</sub> )	+0.43 ± 0.07	+0.38 ± 0.14
IAEA-N2	NH <sub>4</sub> (SO <sub>4</sub> )	+20.32 ± 0.09	+20.14 ± 0.06
IAEA-N3	KNO <sub>3</sub>	+4.69 ± 0.09	+4.14 ± 0.12
USGS25	NH <sub>4</sub> (SO <sub>4</sub> )	-30.25 ± 0.38	-30.16 ± 0.09
USGS26	NH <sub>4</sub> (SO <sub>4</sub> )	+53.62 ± 0.25	+53.21 ± 0.15
USGS32	KNO <sub>3</sub>	+179.2 ± 1.3	+177.02 ± 0.24

These reference standards continue to be used as verification of the accuracy of the nitrogen isotope analysis at the Water Sciences Laboratory.

*Oxygen-18 analysis of nitrate.* Samples for determination of oxygen isotope composition of nitrate are prepared according to Chang et al 1999 and Silva et al 2000. Briefly, a measured volume of sample containing 0.25 mg NO<sub>3</sub>-N is treated with 1M barium chloride to precipitate sulfate and phosphate. The solution is then filtered, and then passed through a cation exchange column to remove excess Ba<sup>2+</sup>, and then through an anion exchange column to concentrate

nitrate. Nitrate is then eluted using 3 M hydrochloric acid, neutralized with Ag<sub>2</sub>O, filtered to remove the AgCl precipitate, and then dried to producing purified AgNO<sub>3</sub>. The AgNO<sub>3</sub> is then dissolved in 1ml of reagent water and 100 µL (25 µgN) aliquots transferred to three silver cups and dried for analysis by pyrolysis on nickelized a Eurovector E. The AgNO<sub>3</sub> can then be analyzed for oxygen isotope composition using high temperature pyrolysis on nickelized graphite in a closed tube to produce CO on a Eurovector EA Isoprime continuous flow isotope ratio mass spectrometer. The final result is averaged from the triple instrumental results and converted to the standard oxygen isotope reference (VSMOW =0.00 ‰).

$$\delta^{18}\text{O} (\text{‰}) = \frac{(^{18}\text{O}/^{16}\text{O})_{\text{sample}} - (^{18}\text{O}/^{16}\text{O})_{\text{standard}}}{(^{18}\text{O}/^{16}\text{O})_{\text{standard}}} \times 1000$$

A reagent grade potassium nitrate (KNO<sub>3</sub>) is used as a working standard, and reference sucrose oxygen isotope standard (obtained from Elemental Microanalysis) are analyzed with every sample batch (up to 20 samples) both to calibration and for drift correction. USGS 34 and USGS 35 reference standards are analyzed at least monthly to compare and convert working standards to a δ<sup>18</sup>O isotope value with respect to VSMOW. The 1σ measured analytical precision of δ<sup>18</sup>O is ±0.5‰ for solutions of KNO<sub>3</sub> standard processed through the entire procedure. In addition to triplicate instrumental average measurement, laboratory duplicates are carried through the preparation process and analyzed at a rate of 5%.

*Oxygen-18 Analysis of Phosphate.* Soluble phosphate (PO<sub>4</sub>-P) in water or extracts is coprecipitated with Mg(OH)<sub>2</sub> according to the preparation methods described in McLaughlin et al (2004) and McLaughlin et al (2006). The flock is allowed to settle overnight, separated by centrifuging and then dissolved using a mixture of acetic and nitric acid. The solution is then buffered to pH=5.5 with 5M potassium acetate, and then mixed with cerium nitrate resulting in precipitation of cerium phosphate. The CePO<sub>4</sub> separated by centrifugation, rinsed with 1M potassium acetate to remove chloride, and then dissolved in nitric acid. Cerium ions are separated using cation exchange resin and final purified eluent neutralized. Silver nitrate is added to the sample to precipitate solid silver phosphate. The AgPO<sub>4</sub> is centrifuged and rinsed and 1 ml of 15% H<sub>2</sub>O<sub>2</sub> is added to oxidize remaining natural organic matter. The AgPO<sub>4</sub> is then vacuum filtered onto 0.45 µm silver filters. The silver phosphate is then weighed to determine yield and subsequently analyzed for oxygen isotope composition using high temperature pyrolysis on nickelized graphite in a closed tube to produce CO on a Eurovector EA Isoprime continuous flow isotope ratio mass spectrometer. A working potassium phosphate (KH<sub>2</sub>PO<sub>4</sub>) and sucrose reference standard (obtained from Elemental Microanalysis) are analyzed with each sample batch of up to 20 samples. USGS 34 and USGS 35 are used to convert δ<sup>18</sup>O isotope results of working standard to the reference for oxygen isotope results as describe for nitrate. Replicate analysis of the working standard indicates the precision to be ±0.6‰. Laboratory duplicates are carried through the preparation process and analyzed at a rate of 5%.

