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New York State Department of Environmental Conservation (NYSDEC)
Division of Environmental Remediation
Bureau of Program Management
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Subject:
July 2018 Monthly Report
Fort Edward Landfill
NYSDEC Site No. 558001
Contract No. D007618-39

Date:
September 5, 2018

Contact:
Andy Vitolins

Dear Mr. Long:

Arcadis CE, Inc. (Arcadis) has prepared this letter report to summarize the leachate collection and treatment system operation, maintenance, and monitoring (OM&M) activities completed during the July 2018 reporting period.

Phone:
518.250.7300

Leachate Collection and Treatment System Operation and Maintenance

The leachate treatment system shut down on six occasions in July 2018 due to Clarifier Catch Tank high alarms reported by the program logic controller (PLC). The Clarifier Catch Tank alarms were triggered because the PLC was improperly interpreting the level in the Clarifier Catch Tank, resulting in multiple high tank alarms activated by the high-level float switch. The issue was ultimately resolved by resetting the PLC.

Email:
andy.vitolins@arcadis.com

A total of 117,075 gallons of leachate were collected and treated through the system during July 2018. The corresponding average leachate recovery rate for the month was approximately 2.6 gallons per minute (gpm).

Our ref:
00266434.0000

The following O&M activities were completed during the July 2018 operating period:

- The pump in leachate collection well EW-4 was cleaned and replaced due to declining flow rates from iron fouling. A new pump intake screen was installed to reduce pump changeout frequency.
- On July 30, 2018, the coagulant and flocculant chemical mixers were offline because of blown transformer fuses. The fuses were blown

because of signal from the PLC when placed in AUTO so they were placed in BYPASS to allow continued operation.

- The air compressor, thickener sludge transfer pump, and filter press pressure regulators were faulty due to leaks and broken parts. These pressure regulators were removed and replaced.
- On July 30, 2018, Arcadis rented a track skid steer with brush hog attachment for the week and mowed the landfill cap, surrounding edge of the constructed wetland treatment system (CWTS), and access road to the Polishing Pond Effluent sampling location.
- Hour Electric was on-site on July 30, 2018 to review the current electrical service at extraction well EW-4 pump station. Hour Electric evaluated the existing wiring, variable frequency drive (VFD), and transformer at the pump station in preparation of the step transformer upgrades.

System Sampling

The monthly samples were collected on July 31, 2018 from the following treatment system locations:

- Influent (i.e. combined flow from extraction wells EW-1, EW-2, EW-3, and EW-4);
- Clarifier Catch Tank discharge; and
- Polishing Pond Effluent.

No samples were collected from extraction wells EW-1, EW-2, EW-3, leachate collection well EW-4, or Cell 1 Chamber (treatment Cell 1 discharge into the effluent collection chamber). Samples from these locations are collected on a quarterly basis and will be sampled again in September 2018.

The monthly samples were submitted to Con-Test Analytical for analysis of volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), metals, total dissolved solids (TDS), and total suspended solids (TSS).

The analytical results are discussed in the sections below and have been summarized in Table 1. The laboratory analytical data will be submitted to NYSDEC's EIMS Administrator in the required EQUIS EDD format.

Analytical Results

VOCs

As shown in Table 1, VOCs were detected in the Clarifier Catch Tank discharge samples at concentrations that exceeded the corresponding NYSDEC Class GA Standards. The Clarifier Catch Tank discharge sample contained ethyl benzene at 12 micrograms per liter ($\mu\text{g/L}$), tetrachloroethylene at 14 $\mu\text{g/L}$, m,p-xylenes at 6.7 $\mu\text{g/L}$, and total xylenes at 9.1 $\mu\text{g/L}$, respectively. VOCs were detected in the Influent and Polishing Pond Effluent samples but did not exceed the corresponding NYSDEC Class GA Standards.

Based on these data, Arcadis has temporarily ceased pumping from extraction well EW-1 (the primary contributor of VOCs and PCBs to the treatment plant). EW-1 will remain off until the recommendations presented in the January 31, 2018 Remedial System Optimization Report (RSO) can be implemented and evaluated.

PCBs

PCB Aroclor 1016 was detected in the Influent and Clarifier Catch Tank samples at concentrations greater than the respective NYSDEC GA Standards. PCBs were not detected in the Polishing Pond Effluent sample during the July 2018 sampling event (Table 1).

Metals

Iron and manganese were detected at one or more of the treatment system samples at concentrations greater than the corresponding NYSDEC Standards of 0.3 milligrams per liter (mg/L) and 0.6 mg/L, respectively. Iron concentration ranged from a maximum 110 mg/L (Influent) to 2.3 mg/L (Polishing Pond Effluent). Manganese concentrations ranged from a maximum of 2.7 mg/L (Clarifier Catch Tank) to 1.1 mg/L (Polishing Pond Effluent).

