2017 ANNUAL MONITORING REPORT

NIAGARA COUNTY REFUSE DISTRICT SITE

Wheatfield, Niagara County, New York **(NYSDEC Site No. 9-32-026)**

SUBMITTED TO:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

NEW YORK STATE DEPARMENT OF ENVIRONMENTAL CONSERVATION

SUBMITTED BY:

Niagara County Refuse District and PRP Group

PREPARED BY:

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January 2018

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Submitted To:

The New York State Department of Environmental Conservation Division of Hazardous Waste Remediation

and

United States Environmental Protection Agency

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INTRODUCTION

1.1 INTRODUCTION

In accordance with the United States Environmental Protection Agency (USEPA) Record of Decision (USEPA, 1993), the United States District Court Consent Decree (USA, 1995), and the USEPA-approved Operation, Maintenance, and Monitoring (OM&M) Manual (CRA, 2000), the Niagara County Refuse Site Potentially Responsible Parties (PRP) Group performed a remedial action at the Niagara County Refuse Site (Site), Wheatfield, New York. The PRP Group currently provides site-related OM&M services. This Annual Monitoring Report summarizes monitoring activities from January through December 2017.

The Site is a closed municipal landfill, approximately 60 acres in size, located along the eastern border of the Town of Wheatfield, New York, and the western border of the City of North Tonawanda, New York. The southern edge of the Site lies approximately 500 feet north of the Niagara River. A perimeter collection system and a perimeter barrier system are used to provide hydraulic containment of Site-related leachate and groundwater. These systems began operation in November of 2000.

1.2 PROCEDURES

1.2.1 Groundwater Sampling

In accordance with the OM&M Manual (CRA, 2000), samples were collected from wells NCR-3S, NCR-4S, NCR-5S, and NCR-13S in April 2017. These four wells are screened in the shallow overburden materials. Groundwater sampling on an annual schedule commenced in 2006.

Each groundwater monitoring well was purged prior to sample collection using a dedicated disposable HDPE bailer. Each well was bailed dry the day prior to sampling. Physical parameters including pH, temperature, conductivity, and turbidity of the purge water were periodically measured and recorded. All purge water was placed in an onsite wet-well. Wet well water is discharged to the City of North Tonawanda publicly owned treatment works (POTW). The dedicated disposable bailer was also used to collect the groundwater samples.

Since 2006, volatile organic compounds (VOCs) and semi-volatile organic compound (SVOCs) samples have been collected every other year and total metals samples have been collected annually. In April 2017, in accordance with this schedule, groundwater samples were collected and analyzed for:

- Mercury in accordance with EPA Method 245.1 and Method SW-7470; and
- Inorganics in accordance with EPA Method 200.7 and Method SW-6010.

The groundwater samples were analyzed by TestAmerica Laboratories of Amherst, New York. A chain-of-custody (COC) accompanied the sample bottles from the laboratory, to the field, and back to the laboratory.

Beginning in 2014, in addition to samples for total metals, samples for dissolved-phase metals were also collected and analyzed. Samples for dissolved-phase metals samples were

collected based on comments in the USEPA's Third Five Year Review Report (September 2014) concerning metals concentrations and the potential for sample turbidity to change the total metals concentrations.

1.2.2 Effluent Sampling

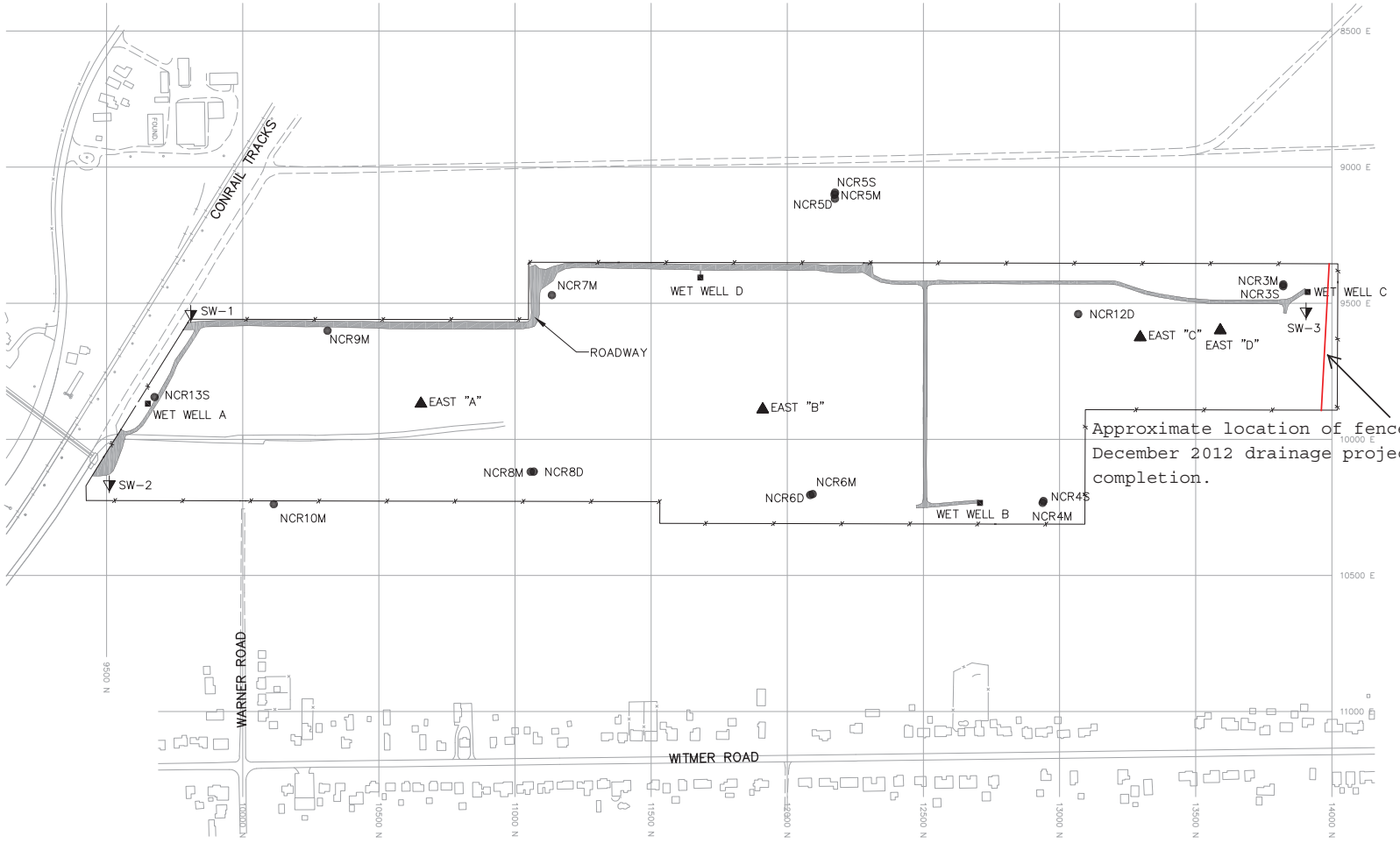
Groundwater from the perimeter collection system is discharged to the City of North Tonawanda treatment system without pre-treatment. A monitoring station in Wet Well A allows both the effluent water quality and the volume of effluent to be verified by the City of North Tonawanda. In compliance with the City of North Tonawanda Industrial Wastewater Discharge Permit (the Permit), the effluent was sampled monthly through February 2007. A revised permit was issued covering from February 2007 through March 2010, requiring only semi-annual sampling. A new Industrial Wastewater Discharge Permit (Appendix A) was issued by the City of North Tonawanda in 2016 and is effective from March 31, 2016 through April 1, 2019. The new permit has a reduced analytical parameter list compared to the original permit, but continues to require a semi-annual sampling frequency. Semi-annual samples were collected in April and October 2017. The effluent samples were collected in compliance with the permit using the procedures identified in the OM&M Manual. Effluent samples were analyzed by the City of North Tonawanda. The sole purpose of these analyses is for compliance with the Industrial Wastewater Discharge Permit.

1.2.3 Water Levels

Water levels (depths to water) were measured in four monitoring well locations and at four wet well locations inside the limits of the landfill. Water level measurements were collected monthly during 2017. The water levels were measured with an electronic water level indicator, and reported as an elevation above mean sea level. Figure 1.1 shows the locations of the water level monitoring points.

1.2.4 Site Inspections

The Site was inspected by GHD on a monthly basis throughout 2017, in accordance with procedures in the OM&M Manual. The perimeter collection system, offsite force main, wetlands, perimeter fence, drainage ditches, swale outlets, culverts, gas vents, wells, and landfill cap were visually inspected, and the results documented on inspection logs.



LEGEND

PERIMETER COLLECTION TRENCH	
▲EAST "A"	WATER LEVEL MONITORING WELL LOCATION
▽SW-2	SURFACE WATER MONITORING LOCATION
■WET WELL A	EFFLUENT MONITORING LOCATION
●NCR13S	GROUNDWATER QUALITY MONITORING LOCATION

400 200 0 400 800

SCALE: 1"=400'

FIGURE 1.1

NIAGARA COUNTY REFUSE SITE
WHEATFIELD, NEW YORK
SITE PLAN

PARSONS
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No XREFs

SECTION 2
RESULTS

2.1 ANALYTICAL RESULTS

2.1.1 Effluent Samples

Effluent samples were collected in April and October 2017 by GHD and analyzed by the City of North Tonawanda. The analytical results from these samples were used by the City to confirm that the effluent received from the Site met the criteria for acceptance by the City treatment system. All analytical results were found to be compliant with the March 31, 2016 discharge permit. Effluent analytical results for 2017 and the Permit are presented in Appendix A.

2.1.2 Groundwater Analytical Results

Analytical results for the sampling event during this reporting period are summarized in Table 2.1. The results were compared to NYSDEC ambient water quality standards (AWQS), NYSDOH maximum contaminant levels (MCLs), and USEPA MCLs (see Table 2.1). This reporting period includes months 205 to 216, since the start-up of the perimeter collection system in November 2000. The collection of quarterly and semi-annual groundwater samples has been completed as outlined in the OM&M Manual. Annual collection and analysis of groundwater samples began in 2006. Groundwater sample analytes are currently scheduled to include mercury and inorganics annually, and VOCs and SVOCs every two years, as approved by the USEPA (see Appendix B). The groundwater samples collected during this reporting period were analyzed for total and dissolved mercury and inorganics.

Beginning in 2014, in addition to total mercury and inorganic samples, dissolved-phase mercury and inorganic samples were also collected and analyzed. Sampling for dissolved-phase mercury and inorganics is currently planned to continue in future annual groundwater sampling events.

The analytical results received from the laboratory are presented in Appendix C, along with the COC. A Sample Collection Data Sheet, which includes required and actual purge volumes, sample date, time, description, required analyses, and the COC number for each well, is included in Appendix C. This sheet also indicates which well was used to collect the matrix spike (MS) and the matrix spike duplicate (MSD). Well purging information, including pH, conductivity, turbidity, odor, comments, and well volumes, is also provided in Appendix C.

April 2017 Event

Monitoring wells NCR-3S, NCR-4S, NCR-5S, and NCR-13S were sampled on April 18, 2017. The locations of the monitoring wells are provided in Figure 1.1. The data validation report is presented in Appendix D.

Eighteen metals were identified in one or more of the groundwater samples. Six of the detected metals exceeded either the NYSDEC AWQS, NYSDOH MCLs, or USEPA MCLs (screening criteria), which is consistent with previous sampling events. In general, the detected values are consistent with ranges observed in previous sampling events. Plots of selected total

metals concentrations over time are presented in Figures 2.1A through Figure 2.1J. Key results are summarized below.

- Total aluminum exceeded the NYSDEC AWQS in two (NCR-3S and NCR-4S) of the four samples. Historically, total aluminum has been above the NYSDEC AWQS in each of the samples.
- Total copper was identified in each of the samples analyzed and was above the NYSDEC AWQS in one of the samples (NCR-4S). Typically, total copper has exceeded the NYSDEC AWQS in two or more of the groundwater samples.
- Total iron was identified in each of the samples and exceeded the AWQS and the NYSDOH MCL in the samples from NCR-3S and NCR-4S. The Record of Decision (ROD) (USEPA, 1993) identifies iron as typically exceeding MCLs in the regional groundwater indicating that exceedances of iron are likely related to background conditions.
- Total and dissolved magnesium were identified in each of the four samples and exceeded the AWQS guidance value (not a standard) in each of the samples. Historically, total magnesium has exceeded the AWQS guidance value.
- Total sodium was found above the NYSDEC AWQS, the NYSDOH MCL, and USEPA MCL in one of the four samples (NCR-4S). Dissolved sodium was above these comparison values in two samples (NCR-4S and NCR-13S). The ROD identifies sodium as typically exceeding MCLs in the regional groundwater, indicating that exceedances of sodium are likely related to background conditions.

Data Validation

Groundwater analytical results were reviewed and validated by Parsons for usability (see Appendix D for the complete report). The laboratory data packages were found to be of good overall quality. Groundwater samples were collected, properly preserved, shipped under a COC record, and received at the laboratory within one day of sampling. The analytical results are considered compliant and usable. A summary of the data validation report is provided below:

Whereas all sample results were considered usable following data validation, two minor issues were noted:

- Blank contamination – The laboratory preparation blank associated with the project samples contained total zinc below the reporting limit. Validation qualification of the sample results was not required since samples were not affected by the contamination in this blank.
- Matrix spike recoveries – All matrix spike recoveries were considered acceptable and within 75-125%R QC limit for all analytes except the low matrix spike recoveries for dissolved sodium (42%R, 25%R) associated with sample NCR-13S. Therefore, positive results for this analyte were considered estimated and qualified "J" for this sample.

2.2 SITE INSPECTIONS

Monthly Site inspections were conducted between January and December 2017. During the inspections, the perimeter collection system, offsite force main, manholes, wet wells, landfill cap, wetlands, perimeter fence, drainage ditches, swale outlets, culverts, gas vents, and monitoring wells were each visually inspected. A summary of the inspection findings is included in Table 2.2. Copies of the Monthly Inspection Logs have been included in Appendix E.

Each of the inspections found the manholes and wet wells to be in good condition. Water levels in the wet wells were measured during each inspection visit (see Table 2.3). Examination of the landfill cap vegetative cover included checking for erosion, bare areas, washouts, leachate seeps, length of vegetation, and dead/dying vegetation. Additionally, during the examination of the landfill cap, the access roads were examined for bare areas, dead/dying vegetation, erosion, potholes/puddles, and obstructions. No surface erosion, bare spots, or leachate seeps were noted. The landfill cap vegetation was noted to be typical for winter conditions in January and February, and no issues were noted for each of the other monthly site inspections. The landfill cap was mowed in May.

Post-construction monitoring of the wetland replacement was performed annually between 2001 and 2005. Monitoring results indicated that the wetland creation was successful. Although the formal annual inspections are no longer required, monthly visual inspection of the wetlands has continued, to document general conditions. A drainage project was completed by the City of North Tonawanda in December 2012. This project included excavation of a drainage ditch across the northern end of the landfill property, north of the landfill's northern perimeter collection system and perimeter barrier system in an effort to alleviate seasonal flooding in the yards of homes along Witmer Road. The excavation was oriented through the wetlands in an east-west direction. The drainage project does not appear to have affected the water balance or the established vegetation in the wetland area.

The wetlands were visually examined during monthly inspections for growth and propagation of wetland species, dead/dying vegetation, presence of invasive species (i.e., purple loosestrife), change in water budget, and general conditions. No signs of damage to the wetlands due to loss of vegetation, or changes in the water budget, were observed during each of the inspections. No issues were identified in changes in the water budget of the wetlands during each of the inspections in 2017. No issues were identified with the wetland vegetation (no dead or dying vegetation) during each of the inspections in 2017. The general conditions of the wetland area was noted as good during the January and February inspections and no issues were noted for each of the other monthly inspections.

The complete landfill system, including the perimeter fence, drainage ditches, swale outlets, culverts, gas vents, monitoring wells, and wetlands was found to be in acceptable condition.

2.3 MAINTENANCE

Maintenance completed during 2017 included:

- The wet well pumps were pulled, cleaned, tested with a volt meter, and re-installed.

- The perimeter of the Site was mowed along the perimeter fence, and paths to wet wells and monitoring wells were mowed.
- The landfill cap was mowed, and brush along the roadway was cut and pushed back.
- An improperly operating (low pumping rate) pump was replaced in Wet Well D.
- Broken tree branches and limbs were removed from the Site drainage ditch.
- A sticking lock on the Site entrance gate was replaced.

Occasional unscheduled maintenance at the landfill is required. During this reporting period, unscheduled maintenance items included:

- Responding three times to address high water alarms in Wet Well A.
    - The first response required replacement of the discharge hose.
    - The second response required re-attaching the discharge hose and trouble-shooting the autodialer.
    - The third response also resulted in replacement of the discharge hose and clamps.
- Replacing a broken float switch in Wet Well B.
- Replacing a failed pump in Wet Well D.
- During the December inspection, it was observed that the flow totalizer was not operating, and the manufacturer was contacted. An insert for the flow meter was ordered and replaced within one week.

Maintenance Record Logs are included in Appendix F.

2.4 WATER LEVELS

Monthly water level measurements were collected to (1) ensure that water levels inside the landfill are lowered by the operation of the perimeter collection system; and (2) allow planning for groundwater sampling dates, when the maximum number of wells could be sampled. Water levels were collected from the wet wells, the piezometers (hydraulic monitoring locations) within the limits of the landfill, and the groundwater monitoring wells (see Figure 1.1). Water levels in the wet wells were collected during the monthly inspections and recorded on water level records (Appendix G). The water level data, including depths to water and elevations, are summarized on Table 2.3. During 2017, water levels were collected from the monitoring wells on a monthly basis. Water levels varied (rose or fell) between 1.6 and 4.4 feet over the course of the year.

Table 2.1
Detected Analytes in Groundwater Samples
Niagara County Refuse Site
Wheatfield, Niagara County, New York

City of North Tonawanda NY1A8791 216 Payne Ave North Tonawanda, NY C/O Niagara County Refuse Site Validated GW Sampling Event April 2017 Detected Compound Summary		Location ID: Sample ID: Lab Id: Source: SDG: Matrix: Sampled: Validated:	NYS DEC AWQS*	NYS DOH MCL	US EPA MCL	NCR3S WG-11109668-041817-SG-NCR3S-20170418 480-116461-4 TALBUFF 4801164611 WATER 4/18/2017 8:00 5/17/2017	NCR4S WG-11109668-041817-SG-NCR4S-20170418 480-116461-1 TALBUFF 4801164611 WATER 4/18/2017 8:40 5/17/2017	NCR5S WG-11109668-041817-SG-NCR5S-20170418 480-116461-2 TALBUFF 4801164611 WATER 4/18/2017 8:30 5/17/2017	Field Duplicate (NCR5S) WG-11109668-041817-SG-NCR6S-20170418 480-116461-3 TALBUFF 4801164611 WATER 4/18/2017 8:30 5/17/2017	NCR13S WG-11109668-041817-SG-NCR13S-20170418 480-116461-5 TALBUFF 4801164611 WATER 4/18/2017 8:10 5/17/2017
CAS NO.	COMPOUND	UNITS:								
	Total METALS									
7429-90-5	ALUMINUM	ug/L	100	-	-	200	22900	70 J	920	76 J
7440-38-2	ARSENIC	ug/L	25	50	50	ND	6.6 J	ND	ND	ND
7440-39-3	BARIUM	ug/L	1,000	2,000	2,000	37	90	130	140	42
7440-41-7	BERYLLIUM	ug/L	3+	4	4	ND	0.79 J	ND	ND	ND
7440-43-9	CADMIUM	ug/L	5	5	5	ND	0.79 J	ND	ND	ND
7440-70-2	CALCIUM	ug/L	-	-	-	97700	129000	82900	81500	150000
7440-47-3	CHROMIUM	ug/L	50	100	100	3.7 J	11	ND	4.2	ND
7440-48-4	COBALT	ug/L	-	-	-	ND	2.1 J	ND	ND	ND
7440-50-8	COPPER	ug/L	5	-	-	3.1 J	29	2.8 J	3.6 J	2.1 J
7439-89-6	IRON	ug/L	300>	300+	-	**370**	**64100**	73	**660**	99
7439-92-1	LEAD	ug/L	25	25	15	3.1 J	**46**	ND	ND	4.6 J
7439-95-4	MAGNESIUM	ug/L	35000+	-	-	58200	40600	46400	46200	62300
7439-96-5	MANGANESE	ug/L	300>	300+	-	4.4	150	1.7 J	15	40
7440-02-0	NICKEL	ug/L	100	-	-	5.9 J	12	3.4 J	6.2 J	2.7 J
7440-09-7	POTASSIUM	ug/L	-	-	-	1800	10000	440 J	610	1000
7440-23-5	SODIUM	ug/L	20,000	20,000	20,000	7100	**26500**	13700	14100	11000
7440-62-2	VANADIUM	ug/L	14	-	-	ND	9.1	ND	ND	ND
7440-66-6	ZINC	ug/L	2,000+	5,000	-	31	940	3 J	5.3 J	2.4 J
	DISSOLVED METALS									
7440-39-3	BARIUM	ug/L	1,000	2,000	2,000	37	36	120	130	34
7440-70-2	CALCIUM	ug/L	-	-	-	97100	106000	75200	78000	144000
7440-47-3	CHROMIUM	ug/L	50	100	100	1.2 J	ND	ND	ND	ND
7440-50-8	COPPER	ug/L	5	-	-	3.8 J	ND	ND	2.8 J	ND
7439-92-1	LEAD	ug/L	25	25	15	ND	ND	ND	ND	3.1 J
7439-95-4	MAGNESIUM	ug/L	35000+	-	-	58100	35400	43700	45300	73600
7439-96-5	MANGANESE	ug/L	300>	300+	-	1.1 J	ND	ND	0.41 J	12
7440-02-0	NICKEL	ug/L	100	-	-	8.6 J	ND	1.8 J	2.6 J	2.6 J
7440-09-7	POTASSIUM	ug/L	-	-	-	1800	9600	440 J	480 J	990
7440-23-5	SODIUM	ug/L	20,000	20,000	20,000	7500	**27300**	12500	14400	**21300 J**
7440-66-6	ZINC	ug/L	2,000+	5,000	-	35	17	2.1 J	2.7 J	9.9 J

* = NYSDEC Ambient Water Quality Standard + = Guidance value.
>=Sum of iron and manganese should not exceed 500 ug/L NYSDEC or 300 ug/L NYSDOH
J = estimated value. - = no standard identified.
Boxed values exceed NYSDEC AWQS.
Bold values exceed NYSDOH maximum contaminant level (MCL).
Shaded values exceed USEPA maximum contaminant level.

Table 2.2 Monthly Site Inspection Summary

Inspection Item	Acceptable	Not Acceptable	Comments
Manholes	X		
Wet Wells	X		Water levels were measured monthly.
Wetlands	X		No issues were observed in the wetlands or their water levels during the monthly inspections.
Perimeter Fence	X		No repairs were required in 2017.
Condition of Roads	X		No erosion or other problems.
Integrity of the Cap	X		No problems were noted in 2017.
Drainage Ditches/Swales	X		
Gas Venting System	X		
Wells	X		Water levels were measured monthly.
Culverts	X		
Vegetative Cover	X		Height of vegetation on the cap was noted as typical for winter conditions during the January and February inspection. Each of the other inspections did not identify any issues. The cap was mowed in May 2017.

Table 2.3
Niagara County Refuse Site
Water Level Measurements

Observation Point	Elevation Top of Casing (ft. msl)	12/5/2000 Depth to Water (ft)	12/5/2000 Elevation (ft. msl)	1/8/2001 Depth to Water (ft)	1/8/2001 Elevation (ft. msl)	2/1/2001 Depth to Water (ft)	2/1/2001 Elevation (ft. msl)	3/8/2001 Depth to Water (ft)	3/8/2001 Elevation (ft. msl)	4/4/2001 Depth to Water (ft)	4/4/2001 Elevation (ft. msl)	5/8/2001 Depth to Water (ft)	5/8/2001 Elevation (ft. msl)	6/5/2001 Depth to Water (ft)	6/5/2001 Elevation (ft. msl)	7/2/2001 Depth to Water (ft)	7/2/2001 Elevation (ft. msl)	8/1/2001 Depth to Water (ft)	8/1/2001 Elevation (ft. msl)	9/5/2001 Depth to Water (ft)	9/5/2001 Elevation (ft. msl)	10/4/2001 Depth to Water (ft)	10/4/2001 Elevation (ft. msl)	11/5/2001 Depth to Water (ft)	11/5/2001 Elevation (ft. msl)	12/11/2001 Depth to Water (ft)	12/11/2001 Elevation (ft. msl)
East "A"	598.93	22.05	576.88	-	-	-	-	21.34	577.59	-	-	22.21	576.72	21.98	576.95	-	-	22.51	576.42	22.63	576.30	22.61	576.32	22.74	576.19	22.88	576.05
East "B"	596.23	19.12	577.11	-	-	-	-	19.35	576.88	-	-	19.23	577.00	19.30	576.93	-	-	20.50	575.73	19.44	576.79	19.22	577.01	19.36	576.87	19.44	576.79
East "C"	598.69	17.46	581.23	-	-	-	-	17.86	580.83	-	-	18.37	580.32	18.38	580.31	-	-	18.65	580.04	18.64	580.05	18.20	580.49	18.80	579.89	18.75	579.94
East "D"	593.20	11.10	582.10	-	-	-	-	12.45	580.75	-	-	12.86	580.34	12.79	580.41	-	-	13.00	580.20	12.8	580.40	12.24	580.96	12.74	580.46	12.94	580.26
WW A	-	2.50	-	2.67	-	2.33	-	1.13	-	2.29	-	1.83	-	2.17	-	1.58	-	1.83	-	-	-	1.83	-	2.33	-	2.08	-
WW B	-	2.20	-	2.42	-	1.96	-	1.09	-	1.79	-	2.17	-	1.92	-	1.50	-	2.00	-	1.92	-	1.58	-	1.50	-	2.08	-
WW C	-	1.50	-	2.42	-	1.70	-	0.92	-	2.04	-	2.00	-	1.67	-	1.33	-	2.08	-	2.33	-	1.25	-	2.00	-	1.58	-
WW D	-	1.70	-	-	-	1.50	-	0.99	-	1.08	-	1.50	-	1.33	-	2.0	-	1.25	-	2.25	-	2.00	-	2.08	-	1.33	-
NCR-3S	579.60	-	-	-	-	-	-	-	-	-	-	-	-	3.71	575.89	-	-	dry	-	dry	-	dry	-	5.10	574.50	4.64	574.96
NCR-4S	577.88	-	-	-	-	-	-	-	-	-	-	-	-	4.28	573.60	-	-	dry	-	dry	-	dry	-	4.51	573.37	3.92	573.96
NCR-5S	579.34	-	-	-	-	-	-	-	-	-	-	-	-	9.10	570.24	-	-	dry	-	dry	-	dry	-	dry	-	dry	-
NCR-13S	577.15	-	-	-	-	-	-	-	-	-	-	-	-	7.05	570.10	-	-	7.85	569.30	7.80	569.35	7.70	569.45	6.65	570.50	6.11	571.04

Observation Point	Elevation Top of Casing (ft. msl)	1/2/2002 Depth to Water (ft)	1/2/2002 Elevation (ft. msl)	2/4/2002 Depth to Water (ft)	2/4/2002 Elevation (ft. msl)	3/4/2002 Depth to Water (ft)	3/4/2002 Elevation (ft. msl)	4/1/2002 Depth to Water (ft)	4/1/2002 Elevation (ft. msl)	5/3/2002 Depth to Water (ft)	5/3/2002 Elevation (ft. msl)	6/4/2002 Depth to Water (ft)	6/4/2002 Elevation (ft. msl)	7/2/2002 Depth to Water (ft)	7/2/2002 Elevation (ft. msl)	8/7/2002 Depth to Water (ft)	8/7/2002 Elevation (ft. msl)	9/6/2002 Depth to Water (ft)	9/6/2002 Elevation (ft. msl)	10/3/2002 Depth to Water (ft)	10/3/2002 Elevation (ft. msl)	11/7/2002 Depth to Water (ft)	11/7/2002 Elevation (ft. msl)	12/3/2002 Depth to Water (ft)	12/3/2002 Elevation (ft. msl)
East "A"	598.93	22.90	576.03	22.81	576.12	22.03	576.90	22.25	576.68	20.06	578.87	19.84	579.09	22.00	576.93	22.65	576.28	22.78	576.15	28.48	570.45	23.25	575.68	23.36	575.57
East "B"	596.23	19.63	576.60	19.39	576.84	19.46	576.77	19.49	576.74	19.44	576.79	20.59	575.64	19.56	576.67	19.40	576.83	19.40	576.83	19.46	576.77	19.35	576.88	-	-
East "C"	598.69	18.70	579.99	18.51	580.18	18.70	579.99	18.63	580.06	18.80	579.89	18.74	579.95	18.78	579.91	18.95	579.74	18.92	579.77	18.99	579.70	19.30	579.39	19.35	579.34
East "D"	593.20	13.16	580.04	12.95	580.25	13.3	579.90	13.35	579.85	13.50	579.70	13.73	579.47	13.74	579.46	13.81	579.39	13.58	579.62	14.01	579.19	13.2	580.00	13.54	579.66
WW A	-	1.17	-	2.17	-	1.67	-	2.00	-	2.00	-	2.17	-	1.50	-	2.50	-	1.83	-	1.50	-	1.42	-	2.00	-
WW B	-	1.00	-	2.00	-	1.25	-	1.33	-	1.67	-	2.00	-	1.58	-	1.67	-	1.42	-	1.33	-	1.17	-	1.25	-
WW C	-	1.50	-	1.42	-	1.58	-	1.50	-	1.83	-	1.25	-	1.67	-	2.17	-	1.50	-	1.33	-	1.25	-	1.50	-
WW D	-	1.50	-	1.00	-	1.42	-	1.17	-	1.58	-	1.50	-	1.92	-	2.00	-	1.67	-	2.00	-	1.33	-	1.50	-
NCR-3S	579.60	4.54	575.06	4.52	575.08	3.90	575.70	4.10	575.50	4.43	575.17	5.20	574.40	5.71	573.89	5.90	573.70	dry	-	5.91	573.69	dry	-	4.46	575.14
NCR-4S	577.88	3.71	574.17	3.70	574.18	3.80	574.08	3.66	574.22	3.75	574.13	4.02	573.86	4.45	573.43	dry	-	dry	-	dry	-	dry	-	3.95	573.93
NCR-5S	579.34	8.42	570.92	7.69	571.65	7.68	571.66	7.61	571.73	8.28	571.06	9.10	570.24	9.52	569.82	dry	-	dry	-	dry	-	dry	-	dry	-
NCR-13S	577.15	5.85	571.30	5.76	571.39	5.74	571.41	5.81	571.34	6.07	571.08	6.27	570.88	7.25	569.90	7.57	569.58	dry	-	7.78	569.37	dry	-	6.40	570.75

Notes:

- = measurment not collected.

dry = no water in well.