#### Overall Laboratory Quality Control Procedures

The WSL quality control checks for samples include, but are not limited to:

1. the use of laboratory forms to identify date (month/day/year) and time of sample receipt,

- the recipient, the date of analysis and the analyst, and the test result;
2. strict adherence to chain of custody procedures (when required);
  3. presenting sampling instructions and training sessions to field personnel (when required);
  4. inserting known blind check samples to accompany samples to verify proper sample transit conditions, if required by the approved laboratory protocol.

#### Analytical Quality Control Checks

The laboratory's analytical quality control checks include, but are not limited to:

1. the analyst's strict adherence to approved or accepted laboratory protocols;
2. analysis of method or reagent blanks (5%) with each run;
3. analysis of field blanks (5%), sample blanks, and equipment check blanks;
4. analysis of field duplicates (5%) or replicate samples (5%);
5. analysis of certified QC standards, if available, to verify accuracy;
6. proper instrument calibrations and standardization as specified in the instrument manual and the approved laboratory protocol using known standards for preparing calibration curves to calculate sample results;
7. plotting quality control results prior to calculating sample results to verify the results are within established ranges;
8. flagging all results not within expected ranges for the particular analyte;
9. secondary review of all laboratory results prior to reporting.

#### Assessment of Quality Control

The acceptability of duplicate, replicate, and reference sample results are evaluated by the use of Shewhart Statistical Equations and quality control charts. Reference for this section can be made to: "The Handbook for Analytical Quality Control in Water and Wastewater Laboratories", Chapter 6, Control of Analytical Performance, by the Analytical Quality Control Laboratory, (EPA-600/4-79-019).

Precision of the analytical measurements from duplicate analyses are assessed using the following Shewhart Equations:

1. Determine I for duplicates

$$I = \frac{|A - B|}{(A + B)}$$

where A and B are the analytical results from the two duplicate samples;

2. Determine range, R of duplicates

$$R = |A - B|$$

where A and B are the analytical results from the two duplicates. Plot R as one value per duplicate

### **Corrective Action**

Laboratory corrective action will be initiated by the laboratory director under the following circumstances:

1. unacceptable precision between duplicate analyses (values exceeding control limits);
2. failure to pass external testing audits;
3. use of nonstandard procedures, i.e., not following the approved laboratory protocol.

If corrective action is necessary, the analyst will take some or all of the following steps to remedy the problem:

1. recheck all calculations and measurement data;
2. check instruments to ensure proper calibration and operation;
3. check reagents for proper reactivity;
4. assure that proper operating procedures are followed;
5. reanalyze all samples run at the same time the problem occurred;
6. if the problem continues, seek assistance from instrument manufacturer as necessary.

### **Preventative Maintenance**

Preventive maintenance will be performed by the isotope chemist or laboratory services director as specified in the instrument service manual. The objective of preventive maintenance is to keep the instrument in peak operational condition. All preventive maintenance for the instrument will be documented in a permanent record routinely evaluated by the laboratory quality assurance coordinator. If the instrument requires non-routine maintenance, it will be repaired as per the manufacturer or vendor service contract or returned to the manufacturer for service and repair.

### **Communication/Reporting**

The isotope chemist will advise the laboratory director and other responsible program management of the performance of the data production systems and of any laboratory analytical problems. All sample information and results are managed through the use of data management software which includes a in-house developed Laboratory Information Management System (LIMS) to facilitate data sorting and preparation of reports. Precautions are taken during the reduction, manipulation, and storage of data to prevent the introduction of errors or the loss or misinterpretation of the data. The lab services director will conduct periodic inspection of the data flow process to ensure accurate intralaboratory communication.

### **References**

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- Bremner, J. M. and D. R. Keeney. 1965. Steam distillation methods for determination of ammonium nitrate and nitrite. *Anal. Chim. Acta* 32: 485-495.
- Chang, Cecily C.Y. et al. (1999) A method for nitrate collection for  $\delta^{15}\text{N}$  and  $\delta^{18}\text{O}$  analysis form