TDS and TSS

The concentrations of TDS and TSS continue to fluctuate between sampling events. During the July sampling event, TDS concentrations ranged between 350 mg/L and 460 mg/L; TSS concentrations ranged from 28 mg/L and 200 mg/L. These data are consistent with the results from previous sampling events. Since September 2016, TDS and TSS have ranged from 210 to 4,900 mg/L and non-detect (ND) to 200 mg/L, respectively.

Next Reporting Period Planned Activities

The following activities are anticipated for August 2018:

- Continuation of iron and solids treatment and processing; and
- Routine monthly system sampling.

If you have any questions, please do not hesitate to contact me or Jeremy Wyckoff.

Sincerely,

Arcadis CE, Inc.



Andy Vitolins, P.G.
Associate Vice President

Copies:

Jeremy Wyckoff, Arcadis
File

Enclosures:

Table 1 – July 2018 Treatment System Analytical Data

Table 1. July 2018 Treatment System Analytical Data, Fort Edward Landfill
Fort Edward, New York. NYSDEC Site No. 558001

Chemical Name	NYSDEC Class	NYSDEC Class GA	INFLUENT	CLARIFIER	EFFLUENT
	GA GW Standard	GW Effluent Limitation	7/31/2018	CATCH 7/31/2018	7/31/2018
Volatile Organic Compounds (ug/L)					
ACETONE	50	50	50 U	23 J	50 U
BENZENE	1	1	0.6 J	1.0 U	1.0 U
BROMOCHLOROMETHANE	5	5	1.0 U	1.0 U	1.0 U
BROMODICHLOROMETHANE	50	50	0.5 U	0.5 U	0.5 U
BROMOFORM	50	50	1.0 U	1.0 U	1.0 U
BROMOMETHANE	5	5	2.0 U	2.0 U	2.0 U
2-BUTANONE (MEK)	50	50	20 U	12 J	20 U
CARBON DISULFIDE	60	60	4.0 U	4.0 U	4.0 U
CARBON TETRACHLORIDE	5	5	5.0 U	5.0 U	5.0 U
CHLOROBENZENE	5	5	1.1	1.0 U	1.0 U
CHLORODIBROMOMETHANE	50	--	0.5 U	0.5 U	0.5 U
CHLOROETHANE	5	5	2.0 U	2.0 U	2.0 U
CYCLOHEXANE	--	--	5.0 U	5.0 U	5.0 U
1,2-DIBROMO-3-CHLOROPROPANE	0.04	0.04	5.0 U	5.0 U	5.0 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.0006	0.0006	0.5 U	0.5 U	0.5 U
1,2-DICHLOROETHANE	3	3	1.0 U	1.0 U	1.0 U
1,3-DICHLOROETHANE	3	3	1.0 U	1.0 U	1.0 U
1,4-DICHLOROETHANE	3	3	1.0 U	1.0 U	1.0 U
DICHLORODIFLUOROMETHANE	5	5	2.0 U	2.0 U	2.0 U
1,1-DICHLOROETHANE	5	5	1.0 U	1.0 U	1.0 U
CIS-1,2-DICHLOROETHYLENE	5	5	1.0 U	0.56 J	1.0 U
TRANS-1,2-DICHLOROETHYLENE	5	5	1.0 U	1.0 U	1.0 U
1,2-DICHLOROETHANE	0.6	0.6	1.0 U	1.0 U	1.0 U
1,1-DICHLOROETHYLENE	5	5	1.0 U	1.0 U	1.0 U
1,2-DICHLOROPROPANE	1	1	1.0 U	1.0 U	1.0 U
CIS-1,3-DICHLOROPROPENE	0.4	0.4	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.4	0.4	0.5 U	0.5 U	0.5 U
1,4-DIOXANE	--	--	50 U	50 U	50 U
ETHYLBENZENE	5	5	1.0 U	12	1.0 U
2-HEXANONE	50	50	10 U	10 U	10 U
ISOPROPYLBENZENE (CUMENE)	5	5	2.0 U	0.45 J	2.0 U
METHYL ACETATE	--	--	1.0 U	1.0 U	1.0 U
METHYL TERT-BUTYL ETHER (MTBE)	10	10	1.0 U	1.0 U	1.0 U
METHYL CYCLOHEXANE	--	--	1.0 U	1.0 U	1.0 U
METHYLENE CHLORIDE	5	5	5.0 U	5.0 U	5.0 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	--	--	10 U	10 U	10 U
STYRENE	5	930	1.0 U	1.0 U	1.0 U
1,1,1,2-TETRACHLOROETHANE	5	5	1.0 U	1.0 U	1.0 U
TETRACHLOROETHYLENE (PCE)	5	5	1.0 U	14	1.0 U
TOLUENE	5	5	1.0 U	1.0 U	0.74 J
1,2,3-TRICHLOROETHANE	5	5	5.0 U	5.0 U	5.0 U
1,2,4-TRICHLOROETHANE	5	5	1.0 U	1.0 U	1.0 U
1,1,1-TRICHLOROETHANE	5	5	1.0 U	1.0 U	1.0 U
1,1,2-TRICHLOROETHANE	1	1	1.0 U	1.0 U	1.0 U
TRICHLOROETHYLENE (TCE)	5	5	1.0 U	0.45 J	1.0 U
TRICHLOROFLUOROMETHANE	5	5	2.0 U	2.0 U	2.0 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	5	1.0 U	1.0 U	1.0 U
VINYL CHLORIDE	2	2	2.0 U	2.0 U	2.0 U
M,P-XYLENES	5	5	2.0 U	6.7	2.0 U
O-XYLENE (1,2-DIMETHYLBENZENE)	5	5	1.0 U	2.4	1.0 U
XYLENES, TOTAL	5	5	3.0 U	9.1	3.0 U