Table 2.3
Niagara County Refuse Site
Water Level Measurements

Observation Point	Elevation Top of Casing (ft. msl)	1/6/2003		2/5/2003		3/6/2003		4/2/2003		5/5/2003		6/5/2003		7/1/2003		8/11/2003		9/2/2003		10/8/2003		11/12/2003		12/6/2003	
		Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)
East "A"	598.93	23.48	575.45	23.51	575.42	23.65	575.28	23.75	575.18	23.81	575.12	23.25	575.68	23.11	575.82	23.25	575.68	23.41	575.52	23.35	575.58	23.71	575.22	23.85	575.08
East "B"	596.23	19.53	576.70	19.40	576.83	19.59	576.64	19.61	576.62	19.70	576.53	19.66	576.57	19.77	576.46	19.58	576.65	19.64	576.59	19.59	576.64	19.65	576.58	NA	-
East "C"	598.69	18.82	579.87	19.11	579.58	18.99	579.70	19.07	579.62	18.98	579.71	19.00	579.69	19.39	579.30	19.19	579.50	19.25	579.44	19.24	579.45	18.81	579.88	19.27	579.42
East "D"	593.20	13.24	579.96	13.52	579.68	13.7	579.50	13.88	579.32	14.15	579.05	14.07	579.13	14.31	578.89	14.04	579.16	14.04	579.16	13.97	579.23	13.64	579.56	14.02	579.18
WW A	-	1.42	-	1.25	-	1.50	-	1.42	-	1.58	-	1.33	-	1.33	-	1.17	-	1.42	-	1.33	-	2.00	-	1.33	-
WW B	-	1.08	-	1.17	-	1.67	-	1.17	-	0.75	-	1.25	-	1.42	-	1.50	-	1.50	-	1.17	-	1.42	-	1.67	-
WW C	-	1.33	-	1.50	-	1.25	-	1.33	-	1.50	-	1.42	-	1.00	-	1.08	-	1.08	-	1.08	-	1.00	-	1.67	-
WW D	-	1.42	-	1.67	-	1.08	-	1.25	-	1.50	-	1.50	-	1.25	-	1.58	-	1.33	-	1.50	-	1.58	-	1.50	-
NCR-3S	579.60	3.84	575.76	4.06	575.54	4.55	575.05	4.39	575.21	4.39	575.21	4.41	575.19	5.80	573.80	5.92	573.68	dry	-	dry	-	4.45	575.15	4.24	575.36
NCR-4S	577.88	2.91	574.97	-	-	-	-	3.65	574.23	3.60	574.28	2.65	575.23	4.05	573.83	3.98	573.90	dry	-	4.37	573.51	2.93	574.95	2.88	575.00
NCR-5S	579.34	7.95	571.39	8.69	570.65	8.11	571.23	7.66	571.68	8.58	570.76	8.08	571.26	9.26	570.08	10.12	569.22	10.95	568.39	dry	-	10.40	568.94	8.11	571.23
NCR-13S	577.15	5.89	571.26	5.54	571.61	6.16	570.99	6.05	571.10	6.13	571.02	6.11	571.04	7.21	569.94	7.48	569.67	7.59	569.56	7.77	569.38	6.35	570.80	6.07	571.08

Observation Point	Elevation Top of Casing (ft. msl)	1/2/2004		2/5/2004		3/1/2004		4/5/2004		5/4/2004		6/11/2004		7/10/2004		8/9/2004		9/8/2004		10/2/2004		11/4/2004		12/3/2004	
		Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)
East "A"	598.93	23.90	575.03	23.93	575.00	24.00	574.93	23.26	575.67	22.14	576.79	19.44	579.49	19.19	579.74	20.70	578.23	23.31	575.62	23.34	575.59	22.44	576.49	22.48	576.45
East "B"	596.23	19.83	576.40	NA	-	NA	-	19.60	576.63	19.65	576.58	19.81	576.42	19.75	576.48	19.85	576.38	19.68	576.55	19.53	576.70	17.51	578.72	17.49	578.74
East "C"	598.69	19.12	579.57	19.79	578.90	19.22	579.47	19.36	579.33	19.24	579.45	19.42	579.27	19.28	579.41	19.56	579.13	19.48	579.21	19.36	579.33	18.95	579.74	18.94	579.75
East "D"	593.20	13.9	579.30	14.52	578.68	14.11	579.09	14.05	579.15	14.25	578.95	14.5	578.70	14.4	578.80	14.64	578.56	14.3	578.90	14.18	579.02	14.05	579.15	14.01	579.19
WW A	-	1.58	-	1.17	-	2.17	-	0.75	-	1.25	-	1.50	-	1.25	-	1.25	-	1.33	-	1.25	-	1.42	-	1.67	-
WW B	-	1.33	-	NA	-	1.50	-	1.30	-	1.17	-	1.17	-	1.17	-	1.25	-	1.00	-	1.00	-	1.17	-	0.42	-
WW C	-	1.08	-	1.00	-	1.17	-	1.17	-	1.00	-	1.08	-	1.17	-	1.08	-	1.17	-	1.17	-	1.58	-	0.25	-
WW D	-	1.17	-	1.08	-	1.67	-	0.65	-	1.50	-	1.33	-	1.00	-	1.00	-	1.25	-	1.00	-	1.17	-	0.25	-
NCR-3S	579.60	4.11	575.49	4.21	575.39	3.19	576.41	4.09	575.51	3.37	576.23	4.92	574.68	dry	-	4.36	575.24	5.44	574.16	dry	-	2.42	577.18	3.06	576.54
NCR-4S	577.88	2.65	575.23	2.72	575.16	2.42	575.46	2.53	575.35	2.76	575.12	2.99	574.89	3.74	574.14	3.50	574.38	3.32	574.56	3.65	574.23	2.74	575.14	2.75	575.13
NCR-5S	579.34	7.53	571.81	8.34	571.00	7.01	572.33	7.10	572.24	7.99	571.35	8.80	570.54	9.20	570.14	9.40	569.94	9.20	570.14	9.28	570.06	9.90	569.44	7.27	572.07
NCR-13S	577.15	5.72	571.43	5.95	571.20	5.88	571.27	5.49	571.66	6.08	571.07	6.22	570.93	7.08	570.07	7.09	570.06	6.75	570.40	7.16	569.99	5.95	571.20	4.28	572.87

Notes:

- = measurment not collected.

dry = no water in well.

Table 2.3
Niagara County Refuse Site
Water Level Measurements

Observation Point	Elevation Top of Casing (ft. msl)	1/5/2005		2/3/2005		3/9/2005		4/2/2005		6/4/2005		7/6/2005		8/4/2005		9/3/2005		10/7/2005		12/10/2005	
		Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)
East "A"	598.93	24.20	574.73	21.21	577.72	19.45	579.48	22.21	576.72	22.19	576.74	23.24	575.69	23.49	575.44	23.57	575.36	24.07	574.86	24.47	574.46
East "B"	596.23	19.68	576.55	19.52	576.71	19.79	576.44	19.66	576.57	19.97	576.26	19.89	576.34	19.96	576.27	19.70	576.53	19.51	576.72	19.50	576.73
East "C"	598.69	19.60	579.09	19.42	579.27	19.33	579.36	19.15	579.54	19.71	578.98	19.76	578.93	19.57	579.12	19.51	579.18	19.65	579.04	19.39	579.30
East "D"	593.20	14.2	579.00	14.35	578.85	13.89	579.31	14.29	578.91	14.68	578.52	14.64	578.56	14.62	578.58	14.47	578.73	14.4	578.80	14.24	578.96
WW A	-	0.58	-	1.08	-	0.50	-	1.00	-	1.00	-	1.00	-	1.25	-	1.17	-	1.33	-	1.50	-
WW B	-	1.50	-	1.17	-	0.83	-	1.25	-	1.17	-	1.50	-	1.42	-	0.92	-	1.17	-	1.17	-
WW C	-	0.67	-	1.00	-	1.00	-	1.00	-	1.25	-	0.92	-	1.25	-	1.00	-	1.00	-	0.83	-
WW D	-	1.25	-	1.25	-	1.00	-	1.17	-	1.33	-	0.92	-	1.50	-	1.00	-	1.08	-	1.08	-
NCR-3S	579.60	1.82	577.78	3.39	576.21	3.11	576.49	1.50	578.10	5.93	573.67	dry	-	5.96	573.64	dry	-	5.63	573.97	4.21	575.39
NCR-4S	577.88	2.60	575.28	3.08	574.80	frozen	-	2.51	575.37	3.87	574.01	dry	-	dry	-	dry	-	3.69	574.19	2.99	574.89
NCR-5S	579.34	5.46	573.88	6.57	572.77	6.14	573.20	6.36	572.98	8.10	571.24	10.60	568.74	dry	-	dry	-	dry	-	8.17	571.17
NCR-13S	577.15	3.60	573.55	5.14	572.01	4.34	572.81	3.19	573.96	6.59	570.56	7.52	569.63	7.79	569.36	dry	-	7.21	569.94	6.06	571.09

Observation Point	Elevation Top of Casing (ft. msl)	1/13/2006		2/10/2006		3/3/2006		4/8/2006		5/1/2006		6/7/2006		7/14/2006		8/8/2006		9/18/2006		10/7/2006		11/3/2006		12/1/2006	
		Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)
East "A"	598.93	24.55	574.38	24.68	574.25	24.72	574.21	24.22	574.71	24.81	574.12	23.53	575.40	24.77	574.16	24.23	574.70	24.68	574.25	24.78	574.15	24.74	574.19	24.53	574.40
East "B"	596.23	19.45	576.78	19.85	576.38	19.87	576.36	19.86	576.37	21.10	575.13	19.80	576.43	19.79	576.44	19.84	576.39	19.51	576.72	19.80	576.43	19.86	576.37	18.80	577.43
East "C"	598.69	19.28	579.41	19.75	578.94	19.84	578.85	19.77	578.92	20.09	578.60	19.69	579.00	19.71	578.98	19.66	579.03	19.37	579.32	20.78	577.91	20.03	578.66	19.26	579.43
East "D"	593.20	14.15	579.05	14.48	578.72	14.44	578.76	14.46	578.74	14.74	578.46	14.87	578.33	14.83	578.37	14.71	578.49	14.45	578.75	14.95	578.25	14.67	578.53	14.45	578.75
WW A	-	1.17	-	1.17	-	1.17	-	1.00	-	1.25	-	1.25	-	1.00	-	1.17	-	1.17	-	1.17	-	1.08	-	1.33	-
WW B	-	0.83	-	1.17	-	0.92	-	1.08	-	1.08	-	1.08	-	1.25	-	1.00	-	0.83	-	0.92	-	1.00	-	0.83	-
WW C	-	0.92	-	1.00	-	1.00	-	1.08	-	1.08	-	1.00	-	1.25	-	1.00	-	0.83	-	1.00	-	0.92	-	0.67	-
WW D	-	1.08	-	1.00	-	0.92	-	0.92	-	1.00	-	1.17	-	0.92	-	0.92	-	0.92	-	1.00	-	1.00	-	1.00	-
NCR-3S	579.60	2.77	576.83	3.02	576.58	3.48	576.12	2.45	577.15	3.44	576.16	dry	-	dry	-	5.85	573.75	3.67	575.93	3.06	576.54	3.51	576.09	1.35	578.25
NCR-4S	577.88	2.83	575.05	2.91	574.97	3.30	574.58	2.72	575.16	3.26	574.62	4.31	573.57	4.59	573.29	dry	-	3.51	574.37	2.97	574.91	3.15	574.73	2.44	575.44
NCR-5S	579.34	7.43	571.91	7.96	571.38	8.58	570.76	7.91	571.43	8.79	570.55	8.97	570.37	dry	-	dry	-	dry	-	7.37	571.97	6.22	573.12	4.21	575.13
NCR-13S	577.15	5.78	571.37	5.99	571.16	6.08	571.07	5.84	571.31	6.15	571.00	7.33	569.82	7.57	569.58	7.69	569.46	6.36	570.79	5.72	571.43	4.33	572.82	2.77	574.38

Notes:

- = measurment not collected.

dry = no water in well.

Table 2.3
Niagara County Refuse Site
Water Level Measurements

Observation Point	Elevation Top of Casing (ft. msl)	1/19/2007 Depth to Water (ft)	1/19/2007 Elevation (ft. msl)	2/9/2007 Depth to Water (ft)	2/9/2007 Elevation (ft. msl)	3/10/2007 Depth to Water (ft)	3/10/2007 Elevation (ft. msl)	4/2/2007 Depth to Water (ft)	4/2/2007 Elevation (ft. msl)	5/4/2007 Depth to Water (ft)	5/4/2007 Elevation (ft. msl)	6/1/2007 Depth to Water (ft)	6/1/2007 Elevation (ft. msl)	7/2/2007 Depth to Water (ft)	7/2/2007 Elevation (ft. msl)	8/2/2007 Depth to Water (ft)	8/2/2007 Elevation (ft. msl)	9/17/2007 Depth to Water (ft)	9/17/2007 Elevation (ft. msl)	10/12/2007 Depth to Water (ft)	10/12/2007 Elevation (ft. msl)	11/1/2007 Depth to Water (ft)	11/1/2007 Elevation (ft. msl)	12/1/2007 Depth to Water (ft)	12/1/2007 Elevation (ft. msl)
East "A"	598.93	24.98	573.95	24.65	574.28	24.84	574.09	24.88	574.05	25.02	573.91	25.50	573.43	24.98	573.95	24.96	573.97	25.03	573.90	24.98	573.95	25.11	573.82	25.13	573.80
East "B"	596.23	19.38	576.85	19.56	576.67	-	-	19.98	576.25	20.07	576.16	19.78	576.45	19.86	576.37	19.85	576.38	19.81	576.42	19.50	576.73	19.52	576.71	19.59	576.64
East "C"	598.69	19.51	579.18	19.81	578.88	19.71	578.98	20.10	578.59	20.17	578.52	19.87	578.82	19.99	578.70	19.97	578.72	20.19	578.50	19.78	578.91	19.93	578.76	19.97	578.72
East "D"	593.20	14.38	578.82	14.68	578.52	14.82	578.38	15.24	577.96	15.09	578.11	15.1	578.10	15.19	578.01	15.11	578.09	15.16	578.04	14.64	578.56	14.8	578.40	14.86	578.34
WW A	-	1.17	-	1.08	-	1.25	-	1.08	-	1.25	-	1.17	-	1.00	-	0.83	-	0.67	-	1.00	-	0.92	-	1.00	-
WW B	-	1.00	-	1.00	-	0.67	-	1.17	-	0.75	-	0.92	-	0.83	-	0.83	-	0.83	-	0.92	-	1.08	-	1.17	-
WW C	-	0.83	-	0.83	-	0.67	-	0.83	-	0.83	-	0.83	-	0.67	-	0.50	-	0.67	-	0.50	-	1.00	-	1.08	-
WW D	-	1.00	-	0.83	-	1.00	-	0.83	-	0.83	-	1.00	-	0.83	-	1.00	-	0.75	-	0.83	-	1.00	-	1.00	-
NCR-3S	579.60	3.04	576.56	3.75	575.85	2.70	576.90	3.26	576.34	3.50	576.10	5.89	573.71	dry	-	dry	-	dry	-	dry	-	dry	-	dry	-
NCR-4S	577.88	2.94	574.94	3.42	574.46	2.80	575.08	2.93	574.95	3.19	574.69	3.90	573.98	dry	-	dry	-	dry	-	dry	-	dry	-	dry	-
NCR-5S	579.34	5.77	573.57	6.83	572.51	6.28	573.06	6.08	573.26	6.75	572.59	8.87	570.47	10.99	568.35	dry	-	dry	-	dry	-	dry	-	dry	-
NCR-13S	577.15	3.85	573.30	4.51	572.64	4.39	572.76	4.25	572.90	4.81	572.34	7.01	570.14	7.44	569.71	7.70	569.45	dry	-	7.72	569.43	7.75	569.40	dry	-

Observation Point	Elevation Top of Casing (ft. msl)	1/4/2008 Depth to Water (ft)	1/4/2008 Elevation (ft. msl)	2/8/2008 Depth to Water (ft)	2/8/2008 Elevation (ft. msl)	3/7/2008 Depth to Water (ft)	3/7/2008 Elevation (ft. msl)	4/4/2008 Depth to Water (ft)	4/4/2008 Elevation (ft. msl)	5/8/2008 Depth to Water (ft)	5/8/2008 Elevation (ft. msl)	6/5/2008 Depth to Water (ft)	6/5/2008 Elevation (ft. msl)	7/1/2008 Depth to Water (ft)	7/1/2008 Elevation (ft. msl)	8/7/2008 Depth to Water (ft)	8/7/2008 Elevation (ft. msl)	9/11/2008 Depth to Water (ft)	9/11/2008 Elevation (ft. msl)	10/9/2008 Depth to Water (ft)	10/9/2008 Elevation (ft. msl)	11/3/2008 Depth to Water (ft)	11/3/2008 Elevation (ft. msl)	12/5/2008 Depth to Water (ft)	12/5/2008 Elevation (ft. msl)
East "A"	598.93	25.31	573.62	25.22	573.71	25.27	573.66	25.37	573.56	25.39	573.54	25.46	573.47	25.49	573.44	25.44	573.49	25.50	573.43	25.41	573.52	25.39	573.54	25.41	573.52
East "B"	596.23	19.95	576.28	19.65	576.58	19.90	576.33	19.70	576.53	19.71	576.52	19.96	576.27	19.91	576.32	19.87	576.36	20.04	576.19	19.60	576.63	19.83	576.40	19.99	576.24
East "C"	598.69	20.30	578.39	19.97	578.72	20.26	578.43	19.85	578.84	19.99	578.70	20.18	578.51	20.20	578.49	20.13	578.56	20.44	578.25	20.03	578.66	20.20	578.49	20.20	578.49
East "D"	593.20	15.15	578.05	14.66	578.54	14.89	578.31	15.11	578.09	15.02	578.18	15.2	578.00	15.4	577.80	15.34	577.86	15.51	577.69	15.16	578.04	15.4	577.80	15.13	578.07
WW A	-	1.00	-	0.83	-	1.08	-	0.92	-	1.08	-	1.00	-	0.83	-	0.83	-	0.83	-	0.83	-	1.00	-	1.00	-
WW B	-	0.83	-	0.92	-	1.00	-	1.00	-	0.83	-	0.83	-	0.83	-	0.83	-	0.67	-	0.75	-	0.67	-	0.92	-
WW C	-	1.00	-	0.83	-	0.75	-	0.50	-	0.75	-	0.83	-	0.67	-	0.83	-	0.42	-	0.50	-	0.58	-	0.83	-
WW D	-	1.08	-	1.00	-	0.83	-	0.33	-	0.50	-	0.50	-	0.59	-	0.67	-	0.50	-	0.50	-	0.50	-	0.50	-
NCR-3S	579.60	3.46	576.14	3.29	576.31	3.56	576.04	3.21	576.39	4.17	575.43	dry	-	dry	-	3.81	575.79	dry	-	5.44	574.16	3.81	-	3.22	576.38
NCR-4S	577.88	3.06	574.82	2.82	575.06	2.89	574.99	2.59	575.29	2.91	574.97	3.61	574.27	4.53	573.35	3.43	574.45	4.27	573.61	3.90	573.98	3.17	574.71	3.52	574.36
NCR-5S	579.34	10.80	568.54	6.26	573.08	7.11	572.23	5.84	573.50	7.45	571.89	9.00	570.34	10.24	569.10	dry	-	dry	-	dry	-	7.75	571.59	6.24	573.10
NCR-13S	577.15	4.64	572.51	4.30	572.85	4.74	572.41	4.16	572.99	5.31	571.84	6.92	570.23	7.47	569.68	7.26	569.89	7.54	569.61	7.48	569.67	5.75	571.40	4.53	572.62

Notes:

- = measurment not collected.

dry = no water in well.

Table 2.3
Niagara County Refuse Site
Water Level Measurements

Observation Point	Elevation Top of Casing (ft. msl)	1/9/2009 Depth to Water (ft)	1/9/2009 Elevation (ft. msl)	2/5/2009 Depth to Water (ft)	2/5/2009 Elevation (ft. msl)	3/5/2009 Depth to Water (ft)	3/5/2009 Elevation (ft. msl)	4/3/2009 Depth to Water (ft)	4/3/2009 Elevation (ft. msl)	5/1/2009 Depth to Water (ft)	5/1/2009 Elevation (ft. msl)	6/4/2009 Depth to Water (ft)	6/4/2009 Elevation (ft. msl)	7/10/2009 Depth to Water (ft)	7/10/2009 Elevation (ft. msl)	8/12/2009 Depth to Water (ft)	8/12/2009 Elevation (ft. msl)	9/5/2009 Depth to Water (ft)	9/5/2009 Elevation (ft. msl)	10/9/2009 Depth to Water (ft)	10/9/2009 Elevation (ft. msl)	11/8/2009 Depth to Water (ft)	11/8/2009 Elevation (ft. msl)	12/4/2009 Depth to Water (ft)	12/4/2009 Elevation (ft. msl)
East "A"	598.93	25.34	573.59	25.54	573.39	25.60	573.33	25.42	573.51	25.64	573.29	25.66	573.27	25.62	573.31	25.51	573.42	25.52	573.41	25.45	573.48	25.63	573.30	25.53	573.40
East "B"	596.23	19.85	576.38	20.05	576.18	19.94	576.29	19.44	576.79	19.99	576.24	20.00	576.23	20.15	576.08	19.77	576.46	19.83	576.40	19.78	576.45	19.85	576.38	19.66	576.57
East "C"	598.69	20.22	578.47	20.56	578.13	20.20	578.49	19.36	579.33	20.35	578.34	20.55	578.14	20.51	578.18	20.33	578.36	20.30	578.39	20.04	578.65	20.45	578.24	20.30	578.39
East "D"	593.20	14.85	578.35	15.25	577.95	15.54	577.66	14.81	578.39	15.65	577.55	15.75	577.45	15.62	577.58	15.51	577.69	15.69	577.51	15.22	577.98	15.45	577.75	18.98	574.22
WW A	-	1.33	-	0.83	-	0.83	-	1.00	-	0.83	-	0.83	-	0.67	-	0.50	-	0.75	-	1.00	-	0.75	-	0.75	-
WW B	-	1.00	-	0.67	-	1.00	-	0.92	-	1.00	-	0.67	-	0.83	-	0.83	-	0.67	-	1.00	-	1.00	-	0.42	-
WW C	-	0.75	-	0.67	-	0.50	-	0.50	-	0.50	-	0.58	-	0.50	-	0.58	-	0.50	-	0.42	-	0.33	-	0.83	-
WW D	-	0.67	-	1.00	-	0.50	-	0.58	-	0.50	-	0.50	-	0.42	-	0.67	-	0.50	-	0.67	-	0.58	-	0.75	-
NCR-3S	579.60	2.97	576.63	4.11	575.49	3.55	576.05	2.20	577.40	3.48	576.12	dry	-	dry	-	3.66	575.94	dry	-	4.52	575.08	3.74	575.86	2.57	577.03
NCR-4S	577.88	2.90	574.98	3.19	574.69	3.36	574.52	2.39	575.49	2.90	574.98	dry	-	4.65	573.23	2.98	574.90	dry	-	3.49	574.39	3.15	574.73	2.78	575.10
NCR-5S	579.34	6.33	573.01	7.42	571.92	6.78	572.56	8.00	571.34	6.46	572.88	6.87	572.47	10.10	569.24	7.47	571.87	9.88	569.46	dry	-	9.78	569.56	5.92	573.42
NCR-13S	577.15	4.40	572.75	5.09	572.06	5.01	572.14	4.04	573.11	4.77	572.38	5.95	571.20	7.47	569.68	5.92	571.23	7.45	569.70	dry	-	6.16	570.99	4.27	572.88

Observation Point	Elevation Top of Casing (ft. msl)	1/7/2010 Depth to Water (ft)	1/7/2010 Elevation (ft. msl)	2/1/2010 Depth to Water (ft)	2/1/2010 Elevation (ft. msl)	3/11/2010 Depth to Water (ft)	3/11/2010 Elevation (ft. msl)	4/1/2010 Depth to Water (ft)	4/1/2010 Elevation (ft. msl)	5/6/2010 Depth to Water (ft)	5/6/2010 Elevation (ft. msl)	6/1/2010 Depth to Water (ft)	6/1/2010 Elevation (ft. msl)	7/2/2010 Depth to Water (ft)	7/2/2010 Elevation (ft. msl)	8/12/2010 Depth to Water (ft)	8/12/2010 Elevation (ft. msl)	9/16/2010 Depth to Water (ft)	9/16/2010 Elevation (ft. msl)	10/8/2010 Depth to Water (ft)	10/8/2010 Elevation (ft. msl)	11/5/2010 Depth to Water (ft)	11/5/2010 Elevation (ft. msl)	12/2/2010 Depth to Water (ft)	12/2/2010 Elevation (ft. msl)
East "A"	598.93	25.62	573.31	25.72	573.21	25.77	573.16	25.81	573.12	25.79	573.14	25.73	573.20	25.78	573.15	25.74	573.19	25.78	573.15	25.77	573.16	25.82	573.11	25.88	573.05
East "B"	596.23	19.78	576.45	19.97	576.26	19.83	576.40	19.83	576.40	19.79	576.44	19.83	576.40	19.99	576.24	19.84	576.39	19.87	576.36	19.70	576.53	19.52	576.71	19.52	576.71
East "C"	598.69	20.24	578.45	20.46	578.23	20.25	578.44	20.31	578.38	20.21	578.48	20.24	578.45	20.65	578.04	20.22	578.47	20.19	578.50	20.32	578.37	19.98	578.71	20.40	578.29
East "D"	593.20	15.25	577.95	15.42	577.78	15.38	577.82	15.48	577.72	15.49	577.71	15.59	577.61	15.7	577.50	15.65	577.55	15.65	577.55	15.43	577.77	15.53	577.67	15.22	577.98
WW A	-	0.83	-	0.83	-	0.83	-	0.67	-	0.58	-	0.83	-	0.67	-	0.75	-	0.67	-	0.67	-	0.83	-	0.67	-
WW B	-	0.58	-	0.58	-	0.75	-	0.50	-	0.50	-	0.50	-	0.42	-	0.50	-	0.50	-	0.50	-	0.42	-	0.42	-
WW C	-	0.33	-	0.50	-	0.50	-	0.50	-	0.50	-	0.58	-	0.67	-	0.58	-	0.58	-	0.42	-	0.58	-	0.67	-
WW D	-	0.67	-	0.58	-	0.92	-	0.58	-	0.67	-	0.50	-	0.50	-	0.50	-	0.50	-	0.58	-	0.50	-	0.50	-
NCR-3S	579.60	3.19	576.41	3.48	576.12	2.06	577.54	3.30	576.30	4.61	574.99	3.98	575.62	dry	-	dry	-	dry	-	dry	-	dry	-	2.78	576.82
NCR-4S	577.88	2.85	575.03	frozen	frozen	2.60	575.28	2.94	574.94	2.84	575.04	2.86	575.02	dry	-	dry	-	dry	-	dry	-	dry	-	2.91	574.97
NCR-5S	579.34	6.45	572.89	6.33	573.01	5.81	573.53	6.18	573.16	7.93	571.41	7.75	571.59	9.11	570.23	dry	-	dry	-	dry	-	dry	-	dry	-
NCR-13S	577.15	4.64	572.51	4.65	572.50	3.68	573.47	4.71	572.44	5.10	572.05	4.97	572.18	7.40	569.75	dry	-	dry	-	dry	-	dry	-	5.82	571.33

Notes:

- = measurment not collected.

dry = no water in well.

Table 2.3
Niagara County Refuse Site
Water Level Measurements

Observation Point	Elevation Top of Casing (ft. msl)	1/7/2011		2/9/2011		3/3/2011		4/9/2011		5/6/2011		6/3/2011		7/15/2011		8/5/2011		9/5/2011		10/7/2011		11/3/2011		12//2011	
		Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)
East "A"	598.93	25.88	573.05	26.05	572.88	26.12	572.81	26.13	572.80	26.15	572.78	26.22	572.71	25.78	573.15	26.44	573.42	26.54	573.41	26.10	572.83	26.05	572.88	26.04	572.89
East "B"	596.23	19.43	576.80	19.95	576.28	20.17	576.06	20.12	576.11	20.31	575.92	19.98	576.25	20.00	576.23	19.99	576.46	20.05	576.40	19.10	577.13	19.11	577.12	15.70	580.53
East "C"	598.69	19.83	578.86	20.45	578.24	21.01	577.68	20.65	578.04	20.37	578.32	20.82	577.87	20.65	578.04	20.75	578.36	20.95	578.39	20.86	577.83	20.45	578.24	20.74	577.95
East "D"	593.20	14.99	578.21	15.21	577.99	15.8	577.40	15.65	577.55	15.75	577.45	15.92	577.28	15.71	577.49	15.88	577.69	15.96	577.51	15.9	577.30	15.73	577.47	15.44	577.76
WW A	-	0.67	-	0.50	-	0.67	-	1.00	-	0.83	-	0.67	-	0.58	-	0.58	-	0.83	-	0.67	-	0.83	-	0.83	-
WW B	-	0.33	-	0.42	-	0.50	-	0.50	-	0.50	-	0.42	-	0.50	-	0.50	-	0.50	-	0.50	-	0.50	-	0.42	-
WW C	-	0.33	-	0.33	-	1..67	-	1.00	-	0.67	-	0.75	-	0.83	-	0.83	-	0.92	-	0.83	-	0.83	-	0.75	-
WW D	-	0.83	-	0.58	-	0.58	-	0.58	-	0.50	-	0.50	-	0.50	-	0.50	-	0.83	-	0.58	-	0.50	-	0.42	-
NCR-3S	579.60	3.56	576.04	3.90	575.70	3.39	576.21	3.48	576.12	3.31	576.29	3.61	575.99	dry	-	dry	-	dry	-	5.37	574.23	3.76	575.84	3.20	576.40
NCR-4S	577.88	3.04	574.84	2.90	574.98	2.65	575.23	2.91	574.97	2.90	574.98	3.37	574.51	dry	-	dry	-	dry	-	dry	-	3.47	574.41	2.79	575.09
NCR-5S	579.34	7.68	571.66	7.33	572.01	5.95	573.39	6.23	573.11	6.21	573.13	7.16	572.18	dry	-	dry	-	dry	-	dry	-	dry	-	9.90	569.44
NCR-13S	577.15	4.60	572.55	4.77	572.38	4.40	572.75	4.51	572.64	4.52	572.63	5.20	571.95	dry	-	dry	-	dry	-	dry	-	5.67	571.48	4.23	572.92

Observation Point	Elevation Top of Casing (ft. msl)	1/5/2012		2/6/2012		3/1/2012		4/12/2012		5/1/2012		6/4/2012		7/13/2012		8/2/2012		9/4/2012		10/8/2012		11/12/2012		12/10/2012	
		Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)
East "A"	598.93	26.12	572.81	26.25	572.68	26.22	572.71	26.31	572.62	26.33	572.60	26.24	572.69	26.40	572.53	26.34	572.59	26.35	572.58	26.41	572.52	26.45	572.48	26.42	572.51
East "B"	596.23	15.56	580.67	15.80	580.43	15.82	580.41	16.01	580.22	15.99	580.24	18.53	577.70	19.90	576.33	16.54	579.69	19.99	576.24	20.11	576.12	19.12	577.11	16.03	580.20
East "C"	598.69	20.45	578.24	20.55	578.14	20.28	578.41	20.85	577.84	20.64	578.05	20.54	578.15	20.82	577.87	20.63	578.06	20.60	578.09	20.85	577.84	20.70	577.99	20.20	578.49
East "D"	593.20	15.51	577.69	16.61	576.59	15.4	577.80	15.71	577.49	17.77	575.43	15.73	577.47	16.15	577.05	15.97	577.23	16	577.20	15.9	577.30	15.94	577.26	15.46	577.74
WW A	-	0.50	-	0.75	-	0.67	-	0.75	-	1.25	-	0.67	-	0.58	-	0.50	-	0.67	-	0.92	-	0.50	-	1.25	-
WW B	-	0.42	-	0.42	-	0.42	-	0.42	-	0.42	-	0.50	-	0.42	-	0.83	-	0.83	-	0.42	-	0.42	-	0.50	-
WW C	-	0.83	-	0.83	-	0.67	-	0.75	-	0.83	-	1.00	-	0.75	-	0.83	-	0.83	-	0.50	-	0.50	-	0.67	-
WW D	-	0.42	-	0.58	-	0.50	-	0.50	-	0.58	-	0.58	-	0.50	-	0.42	-	0.58	-	0.50	-	0.50	-	0.42	-
NCR-3S	579.60	3.50	576.10	3.60	576.00	3.50	576.10	4.48	575.12	3.75	575.85	dry	-	dry	-	dry	-	dry	-	dry	-	4.27	575.33	2.56	577.04
NCR-4S	577.88	2.96	574.92	2.85	575.03	2.59	575.29	3.20	574.68	2.58	575.30	3.17	574.71	dry	-	dry	-	dry	-	dry	-	3.40	574.48	3.55	574.33
NCR-5S	579.34	6.51	572.83	6.44	572.90	6.41	572.93	7.41	571.93	6.80	572.54	9.45	569.89	dry	-	dry	-	dry	-	dry	-	dry	-	dry	-
NCR-13S	577.15	4.63	572.52	4.62	572.53	4.63	572.52	5.11	572.04	4.60	572.55	7.42	569.73	dry	-	dry	-	dry	-	dry	-	6.32	570.83	4.36	572.79

Notes:

- = measurment not collected.

dry = no water in well.

Table 2.3
Niagara County Refuse Site
Water Level Measurements

Observation Point	Elevation Top of Casing (ft. msl)	1/14/2013		2/4/2013		3/5/2013		4/5/2013		5/7/2013		6/5/2013		7/5/2013		8/1/2013		9/3/2013		10/4/2013		11/15/2013		12/9/2013	
		Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)
East "A"	598.93	26.47	572.46	26.51	572.42	26.61	572.32	26.64	572.29	26.65	572.28	26.65	572.28	26.61	572.32	26.42	572.51	26.32	572.61	26.36	572.57	26.37	572.56	26.54	572.39
East "B"	596.23	16.05	580.18	20.05	578.88	15.83	583.10	15.82	583.11	16.06	582.87	18.09	580.84	15.85	583.08	15.85	583.08	18.99	579.94	15.93	583.00	15.88	583.05	16.10	582.83
East "C"	598.69	20.91	577.78	20.69	578.24	20.84	578.09	20.79	578.14	20.84	578.09	20.98	577.95	20.92	578.01	20.51	578.42	20.59	578.34	20.68	578.25	20.65	578.28	21.21	577.72
East "D"	593.20	15.50	577.70	15.66	583.27	15.61	583.32	15.85	583.08	16.09	582.84	16.11	582.82	16.19	582.74	16.10	582.83	15.90	583.03	16.01	582.92	15.98	582.95	16.11	582.82
WW A	-	0.58	-	0.50	-	0.83	-	1.00	-	0.50	-	0.83	-	1.00	-	1.08	-	1.00	-	0.75	-	1.00	-	0.92	-
WW B	-	0.50	-	0.42	-	0.42	-	0.50	-	0.42	-	0.33	-	0.42	-	0.42	-	0.33	-	0.50	-	0.50	-	0.50	-
WW C	-	0.33	-	0.67	-	0.75	-	0.67	-	0.42	-	0.50	-	0.42	-	0.58	-	0.33	-	0.42	-	0.50	-	0.67	-
WW D	-	0.83	-	0.42	-	0.58	-	0.50	-	0.42	-	0.33	-	0.5	-	0.4	-	0.33	-	0.42	-	1.00	-	0.50	-
NCR-3S	579.60	3.06	576.54	3.80	595.13	3.75	595.18	4.25	594.68	5.10	593.83	4.21	594.72	5.18	593.75	dry	-	dry	-	dry	-	3.69	595.24	3.80	595.13
NCR-4S	577.88	2.51	575.37	2.95	595.98	dry	-	3.16	595.77	3.75	595.18	3.14	595.79	3.40	595.53	3.31	595.62	4.20	594.73	dry	-	3.00	595.93	3.05	595.88
NCR-5S	579.34	5.56	573.78	6.65	592.28	6.58	592.35	7.25	591.68	7.65	591.28	7.63	591.30	8.58	590.35	9.42	589.51	10.37	588.56	dry	-	6.46	592.47	6.58	592.35
NCR-13S	577.15	4.01	573.14	4.94	593.99	5.06	593.87	5.81	593.12	6.78	592.15	5.33	593.60	7.34	591.59	7.20	591.73	dry	-	dry	-	4.76	594.17	4.81	594.12

Observation Point	Elevation Top of Casing (ft. msl)	1/7/2014		2/20/2014		3/11/2014		4/10/2014		5/6/2014		6/2/2014		7/2/2014		8/7/2014		9/8/2014		10/4/2014		11/13/2014		12/10/2014	
		Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)
East "A"	598.93	26.12	572.81	26.60	572.33	26.20	572.73	26.48	572.45	26.60	572.33	26.66	572.27	26.56	572.37	26.54	572.39	26.52	572.41	26.55	572.38	26.71	572.22	26.77	572.16
East "B"	596.23	15.56	580.67	15.48	580.75	20.05	576.18	15.80	580.43	20.05	576.18	15.80	580.43	15.94	580.29	15.90	580.33	19.21	577.02	20.13	576.10	15.95	580.28	16.13	580.10
East "C"	598.69	20.69	578.00	20.80	577.89	20.40	578.29	20.64	578.05	20.90	577.79	20.81	577.88	20.72	577.97	20.98	577.71	21.05	577.64	20.42	578.27	20.93	577.76	20.87	577.82
East "D"	593.20	15.41	577.79	15.8	577.40	15.7	577.50	15.71	577.49	16.02	577.18	15.83	577.37	15.7	577.50	15.78	577.42	15.95	577.25	15.25	577.95	15.69	577.51	15.42	577.78
WW A	-	0.83	-	0.42	-	0.50	-	1.00	-	1.25	-	1.08	-	0.83	-	1.00	-	0.83	-	0.75	-	0.75	-	1.00	-
WW B	-	0.42	-	0.50	-	0.50	-	0.42	-	0.33	-	0.42	-	0.58	-	0.42	-	0.42	-	0.42	-	0.33	-	0.33	-
WW C	-	0.42	-	0.50	-	0.50	-	0.50	-	0.50	-	0.50	-	0.58	-	0.50	-	0.50	-	0.58	-	0.42	-	0.50	-
WW D	-	0.42	-	0.58	-	0.58	-	0.33	-	0.42	-	0.33	-	0.50	-	0.50	-	0.58	-	0.50	-	0.50	-	0.42	-
NCR-3S	579.60	3.55	576.05	4.40	575.20	3.50	576.10	3.55	576.05	4.14	575.46	4.91	574.69	dry	-	dry	-	dry	-	dry	-	dry	-	4.80	574.80
NCR-4S	577.88	2.96	574.92	2.90	574.98	3.10	574.78	2.82	575.06	3.25	574.63	3.30	574.58	3.80	574.08	dry	-	dry	-	dry	-	dry	-	4.70	573.18
NCR-5S	579.34	6.48	572.86	7.70	571.64	7.50	571.84	5.90	573.44	6.94	572.40	7.90	571.44	10.02	569.32	dry	-	dry	-	dry	-	dry	-	dry	-
NCR-13S	577.15	4.10	573.05	6.30	570.85	4.20	572.95	4.22	572.93	5.34	571.81	6.78	570.37	7.46	569.69	dry	-	dry	-	dry	-	dry	-	dry	-

Notes:

- = measurment not collected.

dry = no water in well.

Table 2.3
Niagara County Refuse Site
Water Level Measurements

Observation Point	Elevation Top of Casing (ft. msl)	1/3/2015 Depth to Water (ft)	1/3/2015 Elevation (ft. msl)	2/28/2015 Depth to Water (ft)	2/28/2015 Elevation (ft. msl)	3/22/2015 Depth to Water (ft)	3/22/2015 Elevation (ft. msl)	4/10/2015 Depth to Water (ft)	4/10/2015 Elevation (ft. msl)	5/13/2015 Depth to Water (ft)	5/13/2015 Elevation (ft. msl)	6/2/2015 Depth to Water (ft)	6/2/2015 Elevation (ft. msl)	7/3/2015 Depth to Water (ft)	7/3/2015 Elevation (ft. msl)	8/13/2015 Depth to Water (ft)	8/13/2015 Elevation (ft. msl)	9/8/2015 Depth to Water (ft)	9/8/2015 Elevation (ft. msl)	10/8/2015 Depth to Water (ft)	10/8/2015 Elevation (ft. msl)	11/14/2015 Depth to Water (ft)	11/14/2015 Elevation (ft. msl)	12/1/2015 Depth to Water (ft)	12/1/2015 Elevation (ft. msl)
East "A"	598.93	26.80	572.13	26.12	572.81	26.00	572.93	26.89	572.04	26.97	571.96	23.93	575.00	29.05	569.88	26.85	572.08	26.75	572.18	26.80	572.13	26.79	572.14	26.91	572.02
East "B"	596.23	16.01	580.22	15.56	580.67	20.05	576.18	15.80	580.43	20.05	576.18	Collapsed		Collapsed		Collapsed		Collapsed		Collapsed		Collapsed		Collapsed	
East "C"	598.69	21.06	577.63	20.45	578.24	20.50	578.19	20.45	578.24	21.27	577.42	21.16	577.53	21.02	577.67	21.13	577.56	20.98	577.71	21.00	577.69	21.05	577.64	20.81	577.88
East "D"	593.20	15.8	577.40	15.51	577.69	15.65	577.55	15.82	577.38	17.4	575.80	19.51	573.69	Oil-like noted		Oil-like noted		37.65	555.55	17.32	575.88	16.08	577.12	16.25	576.95
WW A	-	0.92	-	0.50	-	0.58	-	1.08	-	0.67	-	0.50	-	1.00	-	0.83	-	0.83	-	0.83	-	0.83	-	0.67	-
WW B	-	0.33	-	0.42	-	0.50	-	0.50	-	4.50	-	0.58	-	0.42	-	0.33	-	0.42	-	1.00	-	0.42	-	0.33	-
WW C	-	0.50	-	0.83	-	0.50	-	0.42	-	0.42	-	0.42	-	0.50	-	0.50	-	0.42	-	0.33	-	0.50	-	0.50	-
WW D	-	0.33	-	0.42	-	0.58	-	2.08	-	0.42	-	0.33	-	0.42	-	0.42	-	0.33	-	0.50	-	0.42	-	0.33	-
NCR-3S	579.60	4.10	575.50	3.50	576.10	3.90	575.70	2.91	576.69	4.71	574.89	dry	-	dry	-	dry	-	dry	-	dry	-	4.15	575.45	5.09	574.51
NCR-4S	577.88	3.80	574.08	2.96	574.92	2.10	575.78	1.60	576.28	3.40	574.48	3.10	574.78	dry	-	dry	-	dry	-	dry	-	3.48	574.40	3.72	574.16
NCR-5S	579.34	dry	-	6.51	572.83	7.40	571.94	5.46	573.88	8.43	570.91	9.51	569.83	9.52	569.82	dry	-	dry	-	dry	-	dry	-	dry	-
NCR-13S	577.15	6.48	570.67	4.63	572.52	4.10	573.05	3.50	573.65	7.00	570.15	7.54	569.61	dry	-	dry	-	dry	-	dry	-	dry	-	dry	-

Observation Point	Elevation Top of Casing (ft. msl)	1/7/2016 Depth to Water (ft)	1/7/2016 Elevation (ft. msl)	2/2/2016 Depth to Water (ft)	2/2/2016 Elevation (ft. msl)	3/1/2016 Depth to Water (ft)	3/1/2016 Elevation (ft. msl)	4/5/2016 Depth to Water (ft)	4/5/2016 Elevation (ft. msl)	5/4/2016 Depth to Water (ft)	5/4/2016 Elevation (ft. msl)	6/6/2016 Depth to Water (ft)	6/6/2016 Elevation (ft. msl)	7/6/2016 Depth to Water (ft)	7/6/2016 Elevation (ft. msl)	8/9/2016 Depth to Water (ft)	8/9/2016 Elevation (ft. msl)	9/7/2016 Depth to Water (ft)	9/7/2016 Elevation (ft. msl)	10/4/2016 Depth to Water (ft)	10/4/2016 Elevation (ft. msl)	11/2/2016 Depth to Water (ft)	11/2/2016 Elevation (ft. msl)	12/7/2016 Depth to Water (ft)	12/7/2016 Elevation (ft. msl)
East "A"	598.93	26.84	572.09	26.71	572.22	26.50	572.43	26.81	572.12	26.40	572.53	26.79	572.14	26.89	572.04	26.92	572.01	26.91	572.02	26.91	572.02	26.77	572.16	27.02	571.91
East "B"	596.23	Collapsed		Collapsed		Collapsed		Collapsed		Collapsed		Collapsed		Collapsed		Collapsed		Collapsed		Collapsed		Collapsed		Collapsed	
East "C"	598.69	21.10	577.59	20.32	578.37	21.31	577.38	12.85	585.84	20.90	577.79	20.52	578.17	20.91	577.78	21.10	577.59	21.03	577.66	22.33	576.36	22.21	576.48	20.96	577.73
East "D"	593.20	16.21	576.99	15.41	577.79	21.22	571.98	16.64	576.56	16.3	576.90	17.22	575.98	15.86	577.34	15.93	577.27	15.96	577.24	16.15	577.05	16.08	577.12	15.61	577.59
WW A	-	3.50	-	2.50	-	3.50	-	2.42	-	2.67	-	2.58	-	3.58	-	3..08	-	2.67	-	2.75	-	2.92	-	2.58	-
WW B	-	1.67	-	1.40	-	1.50	-	1.42	-	2.17	-	1.67	-	dry	-	1.08	-	1.58	-	1.75	-	2.08	-	3.08	-
WW C	-	1.50	-	1.75	-	1.75	-	1.75	-	1.25	-	1.58	-	1.67	-	2.08	-	2.08	-	2.17	-	2.33	-	2.25	-
WW D	-	1.17	-	1.17	-	1.17	-	1.17	-	1.17	-	1.50	-	1.25	-	1.67	-	2.08	-	1.92	-	2.17	-	2.50	-
NCR-3S	579.60	5.93	573.67	4.51	575.09	4.45	575.15	4.85	574.75	3.61	575.99	5.92	573.68	dry	-	dry	-	dry	-	dry	-	dry	-	dry	-
NCR-4S	577.88	3.45	574.43	3.82	574.06	3.65	574.23	4.10	573.78	2.80	575.08	4.21	573.67	dry	-	dry	-	dry	-	dry	-	dry	-	dry	-
NCR-5S	579.34	dry	-	7.21	572.13	6.33	573.01	4.40	574.94	6.35	572.99	10.14	569.20	dry	-	dry	-	dry	-	dry	-	dry	-	dry	-
NCR-13S	577.15	dry	-	5.21	571.94	4.60	572.55	5.60	571.55	5.40	571.75	7.42	569.73	dry	-	dry	-	dry	-	dry	-	dry	-	dry	-

Notes:

- = measurment not collected.

dry = no water in well.

Table 2.3
Niagara County Refuse Site
Water Level Measurements

Observation Point	Elevation Top of Casing (ft. msl)	1/4/2017		2/6/2017		3/6/2017		4/5/2017		5/8/2017		6/7/2017		7/10/2017		8/15/2017		9/6/2017		10/4/2017		11/8/2017		12/13/2017	
		Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)	Depth to Water (ft)	Elevation (ft. msl)
East "A"	598.93	27.01	571.92	26.31	572.62	26.49	572.44	27.14	571.79	27.08	571.85	27.11	571.82	27.08	571.85	27.94	570.99	26.91	572.02	27.01	571.92	26.98	571.95	26.92	572.01
East "B"	596.23	Collapsed		Collapsed		Collapsed		Collapsed		Collapsed		Collapsed		Collapsed		Collapsed		Collapsed		Collapsed		Collapsed		Collapsed	
East "C"	598.69	20.57	578.12	17.55	581.14	17.80	580.89	21.31	577.38	21.41	577.28	21.38	577.31	18.51	580.18	18.36	580.33	21.33	577.36	21.62	577.07	21.49	577.20	21.38	577.31
East "D"	593.20	15.24	577.96	15.78	577.42	16.11	577.09	15.82	577.38	15.98	577.22	16.05	577.15	16.09	577.11	15.98	577.22	15.81	577.39	15.89	577.31	16.11	577.09	15.64	577.56
WW A	-	3.33	-	2.25	-	2.67	-	3.33	-	3.17	-	2.17	-	2.83	-	3.33	-	3.58	-	2.92	-	3.17	-	2.92	-
WW B	-	3.17	-	2.08	-	1.33	-	2.92	-	3.08	-	3.25	-	2.92	-	3.25	-	3.25	-	2.08	-	2.92	-	2.75	-
WW C	-	2.08	-	2.67	-	2.92	-	3.25	-	2.92	-	2.92	-	2.75	-	2.75	-	3.00	-	2.75	-	3.33	-	3.33	-
WW D	-	2.92	-	2.08	-	3.42	-	8.17	-	7.08	-	3.08	-	3.17	-	2.92	-	2.75	-	3.33	-	3.42	-	3.17	-
NCR-3S	579.60	3.93	575.67	4.24	575.36	4.43	575.17	3.98	575.62	4.10	575.50	6.62	572.98	4.86	574.74	5.36	574.24	5.84	573.76	dry	-	4.31	575.29	4.57	575.03
NCR-4S	577.88	3.50	574.38	3.32	574.56	3.43	574.45	3.40	574.48	3.45	574.43	3.47	574.41	3.89	573.99	3.88	574.00	3.79	574.09	4.84	573.04	3.23	574.65	3.43	574.45
NCR-5S	579.34	dry	-	dry	-	6.79	572.55	5.85	573.49	6.19	573.15	dry	-	dry	-	10.21	569.13	10.28	569.06	dry	-	6.15	573.19	6.98	572.36
NCR-13S	577.15	dry	-	5.23	571.92	4.89	572.26	4.16	572.99	4.22	572.93	6.85	570.30	7.95	569.20	dry	-	7.76	569.39	dry	-	4.34	572.81	4.90	572.25

Notes:

- = measurment not collected.

dry = no water in well.