Notes:

Constituents detected above the NYSDEC Class GA GW Standard are in **bold**.

Constituents detected above the NYSDEC Class GA GW Effluent Limitation are highlighted in yellow.

NYSDEC Class GA GW Standard - New York State Department of Environmental Conservation Groundwater Standard and Guidance Value.

NYSDEC Class GA GW Effluent Limitation - New York State Department of Environmental Conservation Effluent Limitation.

U - The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

J - The concentration is an approximate value.

ug/L - micrograms per liter

mg/L - milligrams per liter

Table 1. July 2018 Treatment System Analytical Data, Fort Edward Landfill
Fort Edward, New York. NYSDEC Site No. 558001

Chemical Name	NYSDEC Class	NYSDEC Class GA	INFLUENT	CLARIFIER	EFFLUENT
	GA GW Standard	GW Effluent Limitation	7/31/2018	CATCH 7/31/2018	6/26/2018
Polychlorinated Biphenyls (ug/L)					
PCB-1016 (AROCLOR 1016)	*	*	22	2.4	0.19 U
PCB-1221 (AROCLOR 1221)	*	*	4.0 U	0.4 U	0.19 U
PCB-1232 (AROCLOR 1232)	*	*	4.0 U	0.4 U	0.19 U
PCB-1242 (AROCLOR 1242)	*	*	4.0 U	0.4 U	0.19 U
PCB-1248 (AROCLOR 1248)	*	*	4.0 U	0.4 U	0.19 U
PCB-1254 (AROCLOR 1254)	*	*	4.0 U	0.4 U	0.19 U
PCB-1260 (AROCLOR 1260)	*	*	4.0 U	0.4 U	0.19 U
PCB-1262 (AROCLOR 1262)	*	*	4.0 U	0.4 U	0.19 U
PCB-1268 (AROCLOR 1268)	*	*	4.0 U	0.4 U	0.19 U
Metals (mg/L)					
ALUMINUM	--	2	0.096	0.42	0.42
ANTIMONY	0.003	0.006	0.005 U	0.005 U	0.005 U
ARSENIC	0.025	0.05	0.03	0.002 U	0.002 U
BARIUM	1	2	0.15	0.081	0.073
BERYLLIUM	0.003	0.003	0.002 U	0.002 U	0.002 U
CADMIUM	0.005	0.01	0.0025 U	0.0025 U	0.0025 U
CALCIUM	--	--	89	93	62
CHROMIUM, TOTAL	0.05	0.1	0.005 U	0.005 U	0.005 U
COBALT	--	--	0.005 U	0.005 U	0.005 U
COPPER	0.2	1	0.025 U	0.082	0.025 U
IRON	0.3	0.6	110	13	2.3
LEAD	0.025	0.05	0.005 U	0.005 U	0.005 U
MAGNESIUM	35	35	21	18	16
MANGANESE	0.3	0.6	1.5	2.7	1.1
MERCURY	0.0007	0.0014	0.0001 U	0.0001 U	0.0001 U
NICKEL	0.1	0.2	0.025 U	0.014	0.025 U
POTASSIUM	--	--	3.8	3.0	2.0 U
SELENIUM	0.01	0.02	0.025 U	0.025 U	0.025 U
SILVER	0.05	0.1	0.0025 U	0.0025 U	0.0025 U
SODIUM	20	--	58	60	35
THALLIUM	0.0005	0.0005	0.001 U	0.001 U	0.001 U
VANADIUM	--	--	0.02	0.015	0.015
ZINC	2	5	0.044	0.13	0.05 U
Conventional Chemistry (mg/L)					
TOTAL DISSOLVED SOLIDS	--	--	460	440	350
TOTAL SUSPENDED SOLIDS	--	--	200	28	74

Notes:

Constituents detected above the NYSDEC Class GA GW Standard are in **bold**.

Constituents detected above the NYSDEC Class GA GW Effluent Limitation are highlighted in yellow.

* The NYSDEC Class GA GW Standard and Effluent Limitation for PCBs is 0.09 ug/L.

NYSDEC Class GA GW Standard - New York State Department of Environmental Conservation Groundwater Standard and Guidance Value.

NYSDEC Class GA GW Effluent Limitation - New York State Department of Environmental Conservation Effluent Limitation.

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