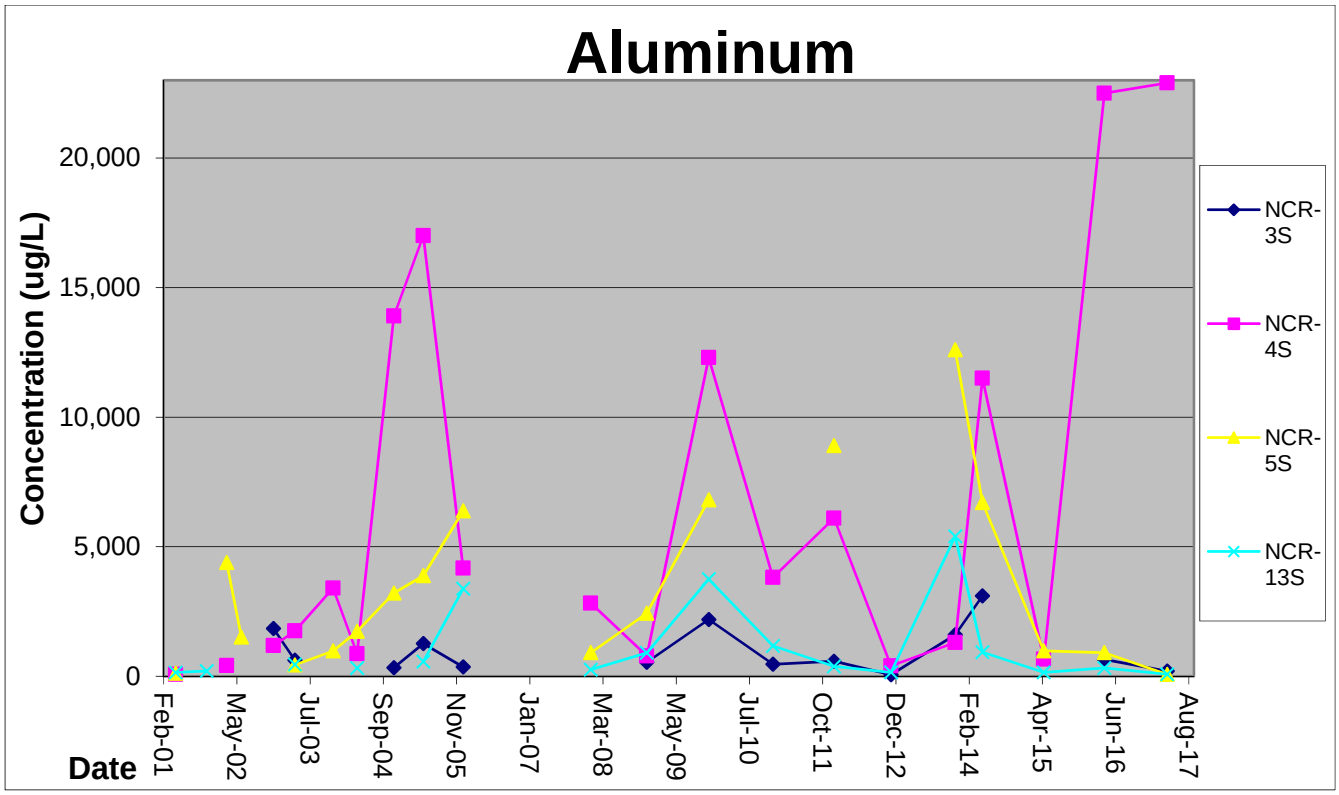

Figure 2.1A: Plot of Total Aluminum Concentration

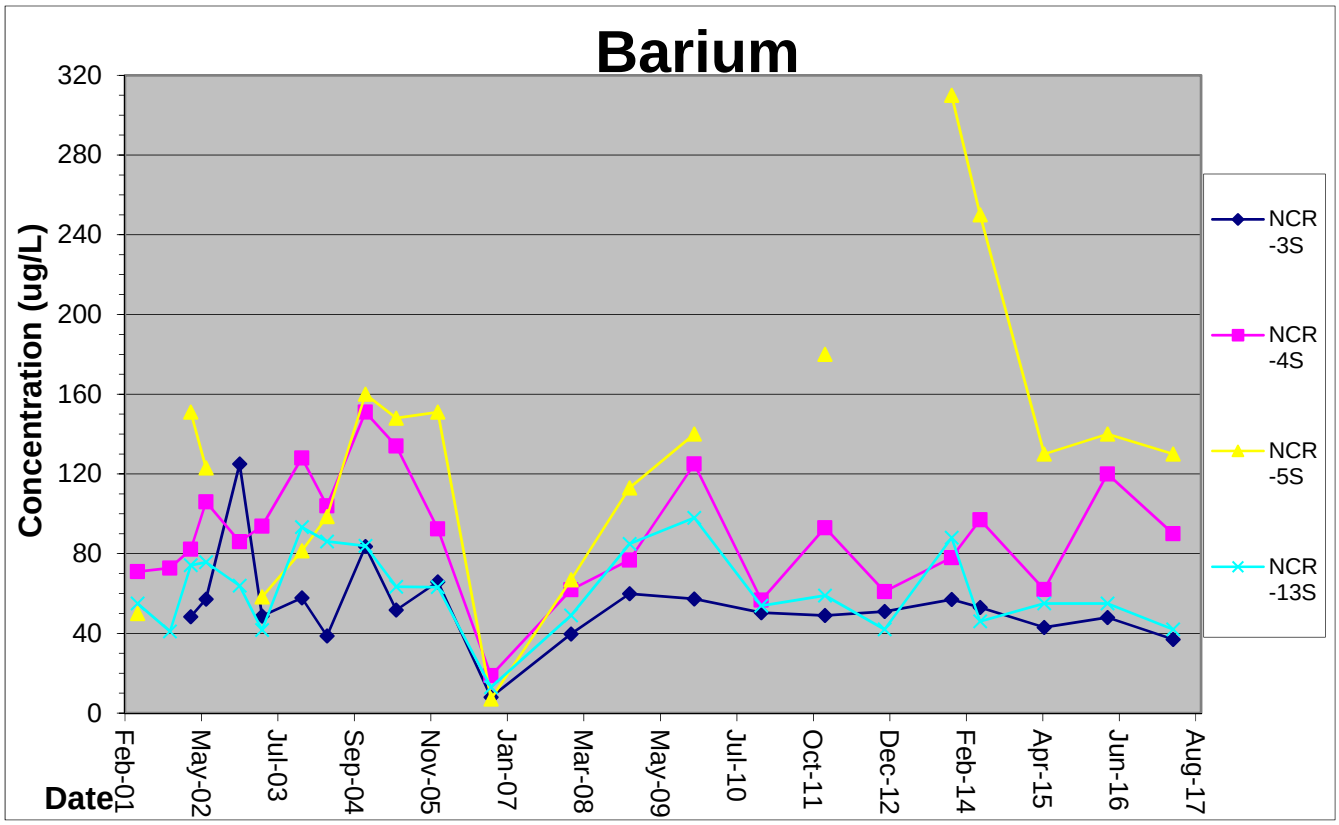

Figure 2.1B: Plot of Total Barium Concentration

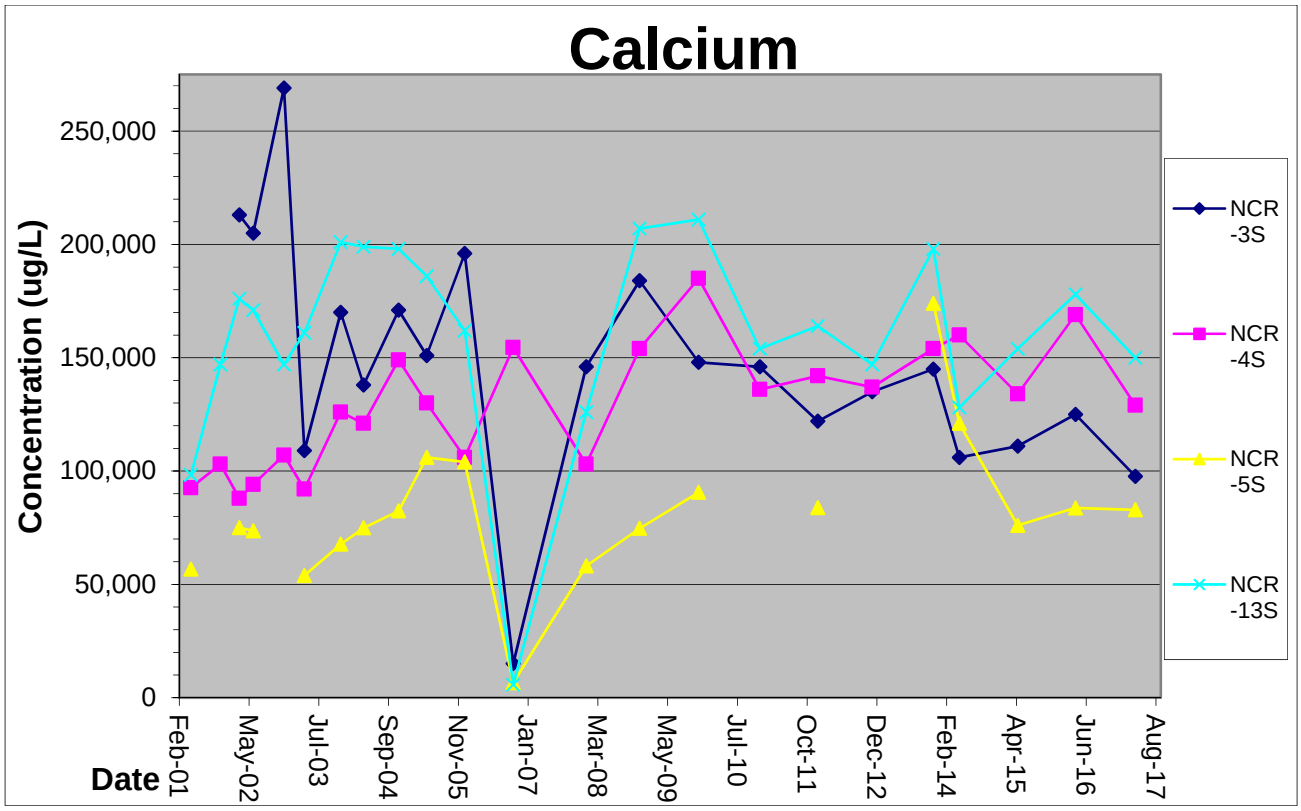

Figure 2.1C: Plot of Total Calcium Concentration

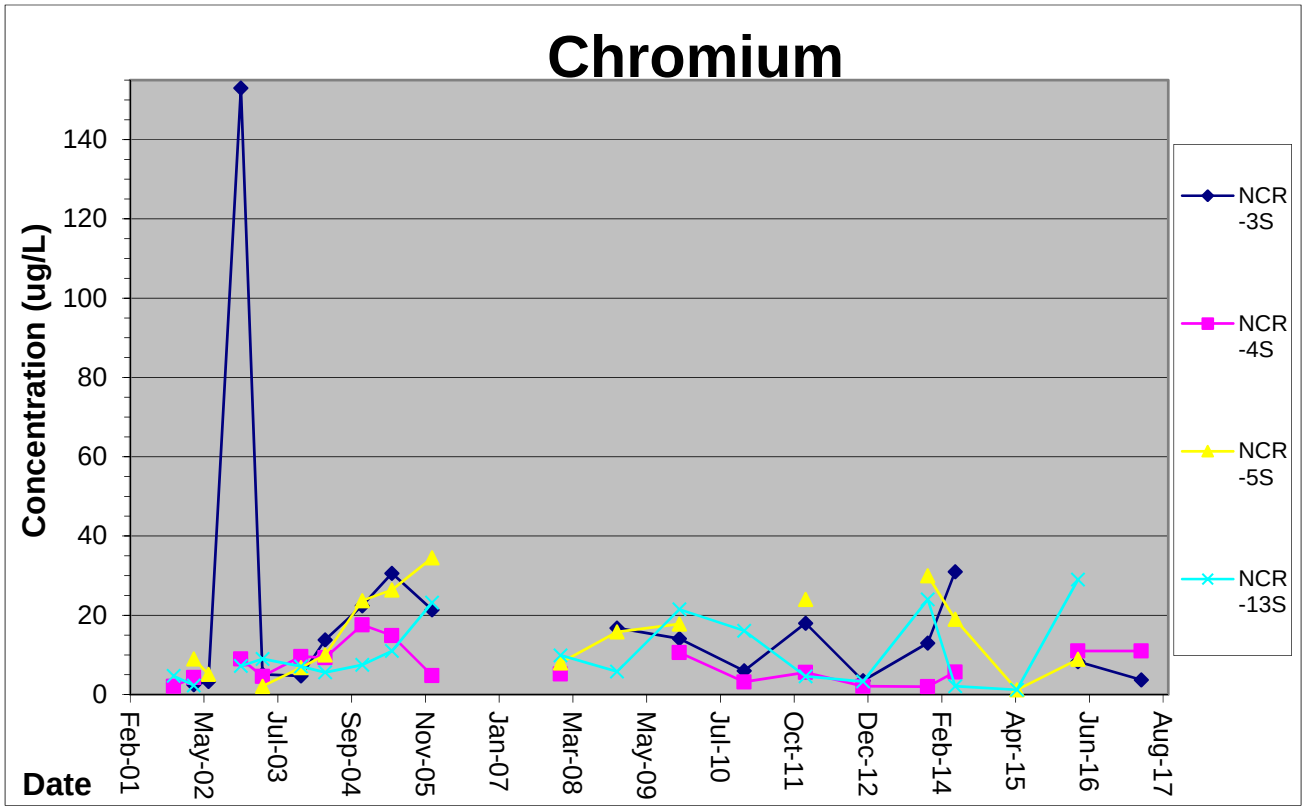

Figure 2.1D: Plot of Total Chromium Concentration

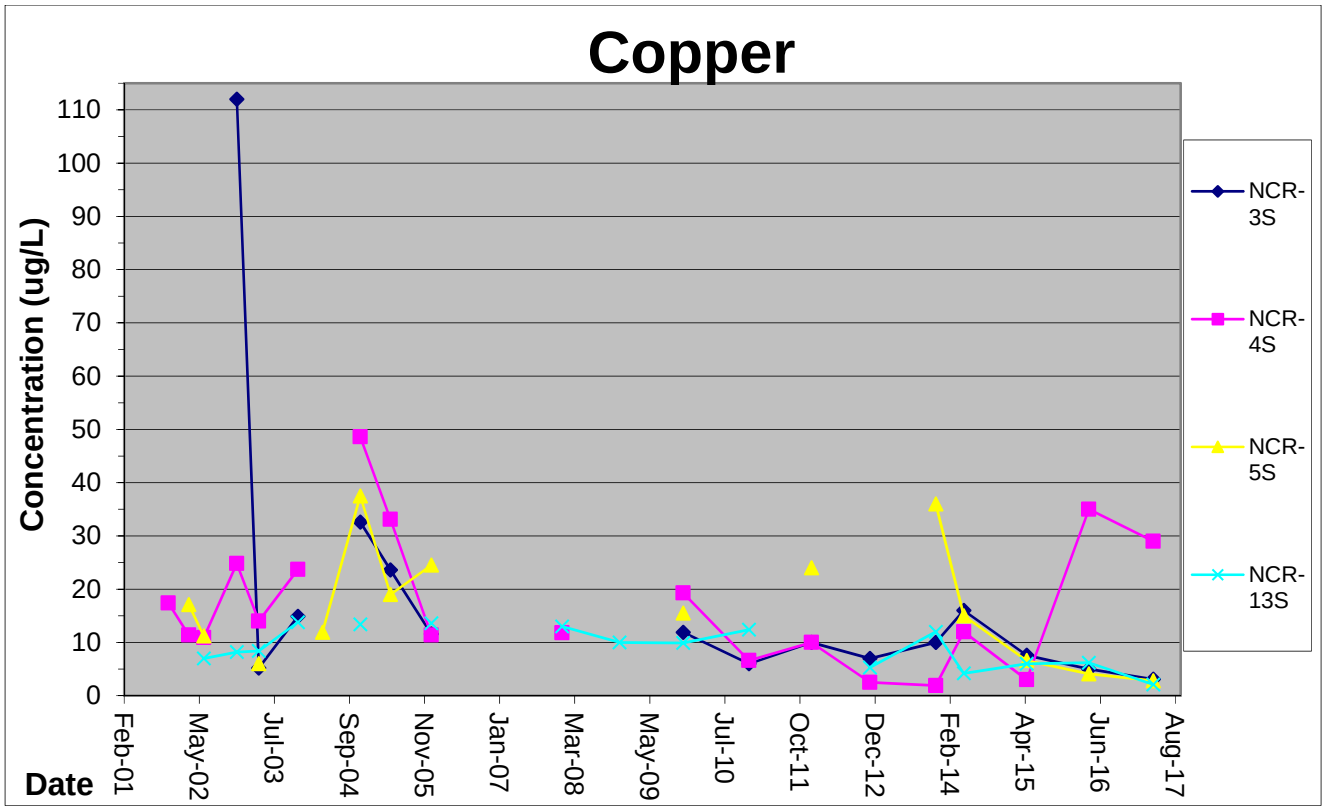

Figure 2.1E: Plot of Total Copper Concentration

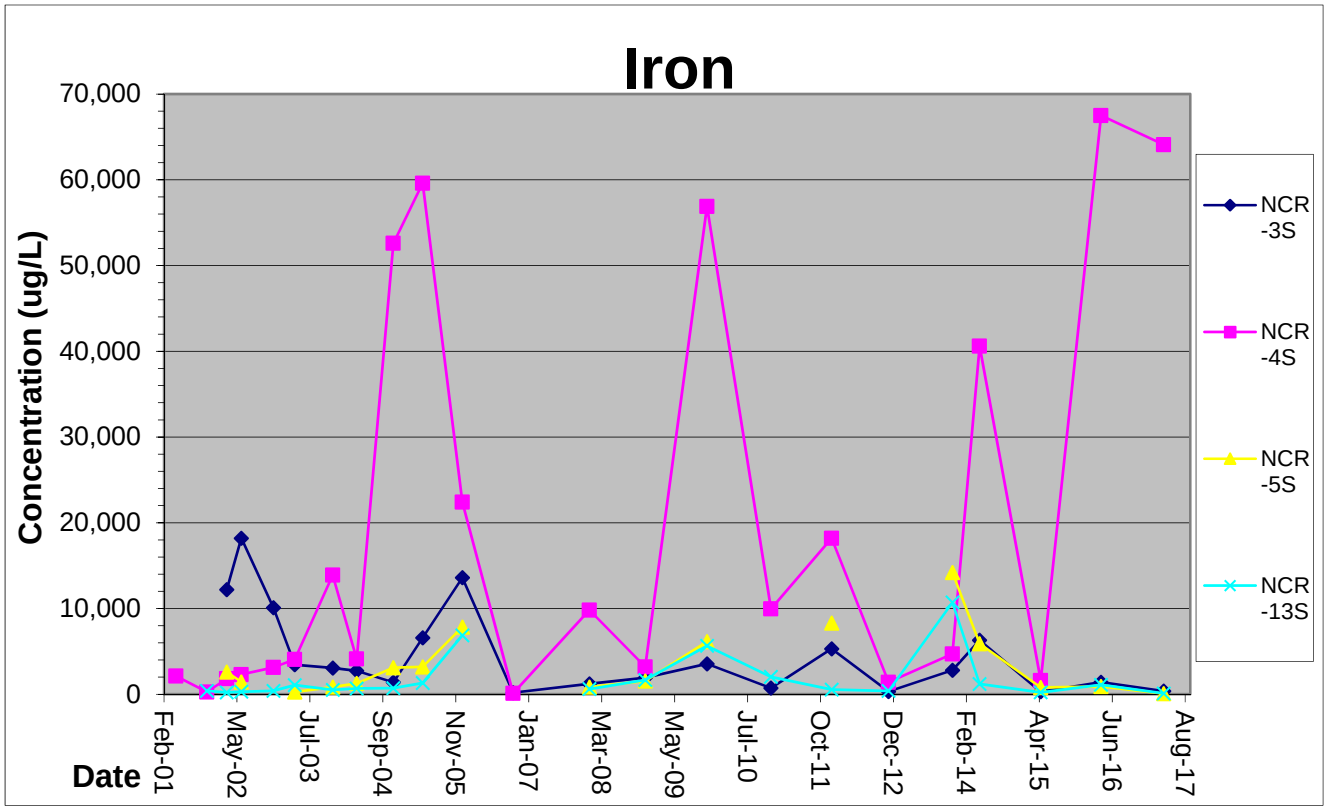

Figure 2.1F: Plot of Total Iron Concentration

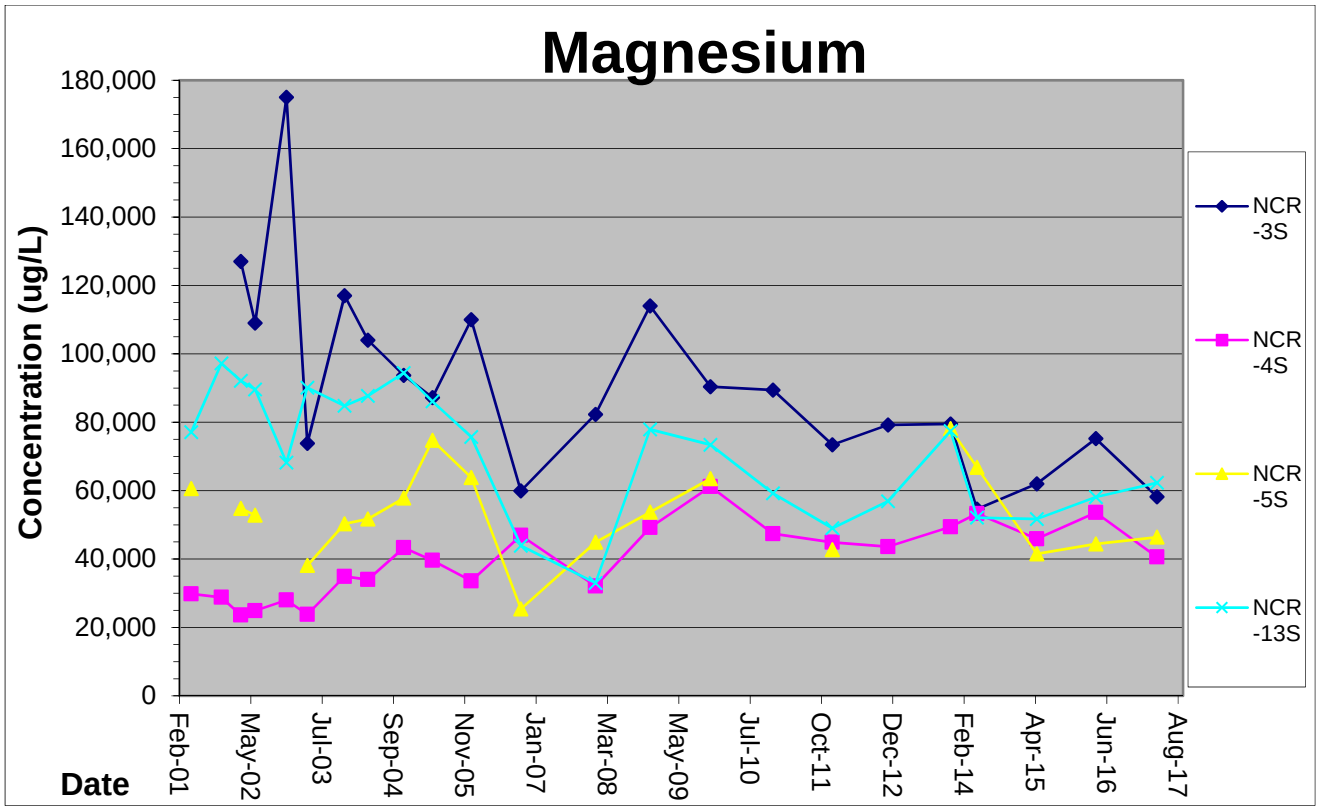

Figure 2.1G: Plot of Total Magnesium Concentration

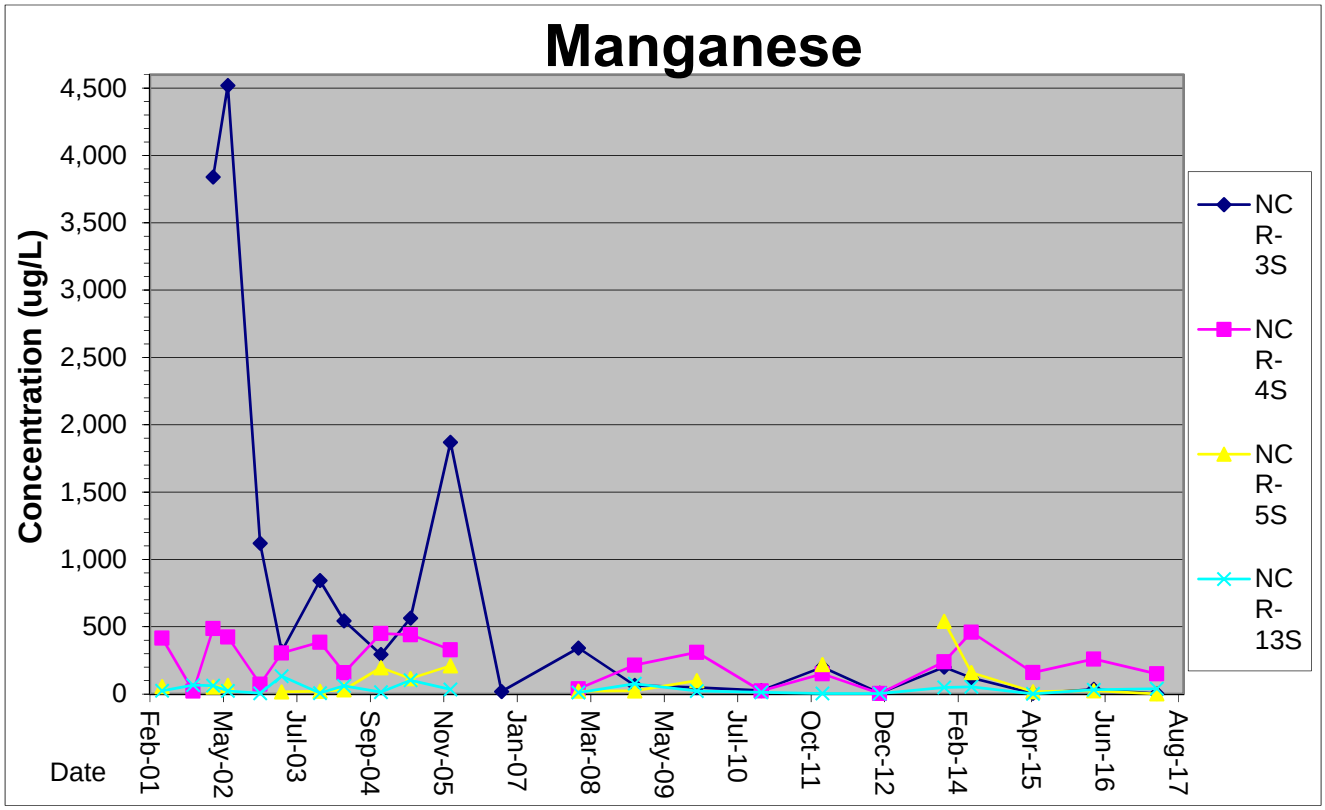

Figure 2.1H: Plot of Total Manganese Concentration

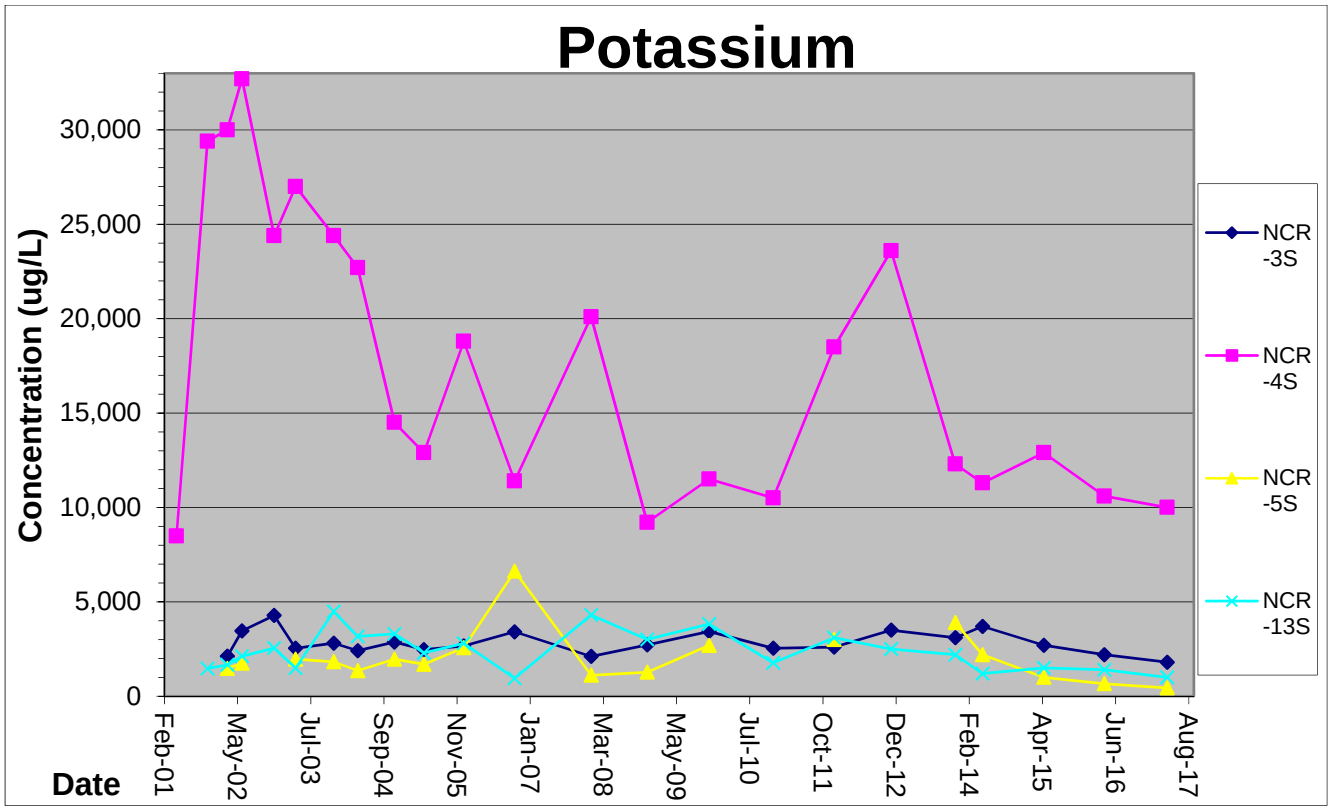

Figure 2.1I: Plot of Total Potassium Concentration

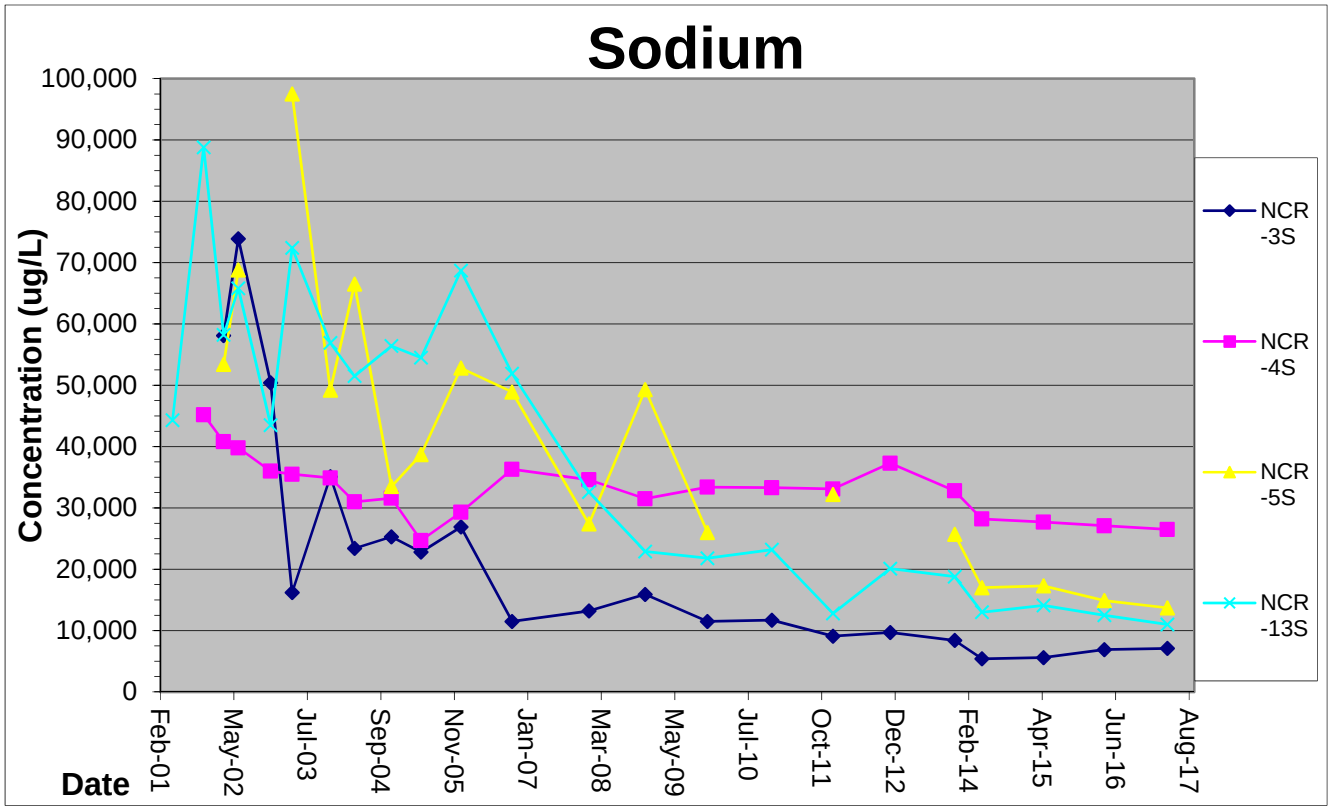

Figure 2.1J: Plot of Total Sodium Concentration

SECTION 3
SUMMARY AND CONCLUSIONS

The following summary and conclusions were developed based on the data collected during this reporting period (January through December 2017):

- Inorganics groundwater samples were collected in 2017. The analytical results were consistent with historical results. The annual groundwater samples scheduled for collection in April 2018 will be analyzed for volatile organic, semivolatile organics, and inorganics.
- Eighteen metals were identified in one or more of the groundwater samples. Six of the detected metals exceeded either the NYSDEC AWQS, NYSDOH MCLs, or USEPA MCLs, which is consistent with previous sampling events. In general, detected values appeared to be consistent with ranges observed in previous sampling events.
- Two effluent samples were collected in 2017. The analytical results were found to be compliant with the discharge permit. During 2017, compliance with the discharge permit was maintained.
- The landfill was inspected monthly and was appropriately maintained. Needed repairs were addressed in a timely manner. Cover vegetation continues to be in good condition.
- Post-construction monitoring of the wetland replacement was performed annually between 2001 and 2005. Monitoring results indicated that the wetland creation was successful. Although the formal annual inspections are no longer required, monthly visual inspection of the wetlands has continued, to document general conditions. In 2017, the wetlands were documented to be in good condition.
- Water levels were collected from the wet wells, monitoring wells, and the locations within the landfill on a monthly basis in 2017. Water levels generally varied between 1.6 and 4.4 feet over the course of the year.
- The groundwater monitoring program is intended to provide data for demonstration of the effectiveness of the hydraulic containment, collection, and extraction of Site-related groundwater. The objectives of the groundwater monitoring program (to monitor the effectiveness of the perimeter collection system and the perimeter barrier system) were met in 2017.

SECTION 4
REFERENCES

USEPA, 1993, Record of Decision, Niagara County Refuse Site, Wheatfield, Niagara County, New York; United States Environmental Protection Agency, September 1993.

USA, 1995, Consent Decree, Docket 946-849; United States Environmental Protection Agency, February 3, 1995.

CRA, 2000, Operations, Maintenance and Monitoring Manual for Niagara County Refuse District Site Remedial Construction, Wheatfield, Niagara County, New York; Conestoga-Rovers & Associates, December 2000.

Parsons, 2016 Annual Monitoring Report, Niagara County Refuse District Site; Parsons, February 2017.

APPENDIX A

CITY OF NORTH TONAWANDA INDUSTRIAL WASTEWATER DISCHARGE PERMIT

CITY OF NORTH TONAWANDA
INDUSTRIAL WASTEWATER DISCHARGE PERMIT

Permit Number: 2628010

In accordance with the provisions of the Clean Water Act as amended, all terms and conditions set forth in this permit, the City of North Tonawanda Local Sewer Use Ordinance and any applicable Federal, State or local laws or regulations, authorization is hereby granted to:

Niagara County Department of Public Works
Engineering Department
59 Park Avenue
Lockport, NY 14094

Site: **Niagara County Refuse Site**
Witmer Road
Town of Wheatfield, NY 14120

Classified by S.I.C. Number(s): N/A

for the discharge of ground water and other wastes generated during Remedial Action construction and implementation into the City of North Tonawanda Sewerage System.

This permit is granted in accordance with an application filed in the offices of the Water/Wastewater Superintendent located at 830 River Road, and in conformity with specifications and other required data submitted in support of the above named application, all of which are filed with and considered part of this permit. This permit is also granted in accordance with discharge limitations and requirements, monitoring and reporting requirements, and all other conditions set forth in Parts I and II hereof.

Effective this 31st day of March, 2016

To expire the 1st day of April, 2019

William M. Davignon

William M. Davignon, Water Works Superintendent
Signed this 11th day of March, 2016

PART I. SPECIFIC CONDITIONS

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning the effective date of this permit and lasting until the expiration date, discharge from the permitted facility outfall(s) shall be limited and monitored by the permittee as specified below (Refer to attached map for sampling and monitoring sites).

Sample Point	Parameter	Discharge Limitations mg/l except pH Daily Max.	Sampling Period	Sampling Type
001	Total Flow		1 Sampling Day Monthly	continuous
	pH	Monitor Only	1 Sampling Day Monthly	grab
	Aluminum	2.0	1 Sampling Day semi-annual	24 hr comp.
	Lead	4.6	1 Sampling Day semi-annual	24 hr comp.
	Iron	10	1 Sampling Day semi-annual	24 hr comp.
	Magnesium	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	Sodium	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	BOD	Monitor Only	1 Sampling Day semi-annual	24 hr comp.
	Total Suspended Solids	Monitor Only	1 Sampling Day semi-annual	24 hr comp.

PART I. SPECIFIC CONDITIONS

B. DISCHARGE MONITORING AND REPORTING REQUIREMENTS

During the period beginning the effective date of this permit and lasting until the expiration date, discharge monitoring results shall be summarized and reported by the permittee no later than the days specified below.

Sample Point	Parameter	Initial Monitoring Report	Subsequent Monitoring Reports
001	Total Flow	January 31, 2007	Semi-annual
	Lead	January 31, 2007	Semi-annual
	Iron	January 31, 2007	Semi-annual
	Magnesium	January 31, 2007	Semi-annual
	Sodium	January 31, 2007	Semi-annual
	pH	January 31, 2007	Semi-annual
	BOD	January 31, 2007	Semi-annual
	Total Suspended Solids	January 31, 2007	Semi-annual

PART I. SPECIFIC CONDITIONS

C. SPECIAL REQUIREMENTS

1) This permit is written for a duration of three (3) years. Upon renewal of this permit, all parameters will be re-evaluated to develop a parameter list based on chemical concentrations present in the extracted groundwater.

2) Frequency of monitoring is to be re-evaluated yearly.

3) All monitoring reports (initial and subsequent), are to be received by the Superintendent, no later than thirty (30) days after receipt of validated data.

4) It is required that the Permittee have a Site Operations Manual available at all times. All emergency phone numbers must be listed in an appropriate place for easy access by operations personnel. The Permittee shall not discharge into the City of North Tonawanda sewerage treatment works during WWTP overflow conditions. The Permittee is required to cease all pumping operations upon verbal request of the North Tonawanda Water/Wastewater Superintendent or his designee. Pumping operations shall not recommence until approval by the North Tonawanda Water/Wastewater Superintendent or his designee.

5) Analysts are required to use GC/MS method detection limits for most organics (if GC/MS is appropriate); GC/ECD for PCB's/Pesticides and GF method detection limits for metals (where GF is appropriate), as contained in attachment 5 of the NYSDEC TOGs 1.3.8 – New Discharges to Publicly Owned Treatment Works – dated 10/26/94.

Analytical Results: NIAGARA COUNTY REFUSE SITE 2017

PARAMETER	RESULT mg/l	RESULT mg/l	COMPLIANCE
pH (COMP.)	7.26	7.51	YES
COD	< 50	186.4	YES
SUSPENDED SOLIDS	5	24	YES
BOD	19.98	8.25	YES
PO4	< 0.10	0.14	YES
PHENOLS	< 0.100	< 0.100	YES
METALS			
ALUMINUM	--	< 0.220	YES
CHROMIUM	ND	< 0.0044	YES
LEAD	< 0.010	0.011	YES
NICKEL	< 0.010	0.020	YES
ZINC	0.039	0.032	YES
IRON	--	3.700	YES
MAGNESIUM	73.0	139.0	YES
MANGANESE	0.14	0.60	YES
SODIUM	28.8	380.0	YES
PURGEABLES			
Benzene	< 0.005	< 0.005	YES
Toluene	< 0.005	< 0.005	YES
Chlorobenzene	< 0.005	< 0.005	YES
Ethylbenzene	< 0.005	< 0.005	YES
Total Xylenes	< 0.015	< 0.015	YES
1,3 - Dichlorobenzene	< 0.005	< 0.005	YES
1,4-Dichlorobenzene	< 0.005	< 0.005	YES
1,2 - Dichlorobenzene	< 0.005	< 0.005	YES
Vinyl Chloride	< 0.005	< 0.005	YES
1,1-Dichloroethene	< 0.005	< 0.005	YES
Methylene chloride	< 0.005	< 0.005	YES
trans-1,2 Dichloroethene	< 0.005	< 0.005	YES
1,1-Dichloroethane	< 0.005	< 0.005	YES
Chloroform	< 0.005	< 0.005	YES
1,1,1-Trichloroethane	< 0.005	< 0.005	YES
Trichloroethene	< 0.005	< 0.005	YES
TOTAL FLOW (gallons)	**0**	**0**	
SAMPLE DATE	**4/5/17 & 4/6/17**	**10/4/17 & 10/5/17**	

Report prepared by: Michael W. Gibbons, Lab Director / Chemist

APPENDIX B

CORRESPONDENCE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

NOV 21 2005

BY FEDEX

Mr. Eric Felter
Project Manager
Parsons
180 Lawrence Bell Drive, Suite 104
Williamsville, New York 14221

Re: Niagara County Refuse Site, Wheatfield, New York; Request for the Reduction of Analytical Parameters in Groundwater Samples

Dear Mr. Felter:

The U.S. Environmental Protection Agency (EPA) and New York State Department of Environmental Conservation (NYSDEC) have reviewed your letter dated October 3, 2005 prepared by Parsons on behalf of the Niagara County Refuse (NCR) Site PRP Group requesting a reduction in the analytical parameters in groundwater samples taken at the NCR site as part of the operation and maintenance program. The current analytical parameter list includes 2 volatiles, 4 semi-volatiles, and 16 metals which were determined to be constituents of interest at the site. Your proposal requests reducing the parameters to 5 metals, representing those constituents which have been measured above standards with some regularity in past sampling rounds. The sampling program, involving four monitoring wells, has been in effect since 2001 and your proposal reflects trends evident since the program was initiated. Sampling frequency is currently semi-annual (twice a year).

After discussing this matter with NYSDEC with input from the New York State Department of Health, our preference is that the sampling parameters remain the same for the time being. This is due to the significant residential growth around the site in recent years. After the current sampling round, samples are scheduled to be taken annually. EPA approves changing the current monitoring program only to the extent that the volatiles and semi-volatiles analysis can be conducted every two years while the metals analysis be conducted annually. EPA will, however, consider a further frequency reduction in the future as more data are collected.

Please call me at (212) 637-4278 if you have any questions on this matter.

Sincerely yours,

Michael J. Negrelli
Remedial Project Manager
New York Remediation Branch

cc: J. Konsella - NYSDEC/Region 9
B. Sadowski - NYSDEC/Region 9

APPENDIX C
ANALYTICAL DATA AND FIELD DATA FORMS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-116461-1
Client Project/Site: City of North Tonawanda - NCRS

For:
N Tonawanda Water Works
830 River Road
North Tonawanda, New York 14120

Attn: Michael W Gibbons

Joseph V. Giacomazza

Authorized for release by:
4/28/2017 5:39:46 PM
Joe Giacomazza, Project Management Assistant II
joe.giacomazza@testamericainc.com

Designee for

Judy Stone, Senior Project Manager
(484)685-0868
judy.stone@testamericainc.com

Table of Contents

Client: N Tonawanda Water Works
Project/Site: City of North Tonawanda - NCRS

TestAmerica Job ID: 480-116461-1

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.
F1	MS and/or MSD Recovery is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: N Tonawanda Water Works
Project/Site: City of North Tonawanda - NCRS

TestAmerica Job ID: 480-116461-1

Job ID: 480-116461-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-116461-1

Receipt
The samples were received on 4/18/2017 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.3º C.

Receipt Exceptions
The following samples were activated for total metals and mercury analysis by the client on 4/19/17: WG-11109668-041817-SG-NCR4S (480-116461-1), WG-11109668-041817-SG-NCR5S (480-116461-2), WG-11109668-041817-SG-NCR6S (480-116461-3), WG-11109668-041817-SG-NCR3S (480-116461-4), WG-11109668-041817-SG-NCR13S (480-116461-5), WG-11109668-041817-SG-NCR13S MS (480-116461-5[MS]) and WG-11109668-041817-SG-NCR13S MSD (480-116461-5[MSD]). This analysis was not originally requested on the chain-of-custody (COC).

Metals
Method(s) 3005A: The following samples for metals were received unpreserved and were preserved upon receipt to the laboratory: WG-11109668-041817-SG-NCR4S (480-116461-1), WG-11109668-041817-SG-NCR5S (480-116461-2), WG-11109668-041817-SG-NCR6S (480-116461-3), WG-11109668-041817-SG-NCR3S (480-116461-4), WG-11109668-041817-SG-NCR13S (480-116461-5), WG-11109668-041817-SG-NCR13S MS (480-116461-5[MS]) and WG-11109668-041817-SG-NCR13S MSD (480-116461-5[MSD]). Regulatory documents require a 24-hour waiting period from the time of the addition of the acid preservative to the time of digestion. Preserved 1200 4/19/17. 2nd pH check 1230 pH < 2

Method(s) 6010C: The recovery of Post Spike, (480-116461-A-5-D PDS), in batch 480-353096 exhibited results outside the quality control limits for Total Magnesium. However, the Serial Dilution of this sample was compliant. Therefore, no corrective action was necessary.

Method(s) 6010C: The post digestion spike % recovery associated with batch 480-354421 was outside of control limits for Dissolved Magnesium. However, the Serial Dilution of this sample was compliant. Therefore, no corrective action was necessary.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: N Tonawanda Water Works
Project/Site: City of North Tonawanda - NCRS

TestAmerica Job ID: 480-116461-1

Client Sample ID: WG-11109668-041817-SG-NCR4S — Lab Sample ID: 480-116461-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	22.9		0.20	0.060	mg/L	1		6010C	Total/NA
Arsenic	0.0066	J	0.010	0.0056	mg/L	1		6010C	Total/NA
Barium	0.090		0.0020	0.00070	mg/L	1		6010C	Total/NA
Beryllium	0.00079	J	0.0020	0.00030	mg/L	1		6010C	Total/NA
Cadmium	0.00079	J	0.0010	0.00050	mg/L	1		6010C	Total/NA
Calcium	129		0.50	0.10	mg/L	1		6010C	Total/NA
Chromium	0.011		0.0040	0.0010	mg/L	1		6010C	Total/NA
Cobalt	0.0021	J	0.0040	0.00063	mg/L	1		6010C	Total/NA
Copper	0.029		0.010	0.0016	mg/L	1		6010C	Total/NA
Iron	64.1		0.050	0.019	mg/L	1		6010C	Total/NA
Lead	0.046		0.0050	0.0030	mg/L	1		6010C	Total/NA
Magnesium	40.6		0.20	0.043	mg/L	1		6010C	Total/NA
Manganese	0.15		0.0030	0.00040	mg/L	1		6010C	Total/NA
Nickel	0.012		0.010	0.0013	mg/L	1		6010C	Total/NA
Potassium	10		0.50	0.10	mg/L	1		6010C	Total/NA
Sodium	26.5		1.0	0.32	mg/L	1		6010C	Total/NA
Vanadium	0.0091		0.0050	0.0015	mg/L	1		6010C	Total/NA
Zinc	0.94	B	0.010	0.0015	mg/L	1		6010C	Total/NA
Barium	0.036		0.0020	0.00070	mg/L	1		6010C	Dissolved
Calcium	106		0.50	0.10	mg/L	1		6010C	Dissolved
Potassium	9.6		0.50	0.10	mg/L	1		6010C	Dissolved
Magnesium	35.4		0.20	0.043	mg/L	1		6010C	Dissolved
Sodium	27.3		1.0	0.32	mg/L	1		6010C	Dissolved
Zinc	0.017		0.010	0.0015	mg/L	1		6010C	Dissolved

Client Sample ID: WG-11109668-041817-SG-NCR5S — Lab Sample ID: 480-116461-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	0.070	J	0.20	0.060	mg/L	1		6010C	Total/NA
Barium	0.13		0.0020	0.00070	mg/L	1		6010C	Total/NA
Calcium	82.9		0.50	0.10	mg/L	1		6010C	Total/NA
Copper	0.0028	J	0.010	0.0016	mg/L	1		6010C	Total/NA
Iron	0.073		0.050	0.019	mg/L	1		6010C	Total/NA
Magnesium	46.4		0.20	0.043	mg/L	1		6010C	Total/NA
Manganese	0.0017	J	0.0030	0.00040	mg/L	1		6010C	Total/NA
Nickel	0.0034	J	0.010	0.0013	mg/L	1		6010C	Total/NA
Potassium	0.44	J	0.50	0.10	mg/L	1		6010C	Total/NA
Sodium	13.7		1.0	0.32	mg/L	1		6010C	Total/NA
Zinc	0.0030	J B	0.010	0.0015	mg/L	1		6010C	Total/NA
Barium	0.12		0.0020	0.00070	mg/L	1		6010C	Dissolved
Calcium	75.2		0.50	0.10	mg/L	1		6010C	Dissolved
Potassium	0.44	J	0.50	0.10	mg/L	1		6010C	Dissolved
Magnesium	43.7		0.20	0.043	mg/L	1		6010C	Dissolved
Sodium	12.5		1.0	0.32	mg/L	1		6010C	Dissolved
Nickel	0.0018	J	0.010	0.0013	mg/L	1		6010C	Dissolved
Zinc	0.0021	J	0.010	0.0015	mg/L	1		6010C	Dissolved

Client Sample ID: WG-11109668-041817-SG-NCR6S — Lab Sample ID: 480-116461-3

This Detection Summary does not include radiochemical test results.

Client Sample ID: WG-11109668-041817-SG-NCR6S (Continued)

Lab Sample ID: 480-116461-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	0.92		0.20	0.060	mg/L	1		6010C	Total/NA
Barium	0.14		0.0020	0.00070	mg/L	1		6010C	Total/NA
Calcium	81.5		0.50	0.10	mg/L	1		6010C	Total/NA
Chromium	0.0042		0.0040	0.0010	mg/L	1		6010C	Total/NA
Copper	0.0036	J	0.010	0.0016	mg/L	1		6010C	Total/NA
Iron	0.66		0.050	0.019	mg/L	1		6010C	Total/NA
Magnesium	46.2		0.20	0.043	mg/L	1		6010C	Total/NA
Manganese	0.015		0.0030	0.00040	mg/L	1		6010C	Total/NA
Nickel	0.0062	J	0.010	0.0013	mg/L	1		6010C	Total/NA
Potassium	0.61		0.50	0.10	mg/L	1		6010C	Total/NA
Sodium	14.1		1.0	0.32	mg/L	1		6010C	Total/NA
Zinc	0.0053	J B	0.010	0.0015	mg/L	1		6010C	Total/NA
Barium	0.13		0.0020	0.00070	mg/L	1		6010C	Dissolved
Calcium	78.0		0.50	0.10	mg/L	1		6010C	Dissolved
Copper	0.0028	J	0.010	0.0016	mg/L	1		6010C	Dissolved
Potassium	0.48	J	0.50	0.10	mg/L	1		6010C	Dissolved
Magnesium	45.3		0.20	0.043	mg/L	1		6010C	Dissolved
Manganese	0.00041	J	0.0030	0.00040	mg/L	1		6010C	Dissolved
Sodium	14.4		1.0	0.32	mg/L	1		6010C	Dissolved
Nickel	0.0026	J	0.010	0.0013	mg/L	1		6010C	Dissolved
Zinc	0.0027	J	0.010	0.0015	mg/L	1		6010C	Dissolved

Client Sample ID: WG-11109668-041817-SG-NCR3S

Lab Sample ID: 480-116461-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	0.20		0.20	0.060	mg/L	1		6010C	Total/NA
Barium	0.037		0.0020	0.00070	mg/L	1		6010C	Total/NA
Calcium	97.7		0.50	0.10	mg/L	1		6010C	Total/NA
Chromium	0.0037	J	0.0040	0.0010	mg/L	1		6010C	Total/NA
Copper	0.0031	J	0.010	0.0016	mg/L	1		6010C	Total/NA
Iron	0.37		0.050	0.019	mg/L	1		6010C	Total/NA
Lead	0.0031	J	0.0050	0.0030	mg/L	1		6010C	Total/NA
Magnesium	58.2		0.20	0.043	mg/L	1		6010C	Total/NA
Manganese	0.0044		0.0030	0.00040	mg/L	1		6010C	Total/NA
Nickel	0.0059	J	0.010	0.0013	mg/L	1		6010C	Total/NA
Potassium	1.8		0.50	0.10	mg/L	1		6010C	Total/NA
Sodium	7.1		1.0	0.32	mg/L	1		6010C	Total/NA
Zinc	0.031	B	0.010	0.0015	mg/L	1		6010C	Total/NA
Barium	0.037		0.0020	0.00070	mg/L	1		6010C	Dissolved
Calcium	97.1		0.50	0.10	mg/L	1		6010C	Dissolved
Chromium	0.0012	J	0.0040	0.0010	mg/L	1		6010C	Dissolved
Copper	0.0038	J	0.010	0.0016	mg/L	1		6010C	Dissolved
Potassium	1.8		0.50	0.10	mg/L	1		6010C	Dissolved
Magnesium	58.1		0.20	0.043	mg/L	1		6010C	Dissolved
Manganese	0.0011	J	0.0030	0.00040	mg/L	1		6010C	Dissolved
Sodium	7.5		1.0	0.32	mg/L	1		6010C	Dissolved
Nickel	0.0086	J	0.010	0.0013	mg/L	1		6010C	Dissolved
Zinc	0.035		0.010	0.0015	mg/L	1		6010C	Dissolved

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: N Tonawanda Water Works
Project/Site: City of North Tonawanda - NCRS

TestAmerica Job ID: 480-116461-1

Client Sample ID: WG-11109668-041817-SG-NCR13S

Lab Sample ID: 480-116461-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	0.076	J	0.20	0.060	mg/L	1		6010C	Total/NA
Barium	0.042		0.0020	0.00070	mg/L	1		6010C	Total/NA
Calcium	150		0.50	0.10	mg/L	1		6010C	Total/NA
Copper	0.0021	J	0.010	0.0016	mg/L	1		6010C	Total/NA
Iron	0.099		0.050	0.019	mg/L	1		6010C	Total/NA
Lead	0.0046	J	0.0050	0.0030	mg/L	1		6010C	Total/NA
Magnesium	62.3		0.20	0.043	mg/L	1		6010C	Total/NA
Manganese	0.040		0.0030	0.00040	mg/L	1		6010C	Total/NA
Nickel	0.0027	J	0.010	0.0013	mg/L	1		6010C	Total/NA
Potassium	1.0		0.50	0.10	mg/L	1		6010C	Total/NA
Sodium	11.0		1.0	0.32	mg/L	1		6010C	Total/NA
Zinc	0.0024	J B	0.010	0.0015	mg/L	1		6010C	Total/NA
Barium	0.034		0.0020	0.00070	mg/L	1		6010C	Dissolved
Calcium	144		0.50	0.10	mg/L	1		6010C	Dissolved
Potassium	0.99		0.50	0.10	mg/L	1		6010C	Dissolved
Magnesium	73.6		0.20	0.043	mg/L	1		6010C	Dissolved
Manganese	0.012		0.0030	0.00040	mg/L	1		6010C	Dissolved
Sodium	21.3	F1	1.0	0.32	mg/L	1		6010C	Dissolved
Nickel	0.0026	J	0.010	0.0013	mg/L	1		6010C	Dissolved
Lead	0.0031	J	0.0050	0.0030	mg/L	1		6010C	Dissolved
Zinc	0.0099	J	0.010	0.0015	mg/L	1		6010C	Dissolved

This Detection Summary does not include radiochemical test results.

Client: N Tonawanda Water Works
Project/Site: City of North Tonawanda - NCRS

TestAmerica Job ID: 480-116461-1

Client Sample ID: WG-11109668-041817-SG-NCR4S
Date Collected: 04/18/17 08:40
Date Received: 04/18/17 09:15

Lab Sample ID: 480-116461-1
Matrix: Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**22.9**		0.20	0.060	mg/L		04/20/17 13:35	04/22/17 09:34	1
Antimony	ND		0.020	0.0068	mg/L		04/20/17 13:35	04/22/17 09:34	1
Arsenic	**0.0066**	**J**	0.010	0.0056	mg/L		04/20/17 13:35	04/22/17 09:34	1
Barium	**0.090**		0.0020	0.00070	mg/L		04/20/17 13:35	04/22/17 09:34	1
Beryllium	**0.00079**	**J**	0.0020	0.00030	mg/L		04/20/17 13:35	04/22/17 09:34	1
Cadmium	**0.00079**	**J**	0.0010	0.00050	mg/L		04/20/17 13:35	04/22/17 09:34	1
Calcium	**129**		0.50	0.10	mg/L		04/20/17 13:35	04/22/17 09:34	1
Chromium	**0.011**		0.0040	0.0010	mg/L		04/20/17 13:35	04/22/17 09:34	1
Cobalt	**0.0021**	**J**	0.0040	0.00063	mg/L		04/20/17 13:35	04/22/17 09:34	1
Copper	**0.029**		0.010	0.0016	mg/L		04/20/17 13:35	04/22/17 09:34	1
Iron	**64.1**		0.050	0.019	mg/L		04/20/17 13:35	04/22/17 09:34	1
Lead	**0.046**		0.0050	0.0030	mg/L		04/20/17 13:35	04/22/17 09:34	1
Magnesium	**40.6**		0.20	0.043	mg/L		04/20/17 13:35	04/22/17 09:34	1
Manganese	**0.15**		0.0030	0.00040	mg/L		04/20/17 13:35	04/22/17 09:34	1
Nickel	**0.012**		0.010	0.0013	mg/L		04/20/17 13:35	04/22/17 09:34	1
Potassium	**10**		0.50	0.10	mg/L		04/20/17 13:35	04/22/17 09:34	1
Selenium	ND		0.015	0.0087	mg/L		04/20/17 13:35	04/22/17 09:34	1
Silver	ND		0.0030	0.0017	mg/L		04/20/17 13:35	04/22/17 09:34	1
Sodium	**26.5**		1.0	0.32	mg/L		04/20/17 13:35	04/22/17 09:34	1
Thallium	ND		0.020	0.010	mg/L		04/20/17 13:35	04/22/17 09:34	1
Vanadium	**0.0091**		0.0050	0.0015	mg/L		04/20/17 13:35	04/22/17 09:34	1
Zinc	**0.94**	**B**	0.010	0.0015	mg/L		04/20/17 13:35	04/22/17 09:34	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.0030	0.0017	mg/L		04/25/17 09:25	04/25/17 20:44	1
Aluminum	ND		0.20	0.060	mg/L		04/25/17 09:25	04/25/17 20:44	1
Arsenic	ND		0.010	0.0056	mg/L		04/25/17 09:25	04/25/17 20:44	1
Barium	**0.036**		0.0020	0.00070	mg/L		04/25/17 09:25	04/25/17 20:44	1
Beryllium	ND		0.0020	0.00030	mg/L		04/25/17 09:25	04/25/17 20:44	1
Calcium	**106**		0.50	0.10	mg/L		04/25/17 09:25	04/25/17 20:44	1
Cadmium	ND		0.0010	0.00050	mg/L		04/25/17 09:25	04/25/17 20:44	1
Cobalt	ND		0.0040	0.00063	mg/L		04/25/17 09:25	04/25/17 20:44	1
Chromium	ND		0.0040	0.0010	mg/L		04/25/17 09:25	04/25/17 20:44	1
Copper	ND		0.010	0.0016	mg/L		04/25/17 09:25	04/25/17 20:44	1
Iron	ND		0.050	0.019	mg/L		04/25/17 09:25	04/25/17 20:44	1
Potassium	**9.6**		0.50	0.10	mg/L		04/25/17 09:25	04/25/17 20:44	1
Magnesium	**35.4**		0.20	0.043	mg/L		04/25/17 09:25	04/25/17 20:44	1
Manganese	ND		0.0030	0.00040	mg/L		04/25/17 09:25	04/25/17 20:44	1
Sodium	**27.3**		1.0	0.32	mg/L		04/25/17 09:25	04/25/17 20:44	1
Nickel	ND		0.010	0.0013	mg/L		04/25/17 09:25	04/25/17 20:44	1
Lead	ND		0.0050	0.0030	mg/L		04/25/17 09:25	04/25/17 20:44	1
Antimony	ND		0.020	0.0068	mg/L		04/25/17 09:25	04/25/17 20:44	1
Selenium	ND		0.015	0.0087	mg/L		04/25/17 09:25	04/25/17 20:44	1
Thallium	ND		0.020	0.010	mg/L		04/25/17 09:25	04/25/17 20:44	1
Zinc	**0.017**		0.010	0.0015	mg/L		04/25/17 09:25	04/25/17 20:44	1
Vanadium	ND		0.0050	0.0015	mg/L		04/25/17 09:25	04/25/17 20:44	1

Client Sample ID: WG-11109668-041817-SG-NCR4S

Lab Sample ID: 480-116461-1

Date Collected: 04/18/17 08:40

Matrix: Water

Date Received: 04/18/17 09:15

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		04/20/17 08:00	04/20/17 12:21	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		04/24/17 07:30	04/25/17 11:26	1

Client Sample ID: WG-11109668-041817-SG-NCR5S

Lab Sample ID: 480-116461-2

Date Collected: 04/18/17 08:30

Matrix: Water

Date Received: 04/18/17 09:15

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.070**	**J**	0.20	0.060	mg/L		04/20/17 13:35	04/22/17 09:37	1
Antimony	ND		0.020	0.0068	mg/L		04/20/17 13:35	04/22/17 09:37	1
Arsenic	ND		0.010	0.0056	mg/L		04/20/17 13:35	04/22/17 09:37	1
Barium	**0.13**		0.0020	0.00070	mg/L		04/20/17 13:35	04/22/17 09:37	1
Beryllium	ND		0.0020	0.00030	mg/L		04/20/17 13:35	04/22/17 09:37	1
Cadmium	ND		0.0010	0.00050	mg/L		04/20/17 13:35	04/22/17 09:37	1
Calcium	**82.9**		0.50	0.10	mg/L		04/20/17 13:35	04/22/17 09:37	1
Chromium	ND		0.0040	0.0010	mg/L		04/20/17 13:35	04/22/17 09:37	1
Cobalt	ND		0.0040	0.00063	mg/L		04/20/17 13:35	04/22/17 09:37	1
Copper	**0.0028**	**J**	0.010	0.0016	mg/L		04/20/17 13:35	04/22/17 09:37	1
Iron	**0.073**		0.050	0.019	mg/L		04/20/17 13:35	04/22/17 09:37	1
Lead	ND		0.0050	0.0030	mg/L		04/20/17 13:35	04/22/17 09:37	1
Magnesium	**46.4**		0.20	0.043	mg/L		04/20/17 13:35	04/22/17 09:37	1
Manganese	**0.0017**	**J**	0.0030	0.00040	mg/L		04/20/17 13:35	04/22/17 09:37	1
Nickel	**0.0034**	**J**	0.010	0.0013	mg/L		04/20/17 13:35	04/22/17 09:37	1
Potassium	**0.44**	**J**	0.50	0.10	mg/L		04/20/17 13:35	04/22/17 09:37	1
Selenium	ND		0.015	0.0087	mg/L		04/20/17 13:35	04/22/17 09:37	1
Silver	ND		0.0030	0.0017	mg/L		04/20/17 13:35	04/22/17 09:37	1
Sodium	**13.7**		1.0	0.32	mg/L		04/20/17 13:35	04/22/17 09:37	1
Thallium	ND		0.020	0.010	mg/L		04/20/17 13:35	04/22/17 09:37	1
Vanadium	ND		0.0050	0.0015	mg/L		04/20/17 13:35	04/22/17 09:37	1
Zinc	**0.0030**	**J B**	0.010	0.0015	mg/L		04/20/17 13:35	04/22/17 09:37	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.0030	0.0017	mg/L		04/25/17 09:25	04/25/17 20:47	1
Aluminum	ND		0.20	0.060	mg/L		04/25/17 09:25	04/25/17 20:47	1
Arsenic	ND		0.010	0.0056	mg/L		04/25/17 09:25	04/25/17 20:47	1
Barium	**0.12**		0.0020	0.00070	mg/L		04/25/17 09:25	04/25/17 20:47	1
Beryllium	ND		0.0020	0.00030	mg/L		04/25/17 09:25	04/25/17 20:47	1
Calcium	**75.2**		0.50	0.10	mg/L		04/25/17 09:25	04/25/17 20:47	1
Cadmium	ND		0.0010	0.00050	mg/L		04/25/17 09:25	04/25/17 20:47	1
Cobalt	ND		0.0040	0.00063	mg/L		04/25/17 09:25	04/25/17 20:47	1
Chromium	ND		0.0040	0.0010	mg/L		04/25/17 09:25	04/25/17 20:47	1
Copper	ND		0.010	0.0016	mg/L		04/25/17 09:25	04/25/17 20:47	1
Iron	ND		0.050	0.019	mg/L		04/25/17 09:25	04/25/17 20:47	1
Potassium	**0.44**	**J**	0.50	0.10	mg/L		04/25/17 09:25	04/25/17 20:47	1
Magnesium	**43.7**		0.20	0.043	mg/L		04/25/17 09:25	04/25/17 20:47	1

Client Sample ID: WG-11109668-041817-SG-NCR5S

Lab Sample ID: 480-116461-2

Date Collected: 04/18/17 08:30

Matrix: Water

Date Received: 04/18/17 09:15

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		0.0030	0.00040	mg/L		04/25/17 09:25	04/25/17 20:47	1
Sodium	**12.5**		1.0	0.32	mg/L		04/25/17 09:25	04/25/17 20:47	1
Nickel	**0.0018**	**J**	0.010	0.0013	mg/L		04/25/17 09:25	04/25/17 20:47	1
Lead	ND		0.0050	0.0030	mg/L		04/25/17 09:25	04/25/17 20:47	1
Antimony	ND		0.020	0.0068	mg/L		04/25/17 09:25	04/25/17 20:47	1
Selenium	ND		0.015	0.0087	mg/L		04/25/17 09:25	04/25/17 20:47	1
Thallium	ND		0.020	0.010	mg/L		04/25/17 09:25	04/25/17 20:47	1
Zinc	**0.0021**	**J**	0.010	0.0015	mg/L		04/25/17 09:25	04/25/17 20:47	1
Vanadium	ND		0.0050	0.0015	mg/L		04/25/17 09:25	04/25/17 20:47	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		04/20/17 08:00	04/20/17 12:22	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		04/24/17 07:30	04/25/17 11:27	1

Client Sample ID: WG-11109668-041817-SG-NCR6S

Lab Sample ID: 480-116461-3

Date Collected: 04/18/17 08:30

Matrix: Water

Date Received: 04/18/17 09:15

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.92**		0.20	0.060	mg/L		04/20/17 13:35	04/22/17 09:41	1
Antimony	ND		0.020	0.0068	mg/L		04/20/17 13:35	04/22/17 09:41	1
Arsenic	ND		0.010	0.0056	mg/L		04/20/17 13:35	04/22/17 09:41	1
Barium	**0.14**		0.0020	0.00070	mg/L		04/20/17 13:35	04/22/17 09:41	1
Beryllium	ND		0.0020	0.00030	mg/L		04/20/17 13:35	04/22/17 09:41	1
Cadmium	ND		0.0010	0.00050	mg/L		04/20/17 13:35	04/22/17 09:41	1
Calcium	**81.5**		0.50	0.10	mg/L		04/20/17 13:35	04/22/17 09:41	1
Chromium	**0.0042**		0.0040	0.0010	mg/L		04/20/17 13:35	04/22/17 09:41	1
Cobalt	ND		0.0040	0.00063	mg/L		04/20/17 13:35	04/22/17 09:41	1
Copper	**0.0036**	**J**	0.010	0.0016	mg/L		04/20/17 13:35	04/22/17 09:41	1
Iron	**0.66**		0.050	0.019	mg/L		04/20/17 13:35	04/22/17 09:41	1
Lead	ND		0.0050	0.0030	mg/L		04/20/17 13:35	04/22/17 09:41	1
Magnesium	**46.2**		0.20	0.043	mg/L		04/20/17 13:35	04/22/17 09:41	1
Manganese	**0.015**		0.0030	0.00040	mg/L		04/20/17 13:35	04/22/17 09:41	1
Nickel	**0.0062**	**J**	0.010	0.0013	mg/L		04/20/17 13:35	04/22/17 09:41	1
Potassium	**0.61**		0.50	0.10	mg/L		04/20/17 13:35	04/22/17 09:41	1
Selenium	ND		0.015	0.0087	mg/L		04/20/17 13:35	04/22/17 09:41	1
Silver	ND		0.0030	0.0017	mg/L		04/20/17 13:35	04/22/17 09:41	1
Sodium	**14.1**		1.0	0.32	mg/L		04/20/17 13:35	04/22/17 09:41	1
Thallium	ND		0.020	0.010	mg/L		04/20/17 13:35	04/22/17 09:41	1
Vanadium	ND		0.0050	0.0015	mg/L		04/20/17 13:35	04/22/17 09:41	1
Zinc	**0.0053**	**J B**	0.010	0.0015	mg/L		04/20/17 13:35	04/22/17 09:41	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.0030	0.0017	mg/L		04/25/17 09:25	04/25/17 20:51	1

Client Sample ID: WG-11109668-041817-SG-NCR6S

Lab Sample ID: 480-116461-3

Date Collected: 04/18/17 08:30

Matrix: Water

Date Received: 04/18/17 09:15

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.060	mg/L		04/25/17 09:25	04/25/17 20:51	1
Arsenic	ND		0.010	0.0056	mg/L		04/25/17 09:25	04/25/17 20:51	1
Barium	**0.13**		0.0020	0.00070	mg/L		04/25/17 09:25	04/25/17 20:51	1
Beryllium	ND		0.0020	0.00030	mg/L		04/25/17 09:25	04/25/17 20:51	1
Calcium	**78.0**		0.50	0.10	mg/L		04/25/17 09:25	04/25/17 20:51	1
Cadmium	ND		0.0010	0.00050	mg/L		04/25/17 09:25	04/25/17 20:51	1
Cobalt	ND		0.0040	0.00063	mg/L		04/25/17 09:25	04/25/17 20:51	1
Chromium	ND		0.0040	0.0010	mg/L		04/25/17 09:25	04/25/17 20:51	1
Copper	**0.0028**	**J**	0.010	0.0016	mg/L		04/25/17 09:25	04/25/17 20:51	1
Iron	ND		0.050	0.019	mg/L		04/25/17 09:25	04/25/17 20:51	1
Potassium	**0.48**	**J**	0.50	0.10	mg/L		04/25/17 09:25	04/25/17 20:51	1
Magnesium	**45.3**		0.20	0.043	mg/L		04/25/17 09:25	04/25/17 20:51	1
Manganese	**0.00041**	**J**	0.0030	0.00040	mg/L		04/25/17 09:25	04/25/17 20:51	1
Sodium	**14.4**		1.0	0.32	mg/L		04/25/17 09:25	04/25/17 20:51	1
Nickel	**0.0026**	**J**	0.010	0.0013	mg/L		04/25/17 09:25	04/25/17 20:51	1
Lead	ND		0.0050	0.0030	mg/L		04/25/17 09:25	04/25/17 20:51	1
Antimony	ND		0.020	0.0068	mg/L		04/25/17 09:25	04/25/17 20:51	1
Selenium	ND		0.015	0.0087	mg/L		04/25/17 09:25	04/25/17 20:51	1
Thallium	ND		0.020	0.010	mg/L		04/25/17 09:25	04/25/17 20:51	1
Zinc	**0.0027**	**J**	0.010	0.0015	mg/L		04/25/17 09:25	04/25/17 20:51	1
Vanadium	ND		0.0050	0.0015	mg/L		04/25/17 09:25	04/25/17 20:51	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		04/20/17 08:00	04/20/17 12:24	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		04/24/17 07:30	04/25/17 11:30	1

Client Sample ID: WG-11109668-041817-SG-NCR3S

Lab Sample ID: 480-116461-4

Date Collected: 04/18/17 08:00

Matrix: Water

Date Received: 04/18/17 09:15

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.20**		0.20	0.060	mg/L		04/20/17 13:35	04/22/17 09:44	1
Antimony	ND		0.020	0.0068	mg/L		04/20/17 13:35	04/22/17 09:44	1
Arsenic	ND		0.010	0.0056	mg/L		04/20/17 13:35	04/22/17 09:44	1
Barium	**0.037**		0.0020	0.00070	mg/L		04/20/17 13:35	04/22/17 09:44	1
Beryllium	ND		0.0020	0.00030	mg/L		04/20/17 13:35	04/22/17 09:44	1
Cadmium	ND		0.0010	0.00050	mg/L		04/20/17 13:35	04/22/17 09:44	1
Calcium	**97.7**		0.50	0.10	mg/L		04/20/17 13:35	04/22/17 09:44	1
Chromium	**0.0037**	**J**	0.0040	0.0010	mg/L		04/20/17 13:35	04/22/17 09:44	1
Cobalt	ND		0.0040	0.00063	mg/L		04/20/17 13:35	04/22/17 09:44	1
Copper	**0.0031**	**J**	0.010	0.0016	mg/L		04/20/17 13:35	04/22/17 09:44	1
Iron	**0.37**		0.050	0.019	mg/L		04/20/17 13:35	04/22/17 09:44	1
Lead	**0.0031**	**J**	0.0050	0.0030	mg/L		04/20/17 13:35	04/22/17 09:44	1
Magnesium	**58.2**		0.20	0.043	mg/L		04/20/17 13:35	04/22/17 09:44	1
Manganese	**0.0044**		0.0030	0.00040	mg/L		04/20/17 13:35	04/22/17 09:44	1

Client Sample ID: WG-11109668-041817-SG-NCR3S

Lab Sample ID: 480-116461-4

Date Collected: 04/18/17 08:00

Matrix: Water

Date Received: 04/18/17 09:15

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	**0.0059**	**J**	0.010	0.0013	mg/L		04/20/17 13:35	04/22/17 09:44	1
Potassium	**1.8**		0.50	0.10	mg/L		04/20/17 13:35	04/22/17 09:44	1
Selenium	ND		0.015	0.0087	mg/L		04/20/17 13:35	04/22/17 09:44	1
Silver	ND		0.0030	0.0017	mg/L		04/20/17 13:35	04/22/17 09:44	1
Sodium	**7.1**		1.0	0.32	mg/L		04/20/17 13:35	04/22/17 09:44	1
Thallium	ND		0.020	0.010	mg/L		04/20/17 13:35	04/22/17 09:44	1
Vanadium	ND		0.0050	0.0015	mg/L		04/20/17 13:35	04/22/17 09:44	1
Zinc	**0.031**	**B**	0.010	0.0015	mg/L		04/20/17 13:35	04/22/17 09:44	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.0030	0.0017	mg/L		04/25/17 09:25	04/25/17 20:54	1
Aluminum	ND		0.20	0.060	mg/L		04/25/17 09:25	04/25/17 20:54	1
Arsenic	ND		0.010	0.0056	mg/L		04/25/17 09:25	04/25/17 20:54	1
Barium	**0.037**		0.0020	0.00070	mg/L		04/25/17 09:25	04/25/17 20:54	1
Beryllium	ND		0.0020	0.00030	mg/L		04/25/17 09:25	04/25/17 20:54	1
Calcium	**97.1**		0.50	0.10	mg/L		04/25/17 09:25	04/25/17 20:54	1
Cadmium	ND		0.0010	0.00050	mg/L		04/25/17 09:25	04/25/17 20:54	1
Cobalt	ND		0.0040	0.00063	mg/L		04/25/17 09:25	04/25/17 20:54	1
Chromium	**0.0012**	**J**	0.0040	0.0010	mg/L		04/25/17 09:25	04/25/17 20:54	1
Copper	**0.0038**	**J**	0.010	0.0016	mg/L		04/25/17 09:25	04/25/17 20:54	1
Iron	ND		0.050	0.019	mg/L		04/25/17 09:25	04/25/17 20:54	1
Potassium	**1.8**		0.50	0.10	mg/L		04/25/17 09:25	04/25/17 20:54	1
Magnesium	**58.1**		0.20	0.043	mg/L		04/25/17 09:25	04/25/17 20:54	1
Manganese	**0.0011**	**J**	0.0030	0.00040	mg/L		04/25/17 09:25	04/25/17 20:54	1
Sodium	**7.5**		1.0	0.32	mg/L		04/25/17 09:25	04/25/17 20:54	1
Nickel	**0.0086**	**J**	0.010	0.0013	mg/L		04/25/17 09:25	04/25/17 20:54	1
Lead	ND		0.0050	0.0030	mg/L		04/25/17 09:25	04/25/17 20:54	1
Antimony	ND		0.020	0.0068	mg/L		04/25/17 09:25	04/25/17 20:54	1
Selenium	ND		0.015	0.0087	mg/L		04/25/17 09:25	04/25/17 20:54	1
Thallium	ND		0.020	0.010	mg/L		04/25/17 09:25	04/25/17 20:54	1
Zinc	**0.035**		0.010	0.0015	mg/L		04/25/17 09:25	04/25/17 20:54	1
Vanadium	ND		0.0050	0.0015	mg/L		04/25/17 09:25	04/25/17 20:54	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		04/20/17 08:00	04/20/17 12:25	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		04/24/17 07:30	04/25/17 11:32	1

Client Sample ID: WG-11109668-041817-SG-NCR13S

Lab Sample ID: 480-116461-5

Date Collected: 04/18/17 08:10

Matrix: Water

Date Received: 04/18/17 09:15

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.076**	**J**	0.20	0.060	mg/L		04/20/17 13:35	04/22/17 09:48	1
Antimony	ND		0.020	0.0068	mg/L		04/20/17 13:35	04/22/17 09:48	1

Client Sample ID: WG-11109668-041817-SG-NCR13S
Date Collected: 04/18/17 08:10
Date Received: 04/18/17 09:15

Lab Sample ID: 480-116461-5
Matrix: Water

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.010	0.0056	mg/L		04/20/17 13:35	04/22/17 09:48	1
Barium	**0.042**		0.0020	0.00070	mg/L		04/20/17 13:35	04/22/17 09:48	1
Beryllium	ND		0.0020	0.00030	mg/L		04/20/17 13:35	04/22/17 09:48	1
Cadmium	ND		0.0010	0.00050	mg/L		04/20/17 13:35	04/22/17 09:48	1
Calcium	**150**		0.50	0.10	mg/L		04/20/17 13:35	04/22/17 09:48	1
Chromium	ND		0.0040	0.0010	mg/L		04/20/17 13:35	04/22/17 09:48	1
Cobalt	ND		0.0040	0.00063	mg/L		04/20/17 13:35	04/22/17 09:48	1
Copper	**0.0021**	**J**	0.010	0.0016	mg/L		04/20/17 13:35	04/22/17 09:48	1
Iron	**0.099**		0.050	0.019	mg/L		04/20/17 13:35	04/22/17 09:48	1
Lead	**0.0046**	**J**	0.0050	0.0030	mg/L		04/20/17 13:35	04/22/17 09:48	1
Magnesium	**62.3**		0.20	0.043	mg/L		04/20/17 13:35	04/22/17 09:48	1
Manganese	**0.040**		0.0030	0.00040	mg/L		04/20/17 13:35	04/22/17 09:48	1
Nickel	**0.0027**	**J**	0.010	0.0013	mg/L		04/20/17 13:35	04/22/17 09:48	1
Potassium	**1.0**		0.50	0.10	mg/L		04/20/17 13:35	04/22/17 09:48	1
Selenium	ND		0.015	0.0087	mg/L		04/20/17 13:35	04/22/17 09:48	1
Silver	ND		0.0030	0.0017	mg/L		04/20/17 13:35	04/22/17 09:48	1
Sodium	**11.0**		1.0	0.32	mg/L		04/20/17 13:35	04/22/17 09:48	1
Thallium	ND		0.020	0.010	mg/L		04/20/17 13:35	04/22/17 09:48	1
Vanadium	ND		0.0050	0.0015	mg/L		04/20/17 13:35	04/22/17 09:48	1
Zinc	**0.0024**	**J B**	0.010	0.0015	mg/L		04/20/17 13:35	04/22/17 09:48	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.0030	0.0017	mg/L		04/25/17 09:25	04/25/17 20:58	1
Aluminum	ND		0.20	0.060	mg/L		04/25/17 09:25	04/25/17 20:58	1
Arsenic	ND		0.010	0.0056	mg/L		04/25/17 09:25	04/25/17 20:58	1
Barium	**0.034**		0.0020	0.00070	mg/L		04/25/17 09:25	04/25/17 20:58	1
Beryllium	ND		0.0020	0.00030	mg/L		04/25/17 09:25	04/25/17 20:58	1
Calcium	**144**		0.50	0.10	mg/L		04/25/17 09:25	04/25/17 20:58	1
Cadmium	ND		0.0010	0.00050	mg/L		04/25/17 09:25	04/25/17 20:58	1
Cobalt	ND		0.0040	0.00063	mg/L		04/25/17 09:25	04/25/17 20:58	1
Chromium	ND		0.0040	0.0010	mg/L		04/25/17 09:25	04/25/17 20:58	1
Copper	ND		0.010	0.0016	mg/L		04/25/17 09:25	04/25/17 20:58	1
Iron	ND		0.050	0.019	mg/L		04/25/17 09:25	04/25/17 20:58	1
Potassium	**0.99**		0.50	0.10	mg/L		04/25/17 09:25	04/25/17 20:58	1
Magnesium	**73.6**		0.20	0.043	mg/L		04/25/17 09:25	04/25/17 20:58	1
Manganese	**0.012**		0.0030	0.00040	mg/L		04/25/17 09:25	04/25/17 20:58	1
Sodium	**21.3**	**F1**	1.0	0.32	mg/L		04/25/17 09:25	04/25/17 20:58	1
Nickel	**0.0026**	**J**	0.010	0.0013	mg/L		04/25/17 09:25	04/25/17 20:58	1
Lead	**0.0031**	**J**	0.0050	0.0030	mg/L		04/25/17 09:25	04/25/17 20:58	1
Antimony	ND		0.020	0.0068	mg/L		04/25/17 09:25	04/25/17 20:58	1
Selenium	ND		0.015	0.0087	mg/L		04/25/17 09:25	04/25/17 20:58	1
Thallium	ND		0.020	0.010	mg/L		04/25/17 09:25	04/25/17 20:58	1
Zinc	**0.0099**	**J**	0.010	0.0015	mg/L		04/25/17 09:25	04/25/17 20:58	1
Vanadium	ND		0.0050	0.0015	mg/L		04/25/17 09:25	04/25/17 20:58	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		04/20/17 08:00	04/20/17 12:27	1

Client Sample Results

Client: N Tonawanda Water Works
Project/Site: City of North Tonawanda - NCRS

TestAmerica Job ID: 480-116461-1

Client Sample ID: WG-11109668-041817-SG-NCR13S
Date Collected: 04/18/17 08:10
Date Received: 04/18/17 09:15

Lab Sample ID: 480-116461-5
Matrix: Water

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		04/24/17 07:30	04/25/17 11:34	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-353096/1-A
Matrix: Water
Analysis Batch: 353689

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 353096

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.060	mg/L		04/20/17 13:35	04/22/17 09:27	1
Arsenic	ND		0.010	0.0056	mg/L		04/20/17 13:35	04/22/17 09:27	1
Barium	ND		0.0020	0.00070	mg/L		04/20/17 13:35	04/22/17 09:27	1
Beryllium	ND		0.0020	0.00030	mg/L		04/20/17 13:35	04/22/17 09:27	1
Cadmium	ND		0.0010	0.00050	mg/L		04/20/17 13:35	04/22/17 09:27	1
Calcium	ND		0.50	0.10	mg/L		04/20/17 13:35	04/22/17 09:27	1
Chromium	ND		0.0040	0.0010	mg/L		04/20/17 13:35	04/22/17 09:27	1
Cobalt	ND		0.0040	0.00063	mg/L		04/20/17 13:35	04/22/17 09:27	1
Copper	ND		0.010	0.0016	mg/L		04/20/17 13:35	04/22/17 09:27	1
Iron	ND		0.050	0.019	mg/L		04/20/17 13:35	04/22/17 09:27	1
Magnesium	ND		0.20	0.043	mg/L		04/20/17 13:35	04/22/17 09:27	1
Manganese	ND		0.0030	0.00040	mg/L		04/20/17 13:35	04/22/17 09:27	1
Nickel	ND		0.010	0.0013	mg/L		04/20/17 13:35	04/22/17 09:27	1
Potassium	ND		0.50	0.10	mg/L		04/20/17 13:35	04/22/17 09:27	1
Lead	ND		0.0050	0.0030	mg/L		04/20/17 13:35	04/22/17 09:27	1
Antimony	ND		0.020	0.0068	mg/L		04/20/17 13:35	04/22/17 09:27	1
Silver	ND		0.0030	0.0017	mg/L		04/20/17 13:35	04/22/17 09:27	1
Selenium	ND		0.015	0.0087	mg/L		04/20/17 13:35	04/22/17 09:27	1
Sodium	ND		1.0	0.32	mg/L		04/20/17 13:35	04/22/17 09:27	1
Thallium	ND		0.020	0.010	mg/L		04/20/17 13:35	04/22/17 09:27	1
Vanadium	ND		0.0050	0.0015	mg/L		04/20/17 13:35	04/22/17 09:27	1
Zinc	0.00219	J	0.010	0.0015	mg/L		04/20/17 13:35	04/22/17 09:27	1

Lab Sample ID: LCS 480-353096/2-A
Matrix: Water
Analysis Batch: 353689

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 353096

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	10.0	9.88		mg/L		99	80 - 120
Arsenic	0.200	0.200		mg/L		100	80 - 120
Barium	0.200	0.200		mg/L		100	80 - 120
Beryllium	0.200	0.204		mg/L		102	80 - 120
Cadmium	0.200	0.207		mg/L		103	80 - 120
Calcium	10.0	9.88		mg/L		99	80 - 120
Chromium	0.200	0.200		mg/L		100	80 - 120
Cobalt	0.200	0.193		mg/L		96	80 - 120
Copper	0.200	0.202		mg/L		101	80 - 120
Iron	10.0	10.56		mg/L		106	80 - 120
Magnesium	10.0	9.87		mg/L		99	80 - 120
Manganese	0.200	0.207		mg/L		103	80 - 120
Nickel	0.200	0.194		mg/L		97	80 - 120
Potassium	10.0	9.98		mg/L		100	80 - 120
Lead	0.200	0.202		mg/L		101	80 - 120
Antimony	0.200	0.200		mg/L		100	80 - 120
Silver	0.0500	0.0465		mg/L		93	80 - 120
Selenium	0.200	0.191		mg/L		96	80 - 120
Sodium	10.0	9.96		mg/L		99	80 - 120
Thallium	0.200	0.200		mg/L		100	80 - 120

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 480-353096/2-A
Matrix: Water
Analysis Batch: 353689

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 353096

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Vanadium	0.200	0.209		mg/L		104	80 - 120
Zinc	0.200	0.200		mg/L		100	80 - 120

Lab Sample ID: 480-116461-5 MS
Matrix: Water
Analysis Batch: 353689

Client Sample ID: WG-11109668-041817-SG-NCR13S MS
Prep Type: Total/NA
Prep Batch: 353096

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	0.076	J	10.0	10.59		mg/L		105	75 - 125
Antimony	ND		0.200	0.208		mg/L		104	75 - 125
Arsenic	ND		0.200	0.213		mg/L		106	75 - 125
Barium	0.042		0.200	0.245		mg/L		101	75 - 125
Beryllium	ND		0.200	0.207		mg/L		104	75 - 125
Cadmium	ND		0.200	0.216		mg/L		108	75 - 125
Calcium	150		10.0	154.7	4	mg/L		50	75 - 125
Chromium	ND		0.200	0.206		mg/L		103	75 - 125
Cobalt	ND		0.200	0.200		mg/L		100	75 - 125
Copper	0.0021	J	0.200	0.213		mg/L		105	75 - 125
Iron	0.099		10.0	11.10		mg/L		110	75 - 125
Lead	0.0046	J	0.200	0.217		mg/L		106	75 - 125
Magnesium	62.3		10.0	72.82	4	mg/L		106	75 - 125
Manganese	0.040		0.200	0.241		mg/L		101	75 - 125
Nickel	0.0027	J	0.200	0.203		mg/L		100	75 - 125
Potassium	1.0		10.0	11.44		mg/L		104	75 - 125
Selenium	ND		0.200	0.207		mg/L		103	75 - 125
Silver	ND		0.0500	0.0491		mg/L		98	75 - 125
Sodium	11.0		10.0	22.86		mg/L		118	75 - 125
Thallium	ND		0.200	0.204		mg/L		102	75 - 125
Vanadium	ND		0.200	0.215		mg/L		108	75 - 125
Zinc	0.0024	J B	0.200	0.204		mg/L		101	75 - 125

Lab Sample ID: 480-116461-5 MSD
Matrix: Water
Analysis Batch: 353689

Client Sample ID: WG-11109668-041817-SG-NCR13S MSD
Prep Type: Total/NA
Prep Batch: 353096

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	0.076	J	10.0	10.86		mg/L		108	75 - 125	2	20
Antimony	ND		0.200	0.209		mg/L		104	75 - 125	1	20
Arsenic	ND		0.200	0.212		mg/L		106	75 - 125	0	20
Barium	0.042		0.200	0.245		mg/L		102	75 - 125	0	20
Beryllium	ND		0.200	0.209		mg/L		105	75 - 125	1	20
Cadmium	ND		0.200	0.218		mg/L		109	75 - 125	1	20
Calcium	150		10.0	158.7	4	mg/L		89	75 - 125	3	20
Chromium	ND		0.200	0.208		mg/L		104	75 - 125	1	20
Cobalt	ND		0.200	0.202		mg/L		101	75 - 125	1	20
Copper	0.0021	J	0.200	0.214		mg/L		106	75 - 125	0	20
Iron	0.099		10.0	11.48		mg/L		114	75 - 125	3	20
Lead	0.0046	J	0.200	0.215		mg/L		105	75 - 125	1	20
Magnesium	62.3		10.0	74.43	4	mg/L		122	75 - 125	2	20

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 480-116461-5 MSD | **Client Sample ID: WG-11109668-041817-SG-NCR13S MSD**
Matrix: Water | **Prep Type: Total/NA**
Analysis Batch: 353689 | **Prep Batch: 353096**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Manganese	0.040		0.200	0.231		mg/L		95	75 - 125	5	20
Nickel	0.0027	J	0.200	0.204		mg/L		101	75 - 125	1	20
Potassium	1.0		10.0	11.54		mg/L		105	75 - 125	1	20
Selenium	ND		0.200	0.205		mg/L		102	75 - 125	1	20
Silver	ND		0.0500	0.0499		mg/L		100	75 - 125	2	20
Sodium	11.0		10.0	23.10		mg/L		121	75 - 125	1	20
Thallium	ND		0.200	0.205		mg/L		102	75 - 125	0	20
Vanadium	ND		0.200	0.216		mg/L		108	75 - 125	0	20
Zinc	0.0024	J B	0.200	0.205		mg/L		101	75 - 125	1	20

Lab Sample ID: MB 480-353546/1-C | **Client Sample ID: Method Blank**
Matrix: Water | **Prep Type: Dissolved**
Analysis Batch: 354421 | **Prep Batch: 353785**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.060	mg/L		04/25/17 09:25	04/25/17 20:00	1
Arsenic	ND		0.010	0.0056	mg/L		04/25/17 09:25	04/25/17 20:00	1
Barium	ND		0.0020	0.00070	mg/L		04/25/17 09:25	04/25/17 20:00	1
Beryllium	ND		0.0020	0.00030	mg/L		04/25/17 09:25	04/25/17 20:00	1
Cadmium	ND		0.0010	0.00050	mg/L		04/25/17 09:25	04/25/17 20:00	1
Calcium	ND		0.50	0.10	mg/L		04/25/17 09:25	04/25/17 20:00	1
Chromium	ND		0.0040	0.0010	mg/L		04/25/17 09:25	04/25/17 20:00	1
Cobalt	ND		0.0040	0.00063	mg/L		04/25/17 09:25	04/25/17 20:00	1
Copper	ND		0.010	0.0016	mg/L		04/25/17 09:25	04/25/17 20:00	1
Iron	ND		0.050	0.019	mg/L		04/25/17 09:25	04/25/17 20:00	1
Magnesium	ND		0.20	0.043	mg/L		04/25/17 09:25	04/25/17 20:00	1
Manganese	ND		0.0030	0.00040	mg/L		04/25/17 09:25	04/25/17 20:00	1
Nickel	ND		0.010	0.0013	mg/L		04/25/17 09:25	04/25/17 20:00	1
Potassium	ND		0.50	0.10	mg/L		04/25/17 09:25	04/25/17 20:00	1
Lead	ND		0.0050	0.0030	mg/L		04/25/17 09:25	04/25/17 20:00	1
Antimony	ND		0.020	0.0068	mg/L		04/25/17 09:25	04/25/17 20:00	1
Silver	ND		0.0030	0.0017	mg/L		04/25/17 09:25	04/25/17 20:00	1
Selenium	ND		0.015	0.0087	mg/L		04/25/17 09:25	04/25/17 20:00	1
Sodium	ND		1.0	0.32	mg/L		04/25/17 09:25	04/25/17 20:00	1
Thallium	ND		0.020	0.010	mg/L		04/25/17 09:25	04/25/17 20:00	1
Vanadium	ND		0.0050	0.0015	mg/L		04/25/17 09:25	04/25/17 20:00	1
Zinc	ND		0.010	0.0015	mg/L		04/25/17 09:25	04/25/17 20:00	1

Lab Sample ID: LCS 480-353546/2-C | **Client Sample ID: Lab Control Sample**
Matrix: Water | **Prep Type: Dissolved**
Analysis Batch: 354421 | **Prep Batch: 353785**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	10.0	10.07		mg/L		101	80 - 120
Arsenic	0.200	0.197		mg/L		98	80 - 120
Barium	0.200	0.205		mg/L		103	80 - 120
Beryllium	0.200	0.197		mg/L		98	80 - 120
Cadmium	0.200	0.203		mg/L		102	80 - 120
Calcium	10.0	9.79		mg/L		98	80 - 120

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 480-353546/2-C
Matrix: Water
Analysis Batch: 354421

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 353785

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	0.200	0.198		mg/L		99	80 - 120
Cobalt	0.200	0.186		mg/L		93	80 - 120
Copper	0.200	0.207		mg/L		103	80 - 120
Iron	10.0	10.02		mg/L		100	80 - 120
Magnesium	10.0	9.88		mg/L		99	80 - 120
Manganese	0.200	0.206		mg/L		103	80 - 120
Nickel	0.200	0.193		mg/L		96	80 - 120
Potassium	10.0	10.06		mg/L		101	80 - 120
Lead	0.200	0.196		mg/L		98	80 - 120
Antimony	0.200	0.195		mg/L		97	80 - 120
Silver	0.0500	0.0493		mg/L		99	80 - 120
Selenium	0.200	0.197		mg/L		99	80 - 120
Sodium	10.0	10.11		mg/L		101	80 - 120
Thallium	0.200	0.198		mg/L		99	80 - 120
Vanadium	0.200	0.212		mg/L		106	80 - 120
Zinc	0.200	0.193		mg/L		97	80 - 120

Lab Sample ID: 480-116461-5 MS
Matrix: Water
Analysis Batch: 354421

Client Sample ID: WG-11109668-041817-SG-NCR13S MS
Prep Type: Dissolved
Prep Batch: 353785

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	ND		0.0500	0.0516		mg/L		103	75 - 125
Aluminum	ND		10.0	10.16		mg/L		102	75 - 125
Arsenic	ND		0.200	0.202		mg/L		101	75 - 125
Barium	0.034		0.200	0.241		mg/L		104	75 - 125
Beryllium	ND		0.200	0.196		mg/L		98	75 - 125
Calcium	144		10.0	152.1	4	mg/L		83	75 - 125
Cadmium	ND		0.200	0.211		mg/L		105	75 - 125
Cobalt	ND		0.200	0.189		mg/L		95	75 - 125
Chromium	ND		0.200	0.198		mg/L		99	75 - 125
Copper	ND		0.200	0.214		mg/L		107	75 - 125
Iron	ND		10.0	9.79		mg/L		98	75 - 125
Potassium	0.99		10.0	11.63		mg/L		106	75 - 125
Magnesium	73.6		10.0	75.10	4	mg/L		15	75 - 125
Manganese	0.012		0.200	0.205		mg/L		97	75 - 125
Sodium	21.3	F1	10.0	25.55	F1	mg/L		42	75 - 125
Nickel	0.0026	J	0.200	0.198		mg/L		98	75 - 125
Lead	0.0031	J	0.200	0.205		mg/L		101	75 - 125
Antimony	ND		0.200	0.201		mg/L		100	75 - 125
Selenium	ND		0.200	0.207		mg/L		104	75 - 125
Thallium	ND		0.200	0.200		mg/L		100	75 - 125
Zinc	0.0099	J	0.200	0.201		mg/L		95	75 - 125
Vanadium	ND		0.200	0.214		mg/L		107	75 - 125

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 480-116461-5 MSD — **Client Sample ID: WG-11109668-041817-SG-NCR13S MSD**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 354421 — **Prep Batch: 353785**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	ND		0.0500	0.0515		mg/L		103	75 - 125	0	20
Aluminum	ND		10.0	10.16		mg/L		102	75 - 125	0	20
Arsenic	ND		0.200	0.205		mg/L		102	75 - 125	1	20
Barium	0.034		0.200	0.239		mg/L		103	75 - 125	1	20
Beryllium	ND		0.200	0.195		mg/L		98	75 - 125	0	20
Calcium	144		10.0	150.1	4	mg/L		63	75 - 125	1	20
Cadmium	ND		0.200	0.210		mg/L		105	75 - 125	0	20
Cobalt	ND		0.200	0.190		mg/L		95	75 - 125	0	20
Chromium	ND		0.200	0.198		mg/L		99	75 - 125	0	20
Copper	ND		0.200	0.212		mg/L		106	75 - 125	1	20
Iron	ND		10.0	9.79		mg/L		98	75 - 125	0	20
Potassium	0.99		10.0	11.62		mg/L		106	75 - 125	0	20
Magnesium	73.6		10.0	74.04	4	mg/L		4	75 - 125	1	20
Manganese	0.012		0.200	0.205		mg/L		97	75 - 125	0	20
Sodium	21.3	F1	10.0	23.79	F1	mg/L		25	75 - 125	7	20
Nickel	0.0026	J	0.200	0.197		mg/L		97	75 - 125	1	20
Lead	0.0031	J	0.200	0.205		mg/L		101	75 - 125	0	20
Antimony	ND		0.200	0.201		mg/L		101	75 - 125	0	20
Selenium	ND		0.200	0.205		mg/L		102	75 - 125	1	20
Thallium	ND		0.200	0.201		mg/L		101	75 - 125	0	20
Zinc	0.0099	J	0.200	0.195		mg/L		92	75 - 125	3	20
Vanadium	ND		0.200	0.212		mg/L		106	75 - 125	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 480-352981/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 353113 — **Prep Batch: 352981**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		04/20/17 08:00	04/20/17 12:13	1

Lab Sample ID: LCS 480-352981/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 353113 — **Prep Batch: 352981**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00667	0.00687		mg/L		103	80 - 120

Lab Sample ID: LCSD 480-352981/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 353113 — **Prep Batch: 352981**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.00667	0.00680		mg/L		102	80 - 120	1	20

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 480-116461-5 MS — **Client Sample ID: WG-11109668-041817-SG-NCR13S MS**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 353113 — **Prep Batch: 352981**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.00667	0.00693		mg/L		104	80 - 120

Lab Sample ID: 480-116461-5 MSD — **Client Sample ID: WG-11109668-041817-SG-NCR13S MSD**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 353113 — **Prep Batch: 352981**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00667	0.00685		mg/L		103	80 - 120	1	20

Lab Sample ID: MB 480-353546/1-B — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 353906 — **Prep Batch: 353708**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		04/24/17 07:30	04/25/17 11:20	1

Lab Sample ID: LCS 480-353546/2-B — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 353906 — **Prep Batch: 353708**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00667	0.00690		mg/L		103	80 - 120

Lab Sample ID: LCSD 480-353546/3-B — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 353906 — **Prep Batch: 353708**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.00667	0.00685		mg/L		103	80 - 120	1	20

Lab Sample ID: 480-116461-5 MS — **Client Sample ID: WG-11109668-041817-SG-NCR13S MS**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 353906 — **Prep Batch: 353708**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.00667	0.00675		mg/L		101	80 - 120

Lab Sample ID: 480-116461-5 MSD — **Client Sample ID: WG-11109668-041817-SG-NCR13S MSD**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 353906 — **Prep Batch: 353708**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00667	0.00653		mg/L		98	80 - 120	3	20

Metals

Prep Batch: 352981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-116461-1	WG-11109668-041817-SG-NCR4S	Total/NA	Water	7470A	
480-116461-2	WG-11109668-041817-SG-NCR5S	Total/NA	Water	7470A	
480-116461-3	WG-11109668-041817-SG-NCR6S	Total/NA	Water	7470A	
480-116461-4	WG-11109668-041817-SG-NCR3S	Total/NA	Water	7470A	
480-116461-5	WG-11109668-041817-SG-NCR13S	Total/NA	Water	7470A	
MB 480-352981/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-352981/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 480-352981/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	
480-116461-5 MS	WG-11109668-041817-SG-NCR13S MS	Total/NA	Water	7470A	
480-116461-5 MSD	WG-11109668-041817-SG-NCR13S MSD	Total/NA	Water	7470A	

Prep Batch: 353096

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-116461-1	WG-11109668-041817-SG-NCR4S	Total/NA	Water	3005A	
480-116461-2	WG-11109668-041817-SG-NCR5S	Total/NA	Water	3005A	
480-116461-3	WG-11109668-041817-SG-NCR6S	Total/NA	Water	3005A	
480-116461-4	WG-11109668-041817-SG-NCR3S	Total/NA	Water	3005A	
480-116461-5	WG-11109668-041817-SG-NCR13S	Total/NA	Water	3005A	
MB 480-353096/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-353096/2-A	Lab Control Sample	Total/NA	Water	3005A	
480-116461-5 MS	WG-11109668-041817-SG-NCR13S MS	Total/NA	Water	3005A	
480-116461-5 MSD	WG-11109668-041817-SG-NCR13S MSD	Total/NA	Water	3005A	

Analysis Batch: 353113

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-116461-1	WG-11109668-041817-SG-NCR4S	Total/NA	Water	7470A	352981
480-116461-2	WG-11109668-041817-SG-NCR5S	Total/NA	Water	7470A	352981
480-116461-3	WG-11109668-041817-SG-NCR6S	Total/NA	Water	7470A	352981
480-116461-4	WG-11109668-041817-SG-NCR3S	Total/NA	Water	7470A	352981
480-116461-5	WG-11109668-041817-SG-NCR13S	Total/NA	Water	7470A	352981
MB 480-352981/1-A	Method Blank	Total/NA	Water	7470A	352981
LCS 480-352981/2-A	Lab Control Sample	Total/NA	Water	7470A	352981
LCSD 480-352981/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	352981
480-116461-5 MS	WG-11109668-041817-SG-NCR13S MS	Total/NA	Water	7470A	352981
480-116461-5 MSD	WG-11109668-041817-SG-NCR13S MSD	Total/NA	Water	7470A	352981

Filtration Batch: 353546

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-116461-1	WG-11109668-041817-SG-NCR4S	Dissolved	Water	FILTRATION	
480-116461-2	WG-11109668-041817-SG-NCR5S	Dissolved	Water	FILTRATION	
480-116461-3	WG-11109668-041817-SG-NCR6S	Dissolved	Water	FILTRATION	
480-116461-4	WG-11109668-041817-SG-NCR3S	Dissolved	Water	FILTRATION	
480-116461-5	WG-11109668-041817-SG-NCR13S	Dissolved	Water	FILTRATION	
MB 480-353546/1-B	Method Blank	Dissolved	Water	FILTRATION	
MB 480-353546/1-C	Method Blank	Dissolved	Water	FILTRATION	
LCS 480-353546/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 480-353546/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
LCSD 480-353546/3-B	Lab Control Sample Dup	Dissolved	Water	FILTRATION	
480-116461-5 MS	WG-11109668-041817-SG-NCR13S MS	Dissolved	Water	FILTRATION	
480-116461-5 MSD	WG-11109668-041817-SG-NCR13S MSD	Dissolved	Water	FILTRATION	

Metals (Continued)

Analysis Batch: 353689

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-116461-1	WG-11109668-041817-SG-NCR4S	Total/NA	Water	6010C	353096
480-116461-2	WG-11109668-041817-SG-NCR5S	Total/NA	Water	6010C	353096
480-116461-3	WG-11109668-041817-SG-NCR6S	Total/NA	Water	6010C	353096
480-116461-4	WG-11109668-041817-SG-NCR3S	Total/NA	Water	6010C	353096
480-116461-5	WG-11109668-041817-SG-NCR13S	Total/NA	Water	6010C	353096
MB 480-353096/1-A	Method Blank	Total/NA	Water	6010C	353096
LCS 480-353096/2-A	Lab Control Sample	Total/NA	Water	6010C	353096
480-116461-5 MS	WG-11109668-041817-SG-NCR13S MS	Total/NA	Water	6010C	353096
480-116461-5 MSD	WG-11109668-041817-SG-NCR13S MSD	Total/NA	Water	6010C	353096

Prep Batch: 353708

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-116461-1	WG-11109668-041817-SG-NCR4S	Dissolved	Water	7470A	353546
480-116461-2	WG-11109668-041817-SG-NCR5S	Dissolved	Water	7470A	353546
480-116461-3	WG-11109668-041817-SG-NCR6S	Dissolved	Water	7470A	353546
480-116461-4	WG-11109668-041817-SG-NCR3S	Dissolved	Water	7470A	353546
480-116461-5	WG-11109668-041817-SG-NCR13S	Dissolved	Water	7470A	353546
MB 480-353546/1-B	Method Blank	Dissolved	Water	7470A	353546
LCS 480-353546/2-B	Lab Control Sample	Dissolved	Water	7470A	353546
LCSD 480-353546/3-B	Lab Control Sample Dup	Dissolved	Water	7470A	353546
480-116461-5 MS	WG-11109668-041817-SG-NCR13S MS	Dissolved	Water	7470A	353546
480-116461-5 MSD	WG-11109668-041817-SG-NCR13S MSD	Dissolved	Water	7470A	353546

Prep Batch: 353785

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-116461-1	WG-11109668-041817-SG-NCR4S	Dissolved	Water	3005A	353546
480-116461-2	WG-11109668-041817-SG-NCR5S	Dissolved	Water	3005A	353546
480-116461-3	WG-11109668-041817-SG-NCR6S	Dissolved	Water	3005A	353546
480-116461-4	WG-11109668-041817-SG-NCR3S	Dissolved	Water	3005A	353546
480-116461-5	WG-11109668-041817-SG-NCR13S	Dissolved	Water	3005A	353546
MB 480-353546/1-C	Method Blank	Dissolved	Water	3005A	353546
LCS 480-353546/2-C	Lab Control Sample	Dissolved	Water	3005A	353546
480-116461-5 MS	WG-11109668-041817-SG-NCR13S MS	Dissolved	Water	3005A	353546
480-116461-5 MSD	WG-11109668-041817-SG-NCR13S MSD	Dissolved	Water	3005A	353546

Analysis Batch: 353906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-116461-1	WG-11109668-041817-SG-NCR4S	Dissolved	Water	7470A	353708
480-116461-2	WG-11109668-041817-SG-NCR5S	Dissolved	Water	7470A	353708
480-116461-3	WG-11109668-041817-SG-NCR6S	Dissolved	Water	7470A	353708
480-116461-4	WG-11109668-041817-SG-NCR3S	Dissolved	Water	7470A	353708
480-116461-5	WG-11109668-041817-SG-NCR13S	Dissolved	Water	7470A	353708
MB 480-353546/1-B	Method Blank	Dissolved	Water	7470A	353708
LCS 480-353546/2-B	Lab Control Sample	Dissolved	Water	7470A	353708
LCSD 480-353546/3-B	Lab Control Sample Dup	Dissolved	Water	7470A	353708
480-116461-5 MS	WG-11109668-041817-SG-NCR13S MS	Dissolved	Water	7470A	353708
480-116461-5 MSD	WG-11109668-041817-SG-NCR13S MSD	Dissolved	Water	7470A	353708

Analysis Batch: 354421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-116461-1	WG-11109668-041817-SG-NCR4S	Dissolved	Water	6010C	353785

Metals (Continued)

Analysis Batch: 354421 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-116461-2	WG-11109668-041817-SG-NCR5S	Dissolved	Water	6010C	353785
480-116461-3	WG-11109668-041817-SG-NCR6S	Dissolved	Water	6010C	353785
480-116461-4	WG-11109668-041817-SG-NCR3S	Dissolved	Water	6010C	353785
480-116461-5	WG-11109668-041817-SG-NCR13S	Dissolved	Water	6010C	353785
MB 480-353546/1-C	Method Blank	Dissolved	Water	6010C	353785
LCS 480-353546/2-C	Lab Control Sample	Dissolved	Water	6010C	353785
480-116461-5 MS	WG-11109668-041817-SG-NCR13S MS	Dissolved	Water	6010C	353785
480-116461-5 MSD	WG-11109668-041817-SG-NCR13S MSD	Dissolved	Water	6010C	353785

Lab Chronicle

Client: N Tonawanda Water Works
Project/Site: City of North Tonawanda - NCRS

TestAmerica Job ID: 480-116461-1

Client Sample ID: WG-11109668-041817-SG-NCR4S — Lab Sample ID: 480-116461-1

Date Collected: 04/18/17 08:40 — **Matrix: Water**
Date Received: 04/18/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			353546	04/23/17 10:55	MVZ	TAL BUF
Dissolved	Prep	3005A			353785	04/25/17 09:25	MVZ	TAL BUF
Dissolved	Analysis	6010C		1	354421	04/25/17 20:44	AMH	TAL BUF
Total/NA	Prep	3005A			353096	04/20/17 13:35	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	353689	04/22/17 09:34	AMH	TAL BUF
Dissolved	Filtration	FILTRATION			353546	04/23/17 10:55	MVZ	TAL BUF
Dissolved	Prep	7470A			353708	04/24/17 07:30	MVZ	TAL BUF
Dissolved	Analysis	7470A		1	353906	04/25/17 11:26	JRK	TAL BUF
Total/NA	Prep	7470A			352981	04/20/17 08:00	JRK	TAL BUF
Total/NA	Analysis	7470A		1	353113	04/20/17 12:21	JRK	TAL BUF

Client Sample ID: WG-11109668-041817-SG-NCR5S — Lab Sample ID: 480-116461-2

Date Collected: 04/18/17 08:30 — **Matrix: Water**
Date Received: 04/18/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			353546	04/23/17 10:55	MVZ	TAL BUF
Dissolved	Prep	3005A			353785	04/25/17 09:25	MVZ	TAL BUF
Dissolved	Analysis	6010C		1	354421	04/25/17 20:47	AMH	TAL BUF
Total/NA	Prep	3005A			353096	04/20/17 13:35	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	353689	04/22/17 09:37	AMH	TAL BUF
Dissolved	Filtration	FILTRATION			353546	04/23/17 10:55	MVZ	TAL BUF
Dissolved	Prep	7470A			353708	04/24/17 07:30	MVZ	TAL BUF
Dissolved	Analysis	7470A		1	353906	04/25/17 11:27	JRK	TAL BUF
Total/NA	Prep	7470A			352981	04/20/17 08:00	JRK	TAL BUF
Total/NA	Analysis	7470A		1	353113	04/20/17 12:22	JRK	TAL BUF

Client Sample ID: WG-11109668-041817-SG-NCR6S — Lab Sample ID: 480-116461-3

Date Collected: 04/18/17 08:30 — **Matrix: Water**
Date Received: 04/18/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			353546	04/23/17 10:55	MVZ	TAL BUF
Dissolved	Prep	3005A			353785	04/25/17 09:25	MVZ	TAL BUF
Dissolved	Analysis	6010C		1	354421	04/25/17 20:51	AMH	TAL BUF
Total/NA	Prep	3005A			353096	04/20/17 13:35	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	353689	04/22/17 09:41	AMH	TAL BUF
Dissolved	Filtration	FILTRATION			353546	04/23/17 10:55	MVZ	TAL BUF
Dissolved	Prep	7470A			353708	04/24/17 07:30	MVZ	TAL BUF
Dissolved	Analysis	7470A		1	353906	04/25/17 11:30	JRK	TAL BUF
Total/NA	Prep	7470A			352981	04/20/17 08:00	JRK	TAL BUF
Total/NA	Analysis	7470A		1	353113	04/20/17 12:24	JRK	TAL BUF

Lab Chronicle

Client: N Tonawanda Water Works
Project/Site: City of North Tonawanda - NCRS

TestAmerica Job ID: 480-116461-1

Client Sample ID: WG-11109668-041817-SG-NCR3S

Lab Sample ID: 480-116461-4

Date Collected: 04/18/17 08:00

Matrix: Water

Date Received: 04/18/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			353546	04/23/17 10:55	MVZ	TAL BUF
Dissolved	Prep	3005A			353785	04/25/17 09:25	MVZ	TAL BUF
Dissolved	Analysis	6010C		1	354421	04/25/17 20:54	AMH	TAL BUF
Total/NA	Prep	3005A			353096	04/20/17 13:35	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	353689	04/22/17 09:44	AMH	TAL BUF
Dissolved	Filtration	FILTRATION			353546	04/23/17 10:55	MVZ	TAL BUF
Dissolved	Prep	7470A			353708	04/24/17 07:30	MVZ	TAL BUF
Dissolved	Analysis	7470A		1	353906	04/25/17 11:32	JRK	TAL BUF
Total/NA	Prep	7470A			352981	04/20/17 08:00	JRK	TAL BUF
Total/NA	Analysis	7470A		1	353113	04/20/17 12:25	JRK	TAL BUF

Client Sample ID: WG-11109668-041817-SG-NCR13S

Lab Sample ID: 480-116461-5

Date Collected: 04/18/17 08:10

Matrix: Water

Date Received: 04/18/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			353546	04/23/17 10:55	MVZ	TAL BUF
Dissolved	Prep	3005A			353785	04/25/17 09:25	MVZ	TAL BUF
Dissolved	Analysis	6010C		1	354421	04/25/17 20:58	AMH	TAL BUF
Total/NA	Prep	3005A			353096	04/20/17 13:35	MVZ	TAL BUF
Total/NA	Analysis	6010C		1	353689	04/22/17 09:48	AMH	TAL BUF
Dissolved	Filtration	FILTRATION			353546	04/23/17 10:55	MVZ	TAL BUF
Dissolved	Prep	7470A			353708	04/24/17 07:30	MVZ	TAL BUF
Dissolved	Analysis	7470A		1	353906	04/25/17 11:34	JRK	TAL BUF
Total/NA	Prep	7470A			352981	04/20/17 08:00	JRK	TAL BUF
Total/NA	Analysis	7470A		1	353113	04/20/17 12:27	JRK	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Accreditation/Certification Summary

Client: N Tonawanda Water Works
Project/Site: City of North Tonawanda - NCRS

TestAmerica Job ID: 480-116461-1

Laboratory: TestAmerica Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10026	03-31-18

Method Summary

Client: N Tonawanda Water Works
Project/Site: City of North Tonawanda - NCRS

TestAmerica Job ID: 480-116461-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: N Tonawanda Water Works
Project/Site: City of North Tonawanda - NCRS

TestAmerica Job ID: 480-116461-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-116461-1	WG-11109668-041817-SG-NCR4S	Water	04/18/17 08:40	04/18/17 09:15
480-116461-2	WG-11109668-041817-SG-NCR5S	Water	04/18/17 08:30	04/18/17 09:15
480-116461-3	WG-11109668-041817-SG-NCR6S	Water	04/18/17 08:30	04/18/17 09:15
480-116461-4	WG-11109668-041817-SG-NCR3S	Water	04/18/17 08:00	04/18/17 09:15
480-116461-5	WG-11109668-041817-SG-NCR13S	Water	04/18/17 08:10	04/18/17 09:15

Quantitation Limit Exceptions Summary

Client: N Tonawanda Water Works
Project/Site: City of North Tonawanda - NCRS

TestAmerica Job ID: 480-116461-1

The requested project specific reporting limits listed below were less than laboratory standard quantitation limits (PQL) but greater than or equal to the laboratory method detection limits (MDL). It must be noted that results reported below lab standard quantitation limits may result in false positive/false negative values and less accurate quantitation. Routine laboratory procedures do not indicate corrective action for detections below the laboratory's PQL.

Method	Matrix	Analyte	Units	Client RL	Lab PQL
6010C	Water	Arsenic	mg/L	0.010	0.015
6010C	Water	Cadmium	mg/L	0.0010	0.002
6010C	Water	Lead	mg/L	0.0050	0.01
6010C	Water	Selenium	mg/L	0.015	0.025
6010C	Water	Silver	mg/L	0.0030	0.006

CHAIN OF CUSTODY RECORD

COC NO.: 56651
PAGE 1 OF 1

GHD

Address: Niagara Falls Office
Phone:

480-116461 COC

Project No/ Phase/Task Code: 11109668	Laboratory Name: Test America	Lab Location: Amherst NY	SSOW ID:
Project Name: NCR Annual GW Sampling	Lab Contact: Judy Store		Cooler No:
Project Location: Witmer Rd			Carrier: Hand Delivered
GHD Chemistry Contact:			Airbill No:
Sampler(s): S. Gardner D. Tyran			Total # of Containers: 14

Item	SAMPLE IDENTIFICATION (Containers for each sample may be combined on one line)	DATE (mm/dd/yy)	TIME (hh:mm)	Matrix Code (see back of COC)	Grab (G) or Comp (C)	Filtered (Y/N)	ANALYSIS REQUESTED (See Back of COC for Definitions): Hg 7470A	MOD 6010C	Total Containers/sample	MS/MSD Request	COMMENTS/ SPECIAL INSTRUCTIONS:
	PRESERVATION - (SEE BACK OF COC FOR ABBREVIATIONS)										
1	WG-11109668-041817-SG-NCR4S	4/18/17	0840	WG	G	N	1	1	2		To be Lab filtered
2	WG-11109668-041817-SG-NCR5S	4/18/17	0830	WG	G	N	1	1	2		To be Lab filtered
3	WG-11109668-041817-SG-NCR6S	4/18/17	0830	WG	G	N	1	1	2		To be Lab filtered
4	WG-11109668-041817-SG-NCR3S	4/18/17	0800	WG	G	N	1	1	2		To be Lab filtered
5	WG-11109668-041817-SG-NCR13S	4/18/17	0810	WG	G	N	3	3	6	X	To be Lab filtered
6											
7											
8											
9											
10											
11											
12											

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GS 4/18/17

TAT Required in business days (use separate COCs for different TATs):
☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 1 Week ☐ 2 Week ☐ Other:

Notes/ Special Requirements:

	Relinquished By	Company	Date	Time	Received By	Company	Date	Time
1.	Shawn Haubner	GHD	4/18/17	0915			4/18/17	0915
2.								
3.						3.3 °C		

4/28/2017

THE CHAIN OF CUSTODY IS A LEGAL DOCUMENT – ALL FIELDS MUST BE COMPLETED ACCURATELY

Distribution: WHITE – Fully Executed Copy (CRA) YELLOW – Receiving Laboratory Copy PINK – Shipper GOLDENROD – Sampling Crew

GHD Form: COC-10B (20110804)

Login Sample Receipt Checklist

Client: N Tonawanda Water Works

Job Number: 480-116461-1

Login Number: 116461

List Source: TestAmerica Buffalo

List Number: 1

Creator: Williams, Christopher S

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GHD
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

FIELD FORMS

PROJECT# 1110966B-01

GROUNDWATER SAMPLING • SAMPLE COLLECTION DATA SHEET

PROJECT NAME: *NIAGARA COUNTY REFUSE SITE*

SAMPLING CREW MEMBERS: S GARDNER, D TYRAN

DATE OF SAMPLE COLLECTION: 04/18/17
(M M D D Y Y)

Sample I.D. Number	*Well Number*	*Well Volume (Gallons)*	*Volume Purged (Gallons)*	*Sample Time*	*Sample Description*	*Analysis Required*	*Chain-of-Custody Number*	*Shipping Manifest Number*
WG-1110966B-041817-SG-NCR3S	NCR 3S	0.31	0.31	0800	CLEAR COLORLESS		56651	
WG-1110966B-041817-SG-NCR4S	NCR 4S	0.32	0.32	0840	CLOUDY BROWN		56651	
WG-1110966B-041817-SG-NCR5S	NCR 5S	0.71	1.2	0830	CLEAR/COLORLESS		56651	
WG-1110966B-041817-SG-NCR13S	NCR 13S	0.46	1	0810	CLEAR COLORLESS		56651	
WG-1110966B-041817-SG-NCR13S	(MS/MSD) * NCR 13S	0.46	1	0810	CLEAR COLORLESS		56651	
WG-1110966B-041817-SG-NCR6S	(Duplicate) * NCR 5S	0.71	1.2	0830	CLEAR COLORLESS		56651	
	(Rinse Blank) *							

Note: * QA/QC sample (see QAPP for explanation of how to collect and label these samples). Collect MS/MSD and duplicate from one of the four monitoring wells listed above. Create a unique sample ID for the blind duplicate using NCR 6S for the well number. Write the name of the well where the MS/MSD and duplicate were actually collected in the well number boxes under "MS/MSD" and "Duplicate" above.

Additional Comments: _____

FP-5A

CRA 5723 (17)

Shawn Gardner

PROJECT# 111096068-01

WELL PURGING INFORMATION

SITE/PROJECT NAME: Niagara County Refuge Site

DATE: 0 4 1 7 1 7 (MM DD YY)

CREW MEMBERS: S GARDNER, D TYRAN

PURGING METHOD: VOLUMES

WELL NUMBER: NCR-13S

ONE WELL VOLUME: 0.46 gallons SOUNDED DEPTH - 7.93

FIVE WELL VOLUMES: gallons W/L - 5.03

(See Sction 4.2.4.1 of the OM&M Manual and Table FP-4.1 to calculate well volumes based on current water levels).

WELL DRY @ 1 GAL

	1	2	3	4	5	TOT/AVG
WELL VOLUME						
VOLUME PURGED (total)	0.46	0.92				1 GAL
pH	6.12	6.11				6.11
TEMPERATURE	7.5	6.9				7.2
CONDUCTIVITY	1.35	1.36				1.35
TURBIDITY	69.3	56.0				62.6
COLOR	SL CLOUDY LT BROWN	SAME				SL CLOUDY LT BROWN
ODOR	NONE	NONE				NONE
COMMENTS						

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE PROTOCOLS

4/17/17 SHAWN GARDNER Shawn Gardner

DATE PRINT NAME SIGNATURE

FP-4C 7.93 - 5.03 = 2.9 x .16 = 0.46 GAL

Shawn Gardner

PROJECT# 111096008-01.

WELL PURGING INFORMATION

SITE/PROJECT NAME: Niagara County Refuge Site

DATE: 0 4 1 7 1 7 (MM DD YY)

CREW MEMBERS: S GARDNER, D TYRAN

PURGING METHOD: VOLUMES

WELL NUMBER: NCR-SS

ONE WELL VOLUME: 0.71 gallons SOUNDED DEPTH - 11.26

FIVE WELL VOLUMES: gallons W/L - 6.78

(See Sction 4.2.4.1 of the OM&M Manual and Table FP-4.1 to calculate well volumes based on current water levels).

WELL DRY @ 1.2 GAL

	1	2	3	4	5	TOT/AVG
WELL VOLUME						
VOLUME PURGED (total)	0.71					1.2
pH	6.45					6.45
TEMPERATURE	7.8					7.8
CONDUCTIVITY	0.80					0.80
TURBIDITY	66.4					66.4
COLOR	SL CLOUDY LT BROWN					SL CLOUDY LT BROWN
ODOR	NONE					NONE
COMMENTS						

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE PROTOCOLS

4/17/17 SHAWN GARDNER Shawn Gardner

DATE PRINT NAME SIGNATURE

FP-4C 11.26 - 6.78 = 4.48 x .16 = 0.71 GAL

Shawn Gardner

PROJECT# 1110160028-01

WELL PURGING INFORMATION

SITE/PROJECT NAME: Niagara County Refuge Site

DATE: 0 4 1 7 1 7 (MM DD YY)

CREW MEMBERS: S GARDNER, D TYRAN

PURGING METHOD: VOLUMES

WELL NUMBER: NCR-4S

ONE WELL VOLUME: 0.32 gallons SOUNDED DEPTH - 5.12

FIVE WELL VOLUMES: gallons W/L 3.04

(See Sction 4.2.4.1 of the OM&M Manual and Table FP-4.1 to calculate well volumes based on current water levels).

DRY @ 1 VOLUME

WELL VOLUME	1	2	3	4	5	TOT/AVG
VOLUME PURGED (total)	0.32					0.32
pH	6.60					6.60
TEMPERATURE	9.4					9.4
CONDUCTIVITY	0.96					0.96
TURBIDITY	13.2					13.2
COLOR	CLEAR COLORLESS					CLEAR COLORLESS
ODOR	NONE					NONE
COMMENTS						

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE PROTOCOLS

4/7/17 SHAWN GARDNER Shawn Gardner

DATE PRINT NAME SIGNATURE

FP-4C 5.12 - 3.04 = 2.08 x .16 = 0.32 GAL

Shawn Gardner

PROJECT # 1109608-01

WELL PURGING INFORMATION

SITE/PROJECT NAME: Niagara County Refuge Site

DATE: 0 4 1 7 1 7 (MM DD YY)

CREW MEMBERS: S GARDNER, D TYRAN

PURGING METHOD: VOLUMES

WELL NUMBER: NCR-3S

ONE WELL VOLUME: 0.31 gallons SOUNDED DEPTH - 6.04

FIVE WELL VOLUMES: _____ gallons W/L - 4.00

(See Sction 4.2.4.1 of the OM&M Manual and Table FP-4.1 to calculate well volumes based on current water levels).

WELL DRY @ 1 VOLUME

	1	2	3	4	5	TOT/AVG
WELL VOLUME						
VOLUME PURGED (total)	0.31					0.31
pH	6.21					6.21
TEMPERATURE	8.4					8.4
CONDUCTIVITY	0.80					0.80
TURBIDITY	11.1					11.1
COLOR	CLEAR COLORLESS					CLEAR COLORLESS
ODOR	NONE					NONE
COMMENTS						

I CERTIFY THAT SAMPLING PROCEDURES WERE IN ACCORDANCE WITH APPLICABLE PROTOCOLS

4/17/17	SHAWN GARDNER	Shawn Gardner
DATE	PRINT NAME	SIGNATURE

FP-4C 6.04 - 4.00 = 1.96 x .16 = 0.31 GAL

Shawn Gardner

DAILY LOG

4/17/17 YSI PRO SERIES #NFO7602 CALABRATION USING PH 4.00 AUTO CAL LOT# CL93534 EXP. 1/18

PH 4.00 BEFORE 4.64 AFTER 4.00

COND 4.49 BEFORE 4.07 AFTER 4.49

0940 ONSITE SG/DJT WEATHER - SUNNY 50°F WINDS WNW 15-20MPH, TAILGATE SAFETY MEETING

SET UP ON WELL NCR-13S PURGE WELL DRY

METHOD - VOLUMES USING DEDICATED TEFLON BAILER

1006 SET UP ON NCR-5S PURGE WELL DRY

1021 SET UP ON NCR-3S PURGE WELL DRY

1033 SET UP ON NCR-4S PURGE WELL DRY

1051 OFFSITE

SG

4/17/17

1110668-01

Shawn Goldman

DAILY LOG

4/18/17 0802 ONSITE SG/DJT WEATHER- SUNNY 38°F WINDS ENE 5-10MPH, TAILGATE SAFETY MEETING

BEGIN SAMPLING WELLS DRIED OUT THE DAY BEFORE

SAMPLE WELL NCR 13S (MS/MSD) CLEAR, COLORLESS

0822 SAMPLE WELL NCR 5S, (DUP) NCR 6S, CLEAR, COLORLESS

0833 SAMPLE WELL NCR 3S CLEAR, COLORLESS

0846 SAMPLE WELL NCR 4S CLOUDY, BROWN

0900 OFFSITE

4/18/17

1110966 8-01

Tailgate Safety Meeting Form
Small Group Format - Multiple Days

Date:	4/17/17	Time:	0915	Project No.:	11109668
Presenter:	D. Tyran			Project Name:	NCR Annual GW Sampling

Safety topics/items discussed:

Proper lifting technique for heavy purge water buckets and vault doors use 2nd person if necessary.
Grass is growing and temps are warm enough now for tick activity do self check before leaving site

Emergency preparedness:

First Aid Provider(s):		Muster Point:	Front gate
		Method of Communication:	cell phone
AED Responder:	911	Fire Extinguisher Location:	Truck
First Aid Kit Location:	Truck	Eye Wash Location:	Truck

Print Name	Signature	Company
Dave Tyran		GHD
Sharon Gardner		GHD

Date:	4/18/17	Time:	0800	Project No.:	11109668-01
Presenter:	S GARDNER			Project Name:	NCR ANNUAL GW SAMPLING

Safety topics/items discussed:

UNEVEN SURFACES - WATCH YOUR FOOTING
PROPER PPE FOR TASK

Emergency preparedness:

First Aid Provider(s):		Muster Point:	FRONT GATE
		Emergency Communication:	CELL PHONE
AED Responder:	911	Fire Extinguisher Location:	TRUCK
First Aid Kit Location:	TRUCK	Eye Wash Location:	TRUCK

Print Name	Signature	Company
SHARON GARDNER		GHD
DAVID TYRAN		GHD

GHD

CHAIN OF CUSTODY RECORD

COC NO.: [illegible]

PAGE 1 OF 1

Address: Niagara Falls Office

Phone:

Fax:

Project No/ Phase/Task Code: 1109668	Laboratory Name: Test America	Lab Location: Amherst NY	SSOW ID:
Project Name: NCR Annual GW Sampling	Lab Contact: Judy Stone		Cooler No:
Project Location: Witmer Rd			Carrier: Hand Delivered
GHD Chemistry Contact:			Airbill No:
Sampler(s): Gardner D. Tyran			Total # of Containers: 14

Item	Sample Identification (Containers for each sample may be combined on one line)	Date (mm/dd/yy)	Time (hh:mm)	Matrix Code (see back of COC)	Grab (G) or Comp (C)	Filtered (Y/N)	Hg 7470A	[illegible] 6010C										Total Containers/sample	MS/MSD Request	Comments/ Special Instructions:
	Preservation - (See back of COC for abbreviations)																			
1	WG-1109668-041817-SG-NCR4S	4/18/17	0840	WG	G	N	1	1										2		To be Lab filtered
2	WG-1109668-041817-SG-NCR5S	4/18/17	0830	WG	G	N	1	1										2		To be Lab filtered
3	WG-1109668-041817-SG-NCR6S	4/18/17	0820	WG	G	N	1	1										2		To be Lab filtered
4	WG-1109668-041817-SG-NCR3S	4/18/17	0800	WG	G	N	1	1										2		To be Lab filtered
5	WG-1109668-041817-SG-NCR13S	4/18/17	0810	WG	G	N	3	3										6	X	To be Lab filtered
6																				
7																				
8																				
9																				
10																				
11																				
12																				

TAT Required in business days (use separate COCs for different TATs):

☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 1 Week ☐ 2 Week ☐ Other:

Notes/ Special Requirements: 4/18/17

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
1. [illegible]	GHD	4/18/17	0915	1. [illegible]	[illegible]	[illegible]	
2.				2.			
3.				3.			

The Chain Of Custody Is A Legal Document – All Fields Must Be Completed Accurately

Distribution: WHITE – Fully Executed Copy (CRA) YELLOW – Receiving Laboratory Copy PINK – Shipper GOLDENROD – Sampling Crew

GHD Form: COC-10B (20110804)

APPENDIX D
DATA VALIDATION REPORT

DATA USABILITY SUMMARY REPORT
FOR
NIAGARA COUNTY REFUSE SITE

Prepared By:

PARSONS

301 Plainfield Road, Suite 350
Syracuse, NY 13212
Phone: (315) 451-9560
Fax: (315) 451-9570

MAY 2017

TABLE OF CONTENTS

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LIST OF TABLES

LIST OF ATTACHMMENTS

SECTION 1

DATA USABILITY SUMMARY

Groundwater samples were collected from the Niagara County Refuse site in North Tonawanda, New York on April 18, 2017. Analytical results from these samples were validated and reviewed by Parsons for usability with respect to the following requirements:

- Work Plan,
- USEPA SW-846 analytical methodologies,
- USEPA Region II Standard Operating Procedures (SOPs) for inorganic data review.

The analytical laboratory for this project was Test America Laboratory (TAL) in Buffalo, New York. This laboratory is certified to conduct project analyses through the National Environmental Laboratory Accreditation Program (NELAP).

1.1 LABORATORY DATA PACKAGES

The laboratory data package turnaround time, defined as the time from sample receipt by the laboratory to receipt of the analytical data packages by Parsons, was 10 days for the groundwater samples.

The data packages received from TAL were paginated, complete, and overall were of good quality. Comments on specific quality control (QC) and other requirements are discussed in detail in the attached data validation report in Section 2.

1.2 SAMPLING AND CHAIN-OF-CUSTODY

Groundwater samples were collected, properly preserved, shipped under a COC record, and received at TAL within one day of sampling. All samples were received intact and in good condition at TAL.

1.3 LABORATORY ANALYTICAL METHODS

Groundwater samples were collected from the site and analyzed for total and dissolved metals. Summaries of issues concerning this laboratory analysis are presented in Subsection 1.3.1. The data qualifications resulting from the data validation review and statements on the laboratory analytical precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS) are discussed in Section 2. The laboratory data were reviewed and may be qualified with the following validation flags:

"U" - not detected at the value given,

"UJ" - estimated and not detected at the value given,

"J" - estimated at the value given,

"J+" - estimated biased high at the value given,

"J-" - estimated biased low at the value given,

"N" - presumptive evidence at the value given, and

"R" - unusable value.

The validated laboratory data were tabulated and are presented in Attachment A.

1.3.1 Metals Analysis

Groundwater samples collected from the site were analyzed for total and dissolved metals using the USEPA SW-846 6010C/7470A analytical methods. Certain metals results were considered estimated based upon matrix spike recoveries. All of the metals data were considered usable and 100% complete for the groundwater data presented by TAL. PARCCS requirements were met.

SECTION 2

DATA VALIDATION REPORT

2.1 GROUNDWATER DATA

Data review has been completed for data packages generated by TAL containing groundwater samples collected from the Niagara County Refuse site. The specific samples contained in these data packages, the analyses performed, and a usability summary are presented in Table 2.1-1. All of these samples were properly preserved, shipped under a COC record, and received intact by the analytical laboratory. The samples were contained within sample delivery group (SDG) 480-116461-1. The validated laboratory data are presented in Attachment A.

Data validation was performed for all samples in accordance with the most current editions of the USEPA Region II SOPs for inorganic data review. This data validation and usability report is presented by analysis type.

2.1.1 Total and Dissolved Metals

The following items were reviewed for compliancy in the metals analysis:

- Custody documentation
- Holding times
- Initial and continuing calibration verifications
- Initial and continuing calibration and laboratory preparation blank contamination
- Inductively coupled plasma (ICP) interference check sample (ICS)
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries
- Laboratory duplicate precision
- Laboratory control sample recoveries
- ICP serial dilution
- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exception of blank contamination and matrix spike recoveries as discussed below.

Blank Contamination

The laboratory preparation blank associated with the project samples contained total zinc below the reporting limit at a concentration of 0.00219 mg/L. Validation qualification of the

sample results was not required since samples were not affected by the contamination in this blank.

Matrix Spike Recoveries

All matrix spike recoveries were considered acceptable and within the 75-125%R QC limit for all analytes with the exception of the low matrix spike recoveries for dissolved sodium (42%R, 25%R) associated with sample NCR-13S. Therefore, positive results for this analyte were considered estimated and qualified "J" for this sample.

Usability

All metals sample results were considered usable following data validation.

Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, comparability, and sensitivity. The metals data presented by TAL were 100% complete with all metals data considered valid and usable. The validated metals laboratory data are tabulated and presented in Attachment A.

TABLE 2.1-1

SUMMARY OF SAMPLE ANALYSES AND USABILITY

NIAGARA COUNTY REFUSE SITE

SAMPLE ID	MATRIX	SAMPLE DATE	METALS
NCR-3S	Water	4/18/17	OK
NCR-4S	Water	4/18/17	OK
NCR-5S	Water	4/18/17	OK
NCR-6S	Water	4/18/17	OK
NCR-13S	Water	4/18/17	OK

NOTES: OK - Sample analysis considered valid and usable.

ATTACHMENT A

VALIDATED LABORATORY DATA

City of North Tonawanda NY1A8791 216 Payne Ave North Tonawanda, NY C/O Niagara County Refuse Site Validated Groundwater Sampling Event April 2017		Location ID: Sample ID: Lab Sample Id: Source: SDG: Matrix: Sampled: Validated:	NCR3S WG-11109668-041817-SG-NCR3S-20170418 480-116461-4 TALBUFF 4801164611 WATER 4/18/2017 8:00 5/17/2017	NCR4S WG-11109668-041817-SG-NCR4S-20170418 480-116461-1 TALBUFF 4801164611 WATER 4/18/2017 8:40 5/17/2017	NCR5S WG-11109668-041817-SG-NCR5S-20170418 480-116461-2 TALBUFF 4801164611 WATER 4/18/2017 8:30 5/17/2017	NCR6S WG-11109668-041817-SG-NCR6S-20170418 480-116461-3 TALBUFF 4801164611 WATER 4/18/2017 8:30 5/17/2017	NCR13S WG-11109668-041817-SG-NCR13S-20170418 480-116461-5 TALBUFF 4801164611 WATER 4/18/2017 8:10 5/17/2017
CAS NO.	COMPOUND	UNITS:					
	METALS						
7429-90-5	ALUMINUM	ug/L	200	22900	70 J	920	76 J
7440-36-0	ANTIMONY	ug/L	20 U	20 U	20 U	20 U	20 U
7440-38-2	ARSENIC	ug/L	10 U	6.6 J	10 U	10 U	10 U
7440-39-3	BARIUM	ug/L	37	90	130	140	42
7440-41-7	BERYLLIUM	ug/L	2 U	0.79 J	2 U	2 U	2 U
7440-43-9	CADMIUM	ug/L	1 U	0.79 J	1 U	1 U	1 U
7440-70-2	CALCIUM	ug/L	97700	129000	82900	81500	150000
7440-47-3	CHROMIUM, TOTAL	ug/L	3.7 J	11	4 U	4.2	4 U
7440-48-4	COBALT	ug/L	4 U	2.1 J	4 U	4 U	4 U
7440-50-8	COPPER	ug/L	3.1 J	29	2.8 J	3.6 J	2.1 J
7439-89-6	IRON	ug/L	370	64100	73	660	99
7439-92-1	LEAD	ug/L	3.1 J	46	5 U	5 U	4.6 J
7439-95-4	MAGNESIUM	ug/L	58200	40600	46400	46200	62300
7439-96-5	MANGANESE	ug/L	4.4	150	1.7 J	15	40
7439-97-6	MERCURY	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
7440-02-0	NICKEL	ug/L	5.9 J	12	3.4 J	6.2 J	2.7 J
7440-09-7	POTASSIUM	ug/L	1800	10000	440 J	610	1000
7782-49-2	SELENIUM	ug/L	15 U	15 U	15 U	15 U	15 U
7440-22-4	SILVER	ug/L	3 U	3 U	3 U	3 U	3 U
7440-23-5	SODIUM	ug/L	7100	26500	13700	14100	11000
7440-28-0	THALLIUM	ug/L	20 U	20 U	20 U	20 U	20 U
7440-62-2	VANADIUM	ug/L	5 U	9.1	5 U	5 U	5 U
7440-66-6	ZINC	ug/L	31	940	3 J	5.3 J	2.4 J
	DISSOLVED METALS						
7429-90-5	ALUMINUM	ug/L	200 U	200 U	200 U	200 U	200 U
7440-36-0	ANTIMONY	ug/L	20 U	20 U	20 U	20 U	20 U
7440-38-2	ARSENIC	ug/L	10 U	10 U	10 U	10 U	10 U
7440-39-3	BARIUM	ug/L	37	36	120	130	34
7440-41-7	BERYLLIUM	ug/L	2 U	2 U	2 U	2 U	2 U
7440-43-9	CADMIUM	ug/L	1 U	1 U	1 U	1 U	1 U
7440-70-2	CALCIUM	ug/L	97100	106000	75200	78000	144000
7440-47-3	CHROMIUM, TOTAL	ug/L	1.2 J	4 U	4 U	4 U	4 U
7440-48-4	COBALT	ug/L	4 U	4 U	4 U	4 U	4 U
7440-50-8	COPPER	ug/L	3.8 J	10 U	10 U	2.8 J	10 U
7439-89-6	IRON	ug/L	50 U	50 U	50 U	50 U	50 U
7439-92-1	LEAD	ug/L	5 U	5 U	5 U	5 U	3.1 J
7439-95-4	MAGNESIUM	ug/L	58100	35400	43700	45300	73600
7439-96-5	MANGANESE	ug/L	1.1 J	3 U	3 U	0.41 J	12
7439-97-6	MERCURY	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
7440-02-0	NICKEL	ug/L	8.6 J	10 U	1.8 J	2.6 J	2.6 J
7440-09-7	POTASSIUM	ug/L	1800	9600	440 J	480 J	990
7782-49-2	SELENIUM	ug/L	15 U	15 U	15 U	15 U	15 U
7440-22-4	SILVER	ug/L	3 U	3 U	3 U	3 U	3 U
7440-23-5	SODIUM	ug/L	7500	27300	12500	14400	21300 J
7440-28-0	THALLIUM	ug/L	20 U	20 U	20 U	20 U	20 U
7440-62-2	VANADIUM	ug/L	5 U	5 U	5 U	5 U	5 U
7440-66-6	ZINC	ug/L	35	17	2.1 J	2.7 J	9.9 J

APPENDIX E
MONTHLY INSPECTION LOGS

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 1/19/2017
(MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
1 Perimeter collection System/Off-Site Forcemain			
☑ Manholes	- cover on securely	None	Good
☑	- condition of cover	None	Good
☑	- condition of inside of manhole	None	Good
☑	- flow conditions	None	Good
☑ Wet Wells	- cover on securely	None	Good
☑	- condition of cover	None	Good
☑	- condition of inside of wet well	None	Good
2 Landfill Cap			
☑ Vegetated Soil Cover	- erosion	None	None
☑	- bare areas	None	None
☑	- washouts	None	none
☑	- leachate seeps	None	None
☑	- length of vegetation	None	Normal for winter conditions.
☑	- dead/dying vegetation	None	Normal for winter conditions.

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 1/19/2017 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
2 Landfill Cap (continued)			
☑ Access Roads	- bare areas, dead/dying veg.	None	None
☑	- erosion	None	None
☑	- potholes or puddles	None	None
☑	- obstruction	None	None
3 Wetlands (Area "F")			
☑	- dead/dying vegetation	None	None
☑	- change in water budget	None	None
☑	- general conditions of wetlands	None	Good
4 Other Site Systems			
☑ Perimeter Fence	- integrity of fence	None	Good
☑	- integrity of gates	None	Good
☑	- integrity of locks	None	Good
☑	- placement and condition of signs	None	Good

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 1/19/2017 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
4 Other Site Systems (continued)			
☑ Drainage Ditches/ Swale Outlets	- sediment buildup	None	None
	- erosion	None	None
	- condition of erosion protection	None	Good
	- flow obstructions	None	None
	- dead/dying vegetation	None	None
	- cable concrete/gabion mats and riprap	None	Good
☑ Culverts	- sediment build-up	None	None
	- erosion	None	None
	- condition of erosion protection	None	None
	- flow obstructions	None	None
☑ Gas Vents	- intact/damage	None	Intact
☑ Wells	- locks secure	None	Yes

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 2/16/2017
(MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
1 Perimeter collection System/Off-Site Forcemain			
☑ Manholes	- cover on securely	None	Good
☑	- condition of cover	None	Good
☑	- condition of inside of manhole	None	Good
☑	- flow conditions	None	Good
☑ Wet Wells	- cover on securely	None	Good
☑	- condition of cover	None	Good
☑	- condition of inside of wet well	None	Good
2 Landfill Cap			
☑ Vegetated Soil Cover	- erosion	None	None
☑	- bare areas	None	None
☑	- washouts	None	none
☑	- leachate seeps	None	None
☑	- length of vegetation	None	Normal for winter conditions.
☑	- dead/dying vegetation	None	Normal for winter conditions.

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 2/16/2017 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
2 Landfill Cap (continued)			
☑ Access Roads	- bare areas, dead/dying veg.	None	None
☑	- erosion	None	None
☑	- potholes or puddles	None	None
☑	- obstruction	None	None
3 Wetlands (Area "F")			
☑	- dead/dying vegetation	None	None
☑	- change in water budget	None	None
☑	- general conditions of wetlands	None	Good
4 Other Site Systems			
☑ Perimeter Fence	- integrity of fence	None	Good
☑	- integrity of gates	None	Good
☑	- integrity of locks	None	Good
☑	- placement and condition of signs	None	Good

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 2/16/2017 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
4 Other Site Systems (continued)			
☑ Drainage Ditches/ Swale Outlets	- sediment buildup	None	None
	- erosion	None	None
	- condition of erosion protection	None	Good
	- flow obstructions	None	None
	- dead/dying vegetation	None	None
	- cable concrete/gabion mats and riprap	None	Good
☑ Culverts	- sediment build-up	None	None
	- erosion	None	None
	- condition of erosion protection	None	None
	- flow obstructions	None	None
☑ Gas Vents	- intact/damage	None	Intact
☑ Wells	- locks secure	None	Yes

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 3/13/2017
(MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
1 Perimeter collection System/Off-Site Forcemain			
☑ Manholes	- cover on securely	None	None
☑	- condition of cover	None	None
☑	- condition of inside of manhole	None	None
☑	- flow conditions	None	None
☑ Wet Wells	- cover on securely	None	None
☑	- condition of cover	None	None
☑	- condition of inside of wet well	None	None
2 Landfill Cap			
☑ Vegetated Soil Cover	- erosion	None	None
☑	- bare areas	None	None
☑	- washouts	None	none
☑	- leachate seeps	None	None
☑	- length of vegetation	None	None
☑	- dead/dying vegetation	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 3/13/2017
(MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
2 Landfill Cap (continued)			
☑ Access Roads	- bare areas, dead/dying veg.	None	None
☑	- erosion	None	None
☑	- potholes or puddles	None	None
☑	- obstruction	None	None
3 Wetlands (Area "F")			
☑	- dead/dying vegetation	None	None
☑	- change in water budget	None	None
☑	- general conditions of wetlands	None	None
4 Other Site Systems			
☑ Perimeter Fence	- integrity of fence	None	None
☑	- integrity of gates	None	None
☑	- integrity of locks	None	None
☑	- placement and condition of signs	None	None

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 3/13/2017 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
4 Other Site Systems (continued)			
☑ Drainage Ditches/ Swale Outlets	- sediment buildup	None	None
	- erosion	None	None
	- condition of erosion protection	None	None
	- flow obstructions	None	None
	- dead/dying vegetation	None	None
	- cable concrete/gabion mats and riprap	None	None
☑ Culverts	- sediment build-up	None	None
	- erosion	None	None
	- condition of erosion protection	None	None
	- flow obstructions	None	None
☑ Gas Vents	- intact/damage	None	None
☑ Wells	- locks secure	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 4/18/2017 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
1 Perimeter collection System/Off-Site Forcemain			
☑ Manholes	- cover on securely	None	None
☑	- condition of cover	None	None
☑	- condition of inside of manhole	None	None
☑	- flow conditions	None	None
☑ Wet Wells	- cover on securely	None	None
☑	- condition of cover	None	None
☑	- condition of inside of wet well	None	None
2 Landfill Cap			
☑ Vegetated Soil Cover	- erosion	None	None
☑	- bare areas	None	None
☑	- washouts	None	none
☑	- leachate seeps	None	None
☑	- length of vegetation	None	None
☑	- dead/dying vegetation	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 4/18/2017 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
2 Landfill Cap (continued)			
☑ Access Roads	- bare areas, dead/dying veg.	None	None
☑	- erosion	None	None
☑	- potholes or puddles	None	None
☑	- obstruction	None	None
3 Wetlands (Area "F")			
☑	- dead/dying vegetation	None	None
☑	- change in water budget	None	None
☑	- general conditions of wetlands	None	None
4 Other Site Systems			
☑ Perimeter Fence	- integrity of fence	None	None
☑	- integrity of gates	None	None
☑	- integrity of locks	None	None
☑	- placement and condition of signs	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 4/18/2017 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
4	Other Site Systems (continued)		
☑ Drainage Ditches/ Swale Outlets	- sediment buildup	None	None
	- erosion	None	None
	- condition of erosion protection	None	None
	- flow obstructions	None	None
	- dead/dying vegetation	None	None
	- cable concrete/gabion mats and riprap	None	None
☑ Culverts	- sediment build-up	None	None
	- erosion	None	None
	- condition of erosion protection	None	None
	- flow obstructions	None	None
☑ Gas Vents	- intact/damage	None	None
☑ Wells	- locks secure	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 5/30/2017 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
1 Perimeter collection System/Off-Site Forcemain			
☑ Manholes	- cover on securely	None	None
☑	- condition of cover	None	None
☑	- condition of inside of manhole	None	None
☑	- flow conditions	None	None
☑ Wet Wells	- cover on securely	None	None
☑	- condition of cover	None	None
☑	- condition of inside of wet well	None	None
2 Landfill Cap			
☑ Vegetated Soil Cover	- erosion	None	None
☑	- bare areas	None	None
☑	- washouts	None	none
☑	- leachate seeps	None	None
☑	- length of vegetation	None	None
☑	- dead/dying vegetation	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 5/30/2017 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
2 Landfill Cap (continued)			
☑ Access Roads	- bare areas, dead/dying veg.	None	None
☑	- erosion	None	None
☑	- potholes or puddles	None	None
☑	- obstruction	None	None
3 Wetlands (Area "F")			
☑	- dead/dying vegetation	None	None
☑	- change in water budget	None	None
☑	- general conditions of wetlands	None	None
4 Other Site Systems			
☑ Perimeter Fence	- integrity of fence	None	None
☑	- integrity of gates	None	None
☑	- integrity of locks	None	None
☑	- placement and condition of signs	None	None

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 5/30/2017 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
4 Other Site Systems (continued)			
☑ Drainage Ditches/ Swale Outlets	- sediment buildup	None	None
	- erosion	None	None
	- condition of erosion protection	None	None
	- flow obstructions	None	None
	- dead/dying vegetation	None	None
	- cable concrete/gabion mats and riprap	None	None
☑ Culverts	- sediment build-up	None	None
	- erosion	None	None
	- condition of erosion protection	None	None
	- flow obstructions	None	None
☑ Gas Vents	- intact/damage	None	None
☑ Wells	- locks secure	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 6/13/2017
(MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
1 Perimeter collection System/Off-Site Forcemain			
☑ Manholes	- cover on securely	None	None
☑	- condition of cover	None	None
☑	- condition of inside of manhole	None	None
☑	- flow conditions	None	None
☑ Wet Wells	- cover on securely	None	None
☑	- condition of cover	None	None
☑	- condition of inside of wet well	None	None
2 Landfill Cap			
☑ Vegetated Soil Cover	- erosion	None	None
☑	- bare areas	None	None
☑	- washouts	None	none
☑	- leachate seeps	None	None
☑	- length of vegetation	None	None
☑	- dead/dying vegetation	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 6/13/2017 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
2 Landfill Cap (continued)			
☑ Access Roads	- bare areas, dead/dying veg.	None	None
☑	- erosion	None	None
☑	- potholes or puddles	None	None
☑	- obstruction	None	None
3 Wetlands (Area "F")			
☑	- dead/dying vegetation	None	None
☑	- change in water budget	None	None
☑	- general conditions of wetlands	None	None
4 Other Site Systems			
☑ Perimeter Fence	- integrity of fence	None	None
☑	- integrity of gates	None	None
☑	- integrity of locks	None	None
☑	- placement and condition of signs	None	None

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 6/13/2017 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
4 Other Site Systems (continued)			
☑ Drainage Ditches/	- sediment buildup	None	None
☑ Swale Outlets	- erosion	None	None
☑	- condition of erosion protection	None	None
☑	- flow obstructions	None	None
☑	- dead/dying vegetation	None	None
☑	- cable concrete/gabion mats and riprap	None	None
☑ Culverts	- sediment build-up	None	None
☑	- erosion	None	None
☑	- condition of erosion protection	None	None
☑	- flow obstructions	None	None
☑ Gas Vents	- intact/damage	None	None
☑ Wells	- locks secure	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 07/25/17
(MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
1 Perimeter collection System/Off-Site Forcemain			
☑ Manholes	- cover on securely	None	None
☑	- condition of cover	None	None
☑	- condition of inside of manhole	None	None
☑	- flow conditions	None	None
☑ Wet Wells	- cover on securely	None	None
☑	- condition of cover	None	None
☑	- condition of inside of wet well	None	None
2 Landfill Cap			
☑ Vegetated Soil Cover	- erosion	None	None
☑	- bare areas	None	None
☑	- washouts	None	none
☑	- leachate seeps	None	None
☑	- length of vegetation	None	None
☑	- dead/dying vegetation	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 07/25/17
(MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
2 Landfill Cap (continued)			
☑ Access Roads	- bare areas, dead/dying veg.	None	None
☑	- erosion	None	None
☑	- potholes or puddles	None	None
☑	- obstruction	None	None
3 Wetlands (Area "F")			
☑	- dead/dying vegetation	None	None
☑	- change in water budget	None	None
☑	- general conditions of wetlands	None	None
4 Other Site Systems			
☑ Perimeter Fence	- integrity of fence	None	None
☑	- integrity of gates	None	None
☑	- integrity of locks	None	None
☑	- placement and condition of signs	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 07/25/17 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
4 Other Site Systems (continued)			
☑ Drainage Ditches/ Swale Outlets	- sediment buildup	None	None
	- erosion	None	None
	- condition of erosion protection	None	None
	- flow obstructions	None	None
	- dead/dying vegetation	None	None
	- cable concrete/gabion mats and riprap	None	None
☑ Culverts	- sediment build-up	None	None
	- erosion	None	None
	- condition of erosion protection	None	None
	- flow obstructions	None	None
☑ Gas Vents	- intact/damage	None	None
☑ Wells	- locks secure	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 08/15/17
(MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
1 Perimeter collection System/Off-Site Forcemain			
☑ Manholes	- cover on securely	None	None
☑	- condition of cover	None	None
☑	- condition of inside of manhole	None	None
☑	- flow conditions	None	None
☑ Wet Wells	- cover on securely	None	None
☑	- condition of cover	None	None
☑	- condition of inside of wet well	None	None
2 Landfill Cap			
☑ Vegetated Soil Cover	- erosion	None	None
☑	- bare areas	None	None
☑	- washouts	None	none
☑	- leachate seeps	None	None
☑	- length of vegetation	None	None
☑	- dead/dying vegetation	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 08/15/17 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
2 Landfill Cap (continued)			
☑ Access Roads	- bare areas, dead/dying veg.	None	None
☑	- erosion	None	None
☑	- potholes or puddles	None	None
☑	- obstruction	None	None
3 Wetlands (Area "F")			
☑	- dead/dying vegetation	None	None
☑	- change in water budget	None	None
☑	- general conditions of wetlands	None	None
4 Other Site Systems			
☑ Perimeter Fence	- integrity of fence	None	None
☑	- integrity of gates	None	None
☑	- integrity of locks	None	None
☑	- placement and condition of signs	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 08/15/17 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
4 Other Site Systems (continued)			
☑ Drainage Ditches/	- sediment buildup	None	None
☑ Swale Outlets	- erosion	None	None
☑	- condition of erosion protection	None	None
☑	- flow obstructions	None	None
☑	- dead/dying vegetation	None	None
☑	- cable concrete/gabion mats and riprap	None	None
☑ Culverts	- sediment build-up	None	None
☑	- erosion	None	None
☑	- condition of erosion protection	None	None
☑	- flow obstructions	None	None
☑ Gas Vents	- intact/damage	None	None
☑ Wells	- locks secure	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 09/20/17
(MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
1 Perimeter collection System/Off-Site Forcemain			
☑ Manholes	- cover on securely	None	None
☑	- condition of cover	None	None
☑	- condition of inside of manhole	None	None
☑	- flow conditions	None	None
☑ Wet Wells	- cover on securely	None	None
☑	- condition of cover	None	None
☑	- condition of inside of wet well	None	None
2 Landfill Cap			
☑ Vegetated Soil Cover	- erosion	None	None
☑	- bare areas	None	None
☑	- washouts	None	none
☑	- leachate seeps	None	None
☑	- length of vegetation	None	None
☑	- dead/dying vegetation	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 09/20/17 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
2 Landfill Cap (continued)			
☑ Access Roads	- bare areas, dead/dying veg.	None	None
☑	- erosion	None	None
☑	- potholes or puddles	None	None
☑	- obstruction	None	None
3 Wetlands (Area "F")			
☑	- dead/dying vegetation	None	None
☑	- change in water budget	None	None
☑	- general conditions of wetlands	None	None
4 Other Site Systems			
☑ Perimeter Fence	- integrity of fence	None	None
☑	- integrity of gates	None	None
☑	- integrity of locks	Replaced lock on main gate.	Lock kept sticking.
☐	- placement and condition of signs	None	None

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 09/20/17 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
4 Other Site Systems (continued)			
☑ Drainage Ditches/ Swale Outlets	- sediment buildup	None	None
	- erosion	None	None
	- condition of erosion protection	None	None
	- flow obstructions	Pulled some dead sticks out of ditch.	A few stick were blocking flow.
	- dead/dying vegetation	None	None
	- cable concrete/gabion mats and riprap	None	None
☑ Culverts	- sediment build-up	None	None
	- erosion	None	None
	- condition of erosion protection	None	None
	- flow obstructions	None	None
☑ Gas Vents	- intact/damage	None	None
☑ Wells	- locks secure	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 10/18/17
(MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
1 Perimeter collection System/Off-Site Forcemain			
☑ Manholes	- cover on securely	None	None
☑	- condition of cover	None	None
☑	- condition of inside of manhole	None	None
☑	- flow conditions	None	None
☑ Wet Wells	- cover on securely	None	None
☑	- condition of cover	None	None
☑	- condition of inside of wet well	None	None
2 Landfill Cap			
☑ Vegetated Soil Cover	- erosion	None	None
☑	- bare areas	None	None
☑	- washouts	None	none
☑	- leachate seeps	None	None
☑	- length of vegetation	None	None
☑	- dead/dying vegetation	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 10/18/17 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
2 Landfill Cap (continued)			
☑ Access Roads	- bare areas, dead/dying veg.	None	None
☑	- erosion	None	None
☑	- potholes or puddles	None	None
☑	- obstruction	None	None
3 Wetlands (Area "F")			
☑	- dead/dying vegetation	None	None
☑	- change in water budget	None	None
☑	- general conditions of wetlands	None	None
4 Other Site Systems			
☑ Perimeter Fence	- integrity of fence	None	None
☑	- integrity of gates	None	None
☑	- integrity of locks	None	None
☑	- placement and condition of signs	None	None

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 10/18/17 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
4 Other Site Systems (continued)			
☑ Drainage Ditches/	- sediment buildup	None	None
☑ Swale Outlets	- erosion	None	None
☑	- condition of erosion protection	None	None
☑	- flow obstructions	None	None
☑	- dead/dying vegetation	None	None
☑	- cable concrete/gabion mats and riprap	None	None
☑ Culverts	- sediment build-up	None	None
☑	- erosion	None	None
☑	- condition of erosion protection	None	None
☑	- flow obstructions	None	None
☑ Gas Vents	- intact/damage	None	None
☑ Wells	- locks secure	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 11/15/17
(MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
1 Perimeter collection System/Off-Site Forcemain			
☑ Manholes	- cover on securely	None	None
☑	- condition of cover	None	None
☑	- condition of inside of manhole	None	None
☑	- flow conditions	None	None
☑ Wet Wells	- cover on securely	None	None
☑	- condition of cover	None	None
☑	- condition of inside of wet well	None	None
2 Landfill Cap			
☑ Vegetated Soil Cover	- erosion	None	None
☑	- bare areas	None	None
☑	- washouts	None	none
☑	- leachate seeps	None	None
☑	- length of vegetation	None	None
☑	- dead/dying vegetation	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 11/15/17 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
2 Landfill Cap (continued)			
☑ Access Roads	- bare areas, dead/dying veg.	None	None
☑	- erosion	None	None
☑	- potholes or puddles	None	None
☑	- obstruction	None	None
3 Wetlands (Area "F")			
☑	- dead/dying vegetation	None	None
☑	- change in water budget	None	None
☑	- general conditions of wetlands	None	None
4 Other Site Systems			
☑ Perimeter Fence	- integrity of fence	None	None
☑	- integrity of gates	None	None
☑	- integrity of locks	None	None
☑	- placement and condition of signs	None	None

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 11/15/17 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
4 Other Site Systems (continued)			
☑ Drainage Ditches/ Swale Outlets	- sediment buildup	None	None
	- erosion	None	None
	- condition of erosion protection	None	None
	- flow obstructions	None	None
	- dead/dying vegetation	None	None
	- cable concrete/gabion mats and riprap	None	None
☑ Culverts	- sediment build-up	None	None
	- erosion	None	None
	- condition of erosion protection	None	None
	- flow obstructions	None	None
☑ Gas Vents	- intact/damage	None	None
☑ Wells	- locks secure	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 12/13/17
(MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
1 Perimeter collection System/Off-Site Forcemain			
✓ Manholes	- cover on securely	None	None
✓	- condition of cover	None	None
✓	- condition of inside of manhole	None	None
✓	- flow conditions	None	None
✓ Wet Wells	- cover on securely	None	None
✓	- condition of cover	None	None
✓	- condition of inside of wet well	None	None
2 Landfill Cap			
✓ Vegetated Soil Cover	- erosion	None	None
✓	- bare areas	None	None
✓	- washouts	None	none
✓	- leachate seeps	None	None
✓	- length of vegetation	None	None
✓	- dead/dying vegetation	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 12/13/17 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
2 Landfill Cap (continued)			
☑ Access Roads	- bare areas, dead/dying veg.	None	None
☑	- erosion	None	None
☑	- potholes or puddles	None	None
☑	- obstruction	None	None
3 Wetlands (Area "F")			
☑	- dead/dying vegetation	None	None
☑	- change in water budget	None	None
☑	- general conditions of wetlands	None	None
4 Other Site Systems			
☑ Perimeter Fence	- integrity of fence	None	None
☑	- integrity of gates	None	None
☑	- integrity of locks	None	None
☑	- placement and condition of signs	None	None

FORM 1

MONTHLY INSPECTION LOG

PROJECT NAME: Niagara County Refuse Site

LOCATION: Wheatfield, NY

DATE: 12/13/17 (MM DD YY)

INSPECTOR(S): Tony Manns

Item	*Inspect For*	*Action Required*	*Comments*
4 Other Site Systems (continued)			
☑ Drainage Ditches/ Swale Outlets	- sediment buildup	None	None
	- erosion	None	None
	- condition of erosion protection	None	None
	- flow obstructions	None	None
	- dead/dying vegetation	None	None
	- cable concrete/gabion mats and riprap	None	None
☑ Culverts	- sediment build-up	None	None
	- erosion	None	None
	- condition of erosion protection	None	None
	- flow obstructions	None	None
☑ Gas Vents	- intact/damage	None	None
☑ Wells	- locks secure	None	None

FORM 1

View of east side of the landfill cap, facing north.

View of north end of landfill, facing east.

View of landfill cap, facing north.

View of top of landfill, facing north.

APPENDIX F
MAINTENANCE RECORD LOGS

MAINTENANCE RECORD LOG

PROJECT NAME: *Niagara County Refuse Site* LOCATION: Wheatfield, New York

CREW MEMBERS: Tony Manns

1. Date 1/20/2017
   Time 2345
   Scheduled/Unscheduled: Unscheduled
   Type of Maintenance Performed: Discharge hose on main WWA pump replacement.
2. Company Performing Maintenance GHD
   Name: Tony Manns / Britt Gebhardt
   Address: 2055 Niagara Falls blvd
   Niagara Falls, NY 14304
   Contact Name: (716) 818-6241
3. Methods Used: Replaced broken hose.

Description of Material Removed:

N/A

Problems/Comments: I received a WWA high alarm alert on my phone.

DATE 1/20/2017 INSPECTOR INSPECTOR'S SIGNATURE

FORM 2 Tony Manns

MAINTENANCE RECORD LOG

PROJECT NAME: *Niagara County Refuse Site* LOCATION: Wheatfield, New York

CREW MEMBERS: Tony Manns

1. Date 2/15/2017
   Time 0935
   Scheduled/Unscheduled: Unscheduled
   Type of Maintenance Performed: Discharge hose reattached
2. Company Performing Maintenance GHD
   Name: Tony Manns / Britt Gebhardt
   Address: 2055 Niagara Falls blvd
   Niagara Falls, NY 14304
   Contact Name: (716) 818-6241
3. Methods Used: Replaced hose on WWA main pump. Pressure from dispelling so much water must have jarred it loose.

I replaced the C clamps on the unit as well.

Description of Material Removed:

N/A

Problems/Comments: Trouble shot auto dialer to find out why I wasn't notified of the high level.

System is back to normal.

DATE 2/16/2017 INSPECTOR Tony Manns INSPECTOR'S SIGNATURE

FORM 2

MAINTENANCE RECORD LOG

PROJECT NAME: *Niagara County Refuse Site* LOCATION: Wheatfield, New York

CREW MEMBERS: Tony Manns

1. Date 3/22/2017
   Time 1100
   Scheduled/Unscheduled: Unscheduled
   Type of Maintenance Performed: Replaced broken float switch
2. Company Performing Maintenance GHD
   Name: Tony Manns
   Address: 2055 Niagara Falls blvd
   Niagara Falls, NY 14304
   Contact Name: (716) 818-6241
3. Methods Used: Removed broken float switch and replaced with new float switch in Wet Well B.

Description of Material Removed:

Broken float switch

Problems/Comments: Old float switch wasn't working properly. Unit wasn't turning pump off when water level was low.

DATE 3/22/2017 INSPECTOR Tony Manns INSPECTOR'S SIGNATURE Tony

FORM 2

MAINTENANCE RECORD LOG

PROJECT NAME: *Niagara County Refuse Site* LOCATION: Wheatfield, New York

CREW MEMBERS: Tony Manns

1. Date 4/5/2017

   Time 0910

   Scheduled/Unscheduled: Unscheduled

   Type of Maintenance Performed: Replaced broken pump on WWD

2. Company Performing Maintenance GHD

   Name: Tony Manns

   Address: 2055 Niagara Falls blvd

   Niagara Falls, NY 14304

   Contact Name: (716) 818-6241

3. Methods Used: Removed broken pump and replaced with used pump.

Description of Material Removed: Broken Pump.

Problems/Comments: Water level was over 8' deep in WWD. Pump was malfunctioning.

e how long this used pump will run.

Flow seems lower on the used pump .

DATE 4/5/2017 INSPECTOR INSPECTOR'S SIGNATURE

FORM 2 Tony Manns

MAINTENANCE RECORD LOG

PROJECT NAME: *Niagara County Refuse Site* LOCATION: Wheatfield, New York

CREW MEMBERS: Tony Manns , Doug OSCAR

1. Date 5/16/2017
   Time 0800
   Scheduled/Unscheduled: Unscheduled
   Type of Maintenance Performed: Replaced broken pump on WWD with new pump
2. Company Performing Maintenance GHD
   Name: Tony Manns
   Address: 2055 Niagara Falls blvd
   Niagara Falls, NY 14304
   Contact Name: (716) 818-6241
3. Methods Used: Removed broken pump and replaced with new pump.

Description of Material Removed: Broken Pump. + 2 float Switch

Problems/Comments: Replaced broken pump with new unit. Replaced 2 float switch with new units.

DATE 5/16/2017 INSPECTOR INSPECTOR'S SIGNATURE

FORM 2 Tony Manns

MAINTENANCE RECORD LOG

PROJECT NAME: *Niagara County Refuse Site* LOCATION: Wheatfield, New York

CREW MEMBERS: Tony Manns

1. Date 6/21/2017
   Time 1015
   Scheduled/Unscheduled: Unscheduled
   Type of Maintenance Performed: Wet Well B Pump maintenance
2. Company Performing Maintenance GHD
   Name: Tony Manns
   Address: 2055 Niagara Falls blvd
   Niagara Falls, NY 14304
   Contact Name: (716) 818-6241
3. Methods Used: Removed pump, checked pump, cleaned pump, replaced pump

Description of Material Removed: None

Problems/Comments: None

DATE 6/21/2017 INSPECTOR Tony Manns INSPECTOR'S SIGNATURE

FORM 2

MAINTENANCE RECORD LOG

PROJECT NAME: *Niagara County Refuse Site* LOCATION: Wheatfield, New York

CREW MEMBERS: Tony Manns

1. Date 6/28/2017

   Time 1045

   Scheduled/Unscheduled: Scheduled

   Type of Maintenance Performed: Wet Well C Pump maintenance

2. Company Performing Maintenance GHD

   Name: Tony Manns

   Address: 2055 Niagara Falls blvd

   Niagara Falls, NY 14304

   Contact Name: (716) 818-6241

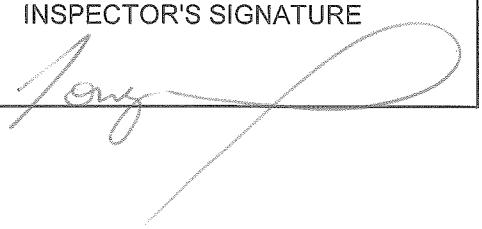
3. Methods Used: Removed pump, checked pump, cleaned pump, replaced pump

Description of Material Removed: None

Problems/Comments: None

DATE 6/28/2017 INSPECTOR INSPECTOR'S SIGNATURE

FORM 2 Tony Manns



MAINTENANCE RECORD LOG

PROJECT NAME: *Niagara County Refuse Site* LOCATION: Wheatfield, New York

CREW MEMBERS: Tony Manns

1. Date 7/18/2017
   Time 1015
   Scheduled/Unscheduled: Scheduled
   Type of Maintenance Performed: Wet Well D Pump maintenance
2. Company Performing Maintenance GHD
   Name: Tony Manns
   Address: 2055 Niagara Falls blvd
   Niagara Falls, NY 14304
   Contact Name: (716) 818-6241
3. Methods Used: Removed pump, checked pump, cleaned pump, replaced pump

Description of Material Removed: None

Problems/Comments: None

DATE 7/18/2017 INSPECTOR INSPECTOR'S SIGNATURE

FORM 2 Tony Manns

MAINTENANCE RECORD LOG

PROJECT NAME: *Niagara County Refuse Site* LOCATION: Wheatfield, New York

CREW MEMBERS: Tony Manns

1. Date 9/20/2017
   Time 1000
   Scheduled/Unscheduled: Scheduled
   Type of Maintenance Performed: Removed some broken branches from the ditch.
2. Company Performing Maintenance GHD
   Name: Tony Manns
   Address: 2055 Niagara Falls blvd
   Niagara Falls, NY 14304
   Contact Name: (716) 818-6241
3. Methods Used: Removed them and threw them into the woods.

Description of Material Removed: Dead tree limbs.

Problems/Comments: None

DATE 9/20/2017 INSPECTOR Tony Manns INSPECTOR'S SIGNATURE

FORM 2

MAINTENANCE RECORD LOG

PROJECT NAME: *Niagara County Refuse Site* LOCATION: Wheatfield, New York

CREW MEMBERS: Tony Manns

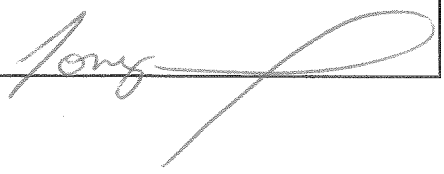
1. Date 10/18/2017
   Time 0930
   Scheduled/Unscheduled: Unscheduled
   Type of Maintenance Performed: Replaced discharge hose on main pump in WWA
2. Company Performing Maintenance GHD
   Name: Tony Manns
   Address: 2055 Niagara Falls blvd
   Niagara Falls, NY 14304
   Contact Name: (716) 818-6241
3. Methods Used: Pulled pump up out of well and replaced discharge hose.

Description of Material Removed: None

Problems/Comments: Upon inspection this morning I found the level in WWA high. I replaced the hose and clamps.

DATE 10/18/2017 INSPECTOR INSPECTOR'S SIGNATURE

FORM 2 Tony Manns



MAINTENANCE RECORD LOG

PROJECT NAME: *Niagara County Refuse Site* LOCATION: Wheatfield, New York

CREW MEMBERS: Tony Manns

1. Date 12/13/2017
   Time 0945
   Scheduled/Unscheduled: Unscheduled
   Type of Maintenance Performed:
2. Company Performing Maintenance GHD
   Name: Tony Manns
   Address: 2055 Niagara Falls blvd
   Niagara Falls, NY 14304
   Contact Name: (716) 818-6241
3. Methods Used: N/A

Description of Material Removed: N/A

Problems/Comments: Upon inspection this morning I found the flow totalizer malfunctioning in WWA.

DATE 12/13/2017 INSPECTOR INSPECTOR'S SIGNATURE

FORM 2 Tony Manns

MAINTENANCE RECORD LOG

PROJECT NAME: *Niagara County Refuse Site* LOCATION: Wheatfield, New York

CREW MEMBERS: Tony Manns

1. Date 12/19/2017

   Time 1400

   Scheduled/Unscheduled: Scheduled

   Type of Maintenance Performed: Replaced Flowmeter

2. Company Performing Maintenance GHD

   Name: Tony Manns

   Address: 2055 Niagara Falls blvd

   Niagara Falls, NY 14304

   Contact Name: (716) 818-6241

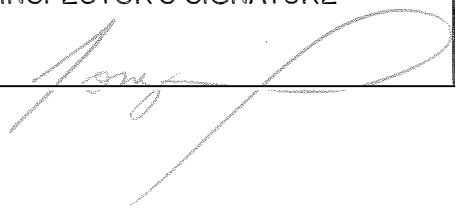
3. Methods Used: N/A

Description of Material Removed: Broken Flowmeter

Problems/Comments: Flowmeter wasn't reading flow. Replaced flowmeter insert. Unit running normal.

DATE 12/19/2017 INSPECTOR INSPECTOR'S SIGNATURE

FORM 2 Tony Manns



APPENDIX G

WATER LEVEL RECORDS

WATER LEVEL RECORD

PROJECT NAME: *NIAGARA COUNTY REFUSE SITE*

LOCATION: Wheatfield, New York

DATE: 01/04/17 (MM DD YY)

CREW MEMBERS: Tony Manns

Observation Well	Time of Measurement	Top of Casing Elevation A	Depth to Water B	Water Level Elevation A-B
		feet	feet	feet
EAST "A"	1048	598.93	27.01	571.92
EAST "B"	1044	596.23	Dry	596.23
EAST "C"	1029	598.69	20.57	578.12
EAST "D"	1100	593.20	15.24	577.96
NCR-3S	1013	579.60	3.93	579.60
NCR-4S	1039	577.88	3.50	577.88
NCR-5S	1004	579.34	Dry	579.34
NCR-13S	0944	577.15	Dry	577.15

WET WELLS

Wet Well	Time of Measurement	Total Flow	Depth of Water
WW A	0930		3'4"
WW B	1034		3'2"
WW C	1020		2'1"
WW D	0950		2'11"

Total System Flow	Time of Measurement
9964000	0935

Water Level Meter:NF07581

FP-3D

WATER LEVEL RECORD

PROJECT NAME: *NIAGARA COUNTY REFUSE SITE*

LOCATION: Wheatfield, New York

DATE: 02/06/17 (MM DD YY)

CREW MEMBERS: Tony Manns

Observation Well	Time of Measurement	Top of Casing Elevation A	Depth to Water B	Water Level Elevation A-B
		feet	feet	feet
EAST "A"	1154	598.93	26.31	572.62
EAST "B"	1149	596.23	Dry	596.23
EAST "C"	1135	598.69	17.55	581.14
EAST "D"	1203	593.20	15.78	577.42
NCR-3S	1128	579.60	4.24	579.60
NCR-4S	1140	577.88	3.32	577.88
NCR-5S	1121	579.34	Dry	579.34
NCR-13S	1103	577.15	5.23	577.15

WET WELLS

Wet Well	Time of Measurement	Total Flow	Depth of Water
WW A	1100		2' 3"
WW B	1144		2' 1"
WW C	1131		2' 8"
WW D	1111		2' 1"

Total System Flow	Time of Measurement
10683000	1055

Water Level Meter: NF08289

FP-3D

WATER LEVEL RECORD

PROJECT NAME: *NIAGARA COUNTY REFUSE SITE*

LOCATION: Wheatfield, New York

DATE: 03/06/17 (MM DD YY)

CREW MEMBERS: Tony Manns

Observation Well	Time of Measurement	Top of Casing Elevation A	Depth to Water B	Water Level Elevation A-B
		feet	feet	feet
EAST "A"	1523	598.93	26.49	572.44
EAST "B"	1516	596.23	Dry	596.23
EAST "C"	1451	598.69	17.80	580.89
EAST "D"	1443	593.20	16.11	577.09
NCR-3S	1436	579.60	4.43	579.60
NCR-4S	1504	577.88	3.43	577.88
NCR-5S	1427	579.34	6.79	579.34
NCR-13S	1415	577.15	4.89	577.15

WET WELLS

Wet Well	Time of Measurement	Total Flow	Depth of Water
WW A	1100		2' 8"
WW B	1144		1' 4"
WW C	1131		2' 11"
WW D	1111		3' 5"

Total System Flow	Time of Measurement
11345000	1411

Water Level Meter: NF08289

FP-3D

WATER LEVEL RECORD

PROJECT NAME: *NIAGARA COUNTY REFUSE SITE*

LOCATION: Wheatfield, New York

DATE: 04/05/17 (MM DD YY)

CREW MEMBERS: Tony Manns

Observation Well	Time of Measurement	Top of Casing Elevation A	Depth to Water B	Water Level Elevation A-B
		feet	feet	feet
EAST "A"	1423	598.93	27.14	571.79
EAST "B"	1404	596.23	Dry	596.23
EAST "C"	1339	598.69	21.31	577.38
EAST "D"	1429	593.20	15.82	577.38
NCR-3S	1328	579.60	3.98	575.62
NCR-4S	1349	577.88	3.40	574.48
NCR-5S	1318	579.34	5.85	573.49
NCR-13S	0922	577.15	4.16	572.99

WET WELLS

Wet Well	Time of Measurement	Total Flow	Depth of Water
WW A	0910		3' 4"
WW B	1353		2' 11"
WW C	1331		3' 3"
WW D	0925		8' 2"

Total System Flow	Time of Measurement
12271000	0910

Water Level Meter: NF08289

FP-3D

WATER LEVEL RECORD

PROJECT NAME: *NIAGARA COUNTY REFUSE SITE*

LOCATION: Wheatfield, New York

DATE: 05/08/17 (MM DD YY)

CREW MEMBERS: Tony Manns

Observation Well	Time of Measurement	Top of Casing Elevation A	Depth to Water B	Water Level Elevation A-B
		feet	feet	feet
EAST "A"	1058	598.93	27.08	571.85
EAST "B"	1053	596.23	Dry	596.23
EAST "C"	1030	598.69	21.41	577.28
EAST "D"	1108	593.20	15.98	577.22
NCR-3S	1021	579.60	4.10	575.50
NCR-4S	1040	577.88	3.45	574.43
NCR-5S	1012	579.34	6.19	573.15
NCR-13S	0952	577.15	4.22	572.93

WET WELLS

Wet Well	Time of Measurement	Total Flow	Depth of Water
WW A	0942		3' 2"
WW B	1050		3' 1"
WW C	1025		2' 11"
WW D	1002		7' 1"

Total System Flow	Time of Measurement
013528000	0946

Water Level Meter: NF08289

FP-3D

WATER LEVEL RECORD

PROJECT NAME: *NIAGARA COUNTY REFUSE SITE*

LOCATION: Wheatfield, New York

DATE: 06/07/17 (MM DD YY)

CREW MEMBERS: Tony Manns

Observation Well	Time of Measurement	Top of Casing Elevation A	Depth to Water B	Water Level Elevation A-B
		feet	feet	feet
EAST "A"	1016	598.93	27.11	571.82
EAST "B"	1014	596.23	Dry	596.23
EAST "C"	1004	598.69	21.38	577.31
EAST "D"	1022	593.20	16.05	577.15
NCR-3S	0956	579.60	6.62	572.98
NCR-4S	1009	577.88	3.47	574.41
NCR-5S	0947	579.34	Dry	579.34
NCR-13S	0934	577.15	6.85	570.30

WET WELLS

Wet Well	Time of Measurement	Total Flow	Depth of Water
WW A	0927		2' 2"
WW B	1012		3' 3"
WW C	1000		2' 11"
WW D	0940		3' 1"

Total System Flow	Time of Measurement
013855000	0928

Water Level Meter: NF08289

FP-3D

WATER LEVEL RECORD

PROJECT NAME: *NIAGARA COUNTY REFUSE SITE*

LOCATION: Wheatfield, New York

DATE: 07/10/17 (MM DD YY)

CREW MEMBERS: Tony Manns

Observation Well	Time of Measurement	Top of Casing Elevation A	Depth to Water B	Water Level Elevation A-B
		feet	feet	feet
EAST "A"	0939	598.93	27.08	571.85
EAST "B"	0933	596.23	Dry	596.23
EAST "C"	0923	598.69	18.51	580.18
EAST "D"	0948	593.20	16.09	577.11
NCR-3S	0911	579.60	4.86	574.74
NCR-4S	0928	577.88	3.89	573.99
NCR-5S	0904	579.34	Dry	579.34
NCR-13S	0845	577.15	7.95	569.20

WET WELLS

Wet Well	Time of Measurement	Total Flow	Depth of Water
WW A	0850		2' 10"
WW B	0930		2' 11"
WW C	0918		2' 9"
WW D	0853		3' 2"

Total System Flow	Time of Measurement
13920000	0843

Water Level Meter: NF08289

FP-3D

WATER LEVEL RECORD

PROJECT NAME: *NIAGARA COUNTY REFUSE SITE*

LOCATION: Wheatfield, New York

DATE: 08/15/17 (MM DD YY)

CREW MEMBERS: Tony Manns

Observation Well	Time of Measurement	Top of Casing Elevation A	Depth to Water B	Water Level Elevation A-B
		feet	feet	feet
EAST "A"	1205	598.93	27.94	570.99
EAST "B"	1212	596.23	Dry	596.23
EAST "C"	1140	598.69	18.36	580.33
EAST "D"	1221	593.20	15.98	577.22
NCR-3S	1134	579.60	5.36	574.24
NCR-4S	1155	577.88	3.88	574.00
NCR-5S	1119	579.34	10.21	569.13
NCR-13S	1105	577.15	Dry	577.15

WET WELLS

Wet Well	Time of Measurement	Total Flow	Depth of Water
WW A	1045		3' 4"
WW B	1157		3' 3"
WW C	1138		2' 9"
WW D	1110		2' 11"

Total System Flow	Time of Measurement
014256000	1047

Water Level Meter: NF08289

FP-3D

WATER LEVEL RECORD

PROJECT NAME: *NIAGARA COUNTY REFUSE SITE*

LOCATION: Wheatfield, New York

DATE: 09/06/17 (MM DD YY)

CREW MEMBERS: Tony Manns

Observation Well	Time of Measurement	Top of Casing Elevation A	Depth to Water B	Water Level Elevation A-B
		feet	feet	feet
EAST "A"	1036	598.93	26.91	572.02
EAST "B"	1044	596.23	Dry	596.23
EAST "C"	1018	598.69	21.33	577.36
EAST "D"	1014	593.20	15.81	577.39
NCR-3S	1004	579.60	5.84	573.76
NCR-4S	1023	577.88	3.79	574.09
NCR-5S	0955	579.34	10.28	569.06
NCR-13S	0944	577.15	7.76	569.39

WET WELLS

Wet Well	Time of Measurement	Total Flow	Depth of Water
WW A	0939		3' 7"
WW B	1027		3' 3"
WW C	1008		3' 0"
WW D	0950		2' 9"

Total System Flow	Time of Measurement
014517000	0934

Water Level Meter: NF07164

FP-3D

WATER LEVEL RECORD

PROJECT NAME: *NIAGARA COUNTY REFUSE SITE*

LOCATION: Wheatfield, New York

DATE: 10/04/17 (MM DD YY)

CREW MEMBERS: Tony Manns

Observation Well	Time of Measurement	Top of Casing Elevation A	Depth to Water B	Water Level Elevation A-B
		feet	feet	feet
EAST "A"	1059	598.93	27.01	571.92
EAST "B"	1056	596.23	Dry	596.23
EAST "C"	1039	598.69	21.62	577.07
EAST "D"	1035	593.20	15.89	577.31
NCR-3S	1029	579.60	Dry	573.76
NCR-4S	1050	577.88	4.84	573.04
NCR-5S	1015	579.34	Dry	579.34
NCR-13S	1000	577.15	Dry	577.15

WET WELLS

Wet Well	Time of Measurement	Total Flow	Depth of Water
WW A	0955		2' 11"
WW B	1054		2' 1"
WW C	1032		2' 9"
WW D	1004		3' 4"

Total System Flow	Time of Measurement
014552000	0954

Water Level Meter: NF07164

FP-3D

WATER LEVEL RECORD

PROJECT NAME: *NIAGARA COUNTY REFUSE SITE*

LOCATION: Wheatfield, New York

DATE: 11/08/17 (MM DD YY)

CREW MEMBERS: Tony Manns

Observation Well	Time of Measurement	Top of Casing Elevation A	Depth to Water B	Water Level Elevation A-B
		feet	feet	feet
EAST "A"	1006	598.93	26.98	571.95
EAST "B"	1000	596.23	Dry	596.23
EAST "C"	0941	598.69	21.49	577.20
EAST "D"	0936	593.20	16.11	577.09
NCR-3S	0932	579.60	4.31	575.29
NCR-4S	0948	577.88	3.23	574.65
NCR-5S	0914	579.34	6.15	573.19
NCR-13S	0854	577.15	4.34	572.81

WET WELLS

Wet Well	Time of Measurement	Total Flow	Depth of Water
WW A	0845		3' 2"
WW B	0952		2' 11"
WW C	0930		3' 4"
WW D	0905		3' 5"

Total System Flow	Time of Measurement
014738000	0849

Water Level Meter: NF07164

FP-3D

WATER LEVEL RECORD

PROJECT NAME: *NIAGARA COUNTY REFUSE SITE*

LOCATION: Wheatfield, New York

DATE: 12/13/2017 (MM DD YY)

CREW MEMBERS: Tony Manns

Observation Well	Time of Measurement	Top of Casing Elevation A	Depth to Water B	Water Level Elevation A-B
		feet	feet	feet
EAST "A"	1039	598.93	26.92	572.01
EAST "B"	1031	596.23	Dry	596.23
EAST "C"	1011	598.69	21.38	577.31
EAST "D"	1008	593.20	15.64	577.56
NCR-3S	1000	579.60	4.57	575.03
NCR-4S	1015	577.88	3.43	574.45
NCR-5S	0952	579.34	6.98	572.36
NCR-13S	0941	577.15	4.90	572.25

WET WELLS

Wet Well	Time of Measurement	Total Flow	Depth of Water
WW A	0937		2' 11"
WW B	1018		2' 9"
WW C	0955		3' 4"
WW D	0943		3' 2"

Total System Flow	Time of Measurement
014738	0935

Water Level Meter: NF07181

FP-3D

APPENDIX H
COMPACT DISC CONTAINING REPORT