ARCADIS Design & Consultancy for natural and built assets

Payson Long
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Subject:
April 2018 Monthly Report
Fort Edward Landfill
NYSDEC Site No. 558001
Contract No. D007618-39

Date:
July 9, 2018

Contact:
Andy Vitolins

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Our ref:
00266434.0000

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 April 2018 reporting period.

Leachate Collection and Treatment System Operation and Maintenance

The leachate collection system operated with minimal downtime during the April 2018 operating period. A total of 893,099 gallons of leachate were collected and treated through the system during April 2018. The corresponding average leachate recovery rate for the month was approximately 21 gallons per minute (gpm).

The following O&M activities were completed during the April 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.
- The discharge pump(s) for the clarifier catch tank was being called to run, but the return signal indicating the pump was running, was intermittently not being received by the PLC.
- Iron and solids sludge processing was performed throughout the month. In total, six 55-gallon drums of sludge were generated during April 2018.

System Sampling

The monthly samples were collected on April 30, 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;
- Cell 3 Bypass (i.e. treatment Cell 3 discharge into the Cell 2/3 bypass pipe);
- Cell 2 Chamber (i.e. treatment Cell 2 discharge into the effluent collection chamber); 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 the June 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 Influent, Clarifier Catch Tank, and Cell 2 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 Cell 3 bypass, Cell 2 effluent, and Polishing Pond Effluent samples during the April 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 35 mg/L (Influent) to 0.71 mg/L (Cell 3 Bypass). Manganese concentrations ranged from a maximum of 3.0 mg/L (Clarifier Catch) to 0.28 mg/L (Polishing Pond Effluent).

TDS and TSS

The concentrations of TDS and TSS continue to fluctuate between sampling events. During the April sampling event, TDS concentrations ranged between 280 mg/L and 400 mg/L; TSS concentrations ranged from non-detect and 150 mg/L. These data are consistent with the results from previous sampling

events. Since September 2016, TDS and TSS have ranged from 210 to 1,300 mg/L and non-detect (ND) to 180 mg/L, respectively.

Next Reporting Period Planned Activities

The following activities are anticipated for May 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 – April 2018 Treatment System Analytical Data

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

ARCADIS Design & Consultancy for natural and built assets

Chemical Name	NYSDEC Class GA GW Standard	NYSDEC Class GA GW Effluent Limitation	INFLUENT 4/30/2018	CLARIFIER CATCH 4/30/2018	CELL 3 4/30/2018	CELL 2 4/30/2018	EFFLUENT 4/30/2018
Volatile Organic Compounds (ug/L)							
ACETONE	50	50	24 J	25 J	50 U	50 U	50 U
BENZENE	1	1	0.21 J	0.22 J	1.0 U	1.0 U	1.0 U
BROMOCHLOROMETHANE	5	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
BROMODICHLOROMETHANE	50	50	0.5 U	2.1	0.5 U	0.5 U	0.5 U
BROMOFORM	50	50	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
BROMOMETHANE	5	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
2-BUTANONE (MEK)	50	50	26	22	20 U	20 U	20 U
CARBON DISULFIDE	60	60	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
CARBON TETRACHLORIDE	5	5	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
CHLOROBENZENE	5	5	0.44 J	0.34 J	1.0 U	1.0 U	1.0 U
CHLORODIBROMOMETHANE	50	--	0.5 U	0.7	0.5 U	0.5 U	0.5 U
CHLOROETHANE	5	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
CYCLOHEXANE	--	--	5.0 U	5.0 U	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	5.0 U	5.0 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.0006	0.0006	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DICHLOROBENZENE	3	3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-DICHLOROBENZENE	3	3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-DICHLOROBENZENE	3	3	0.18 J	0.17 J	1.0 U	1.0 U	1.0 U
DICHLORODIFLUOROMETHANE	5	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
1,1-DICHLOROETHANE	5	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
CIS-1,2-DICHLOROETHYLENE	5	5	1.0 U	0.27 J	1.0 U	0.2 J	1.0 U
TRANS-1,2-DICHLOROETHYLENE	5	5	1.0 U	1.0 U	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	1.0 U	1.0 U
1,1-DICHLOROETHYLENE	5	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-DICHLOROPROPANE	1	1	1.0 U	1.0 U	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	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.4	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-DIOXANE	--	--	50 U	50 U	50 U	50 U	50 U
ETHYLBENZENE	5	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-HEXANONE	50	50	10 U	10 U	10 U	10 U	10 U
ISOPROPYLBENZENE (CUMENE)	5	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
METHYL ACETATE	--	--	1.0 U	1.0 U	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	1.0 U	1.0 U
METHYL CYCLOHEXANE	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
METHYLENE CHLORIDE	5	5	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	--	--	10 U	10 U	10 U	10 U	10 U
STYRENE	5	930	1.0 U	1.0 U	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	1.0 U	1.0 U
TETRACHLOROETHYLENE (PCE)	5	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
TOLUENE	5	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,3-TRICHLOROBENZENE	5	5	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-TRICHLOROBENZENE	5	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-TRICHLOROETHANE	5	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-TRICHLOROETHANE	1	1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
TRICHLOROETHYLENE (TCE)	5	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
TRICHLOROFLUOROMETHANE	5	5	2.0 U	2.0 U	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	1.0 U	1.0 U
VINYL CHLORIDE	2	2	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
M,P-XYLENES	5	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
O-XYLENE (1,2-DIMETHYLBENZENE)	5	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
XYLENES, TOTAL	5	5	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U

Notes:
Constitutents detected above the NYSDEC Class GA GW Standard are in **bold**.
Constitutents 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. April 2018 Treatment System Analytical Data, Fort Edward Landfill
Fort Edward, New York. NYSDEC Site No. 558001

Chemical Name	NYSDEC Class GA GW Standard	NYSDEC Class GA GW Effluent Limitation	INFLUENT 4/30/2018	CLARIFIER CATCH 4/30/2018	CELL 3 4/30/2018	CELL 2 4/30/2018	EFFLUENT 4/30/2018
Polychlorinated Biphenyls (ug/L)							
PCB-1016 (AROCLOR 1016)	*	*	**1.2**	**4.3**	0.19 U	0.2 U	0.19 U
PCB-1221 (AROCLOR 1221)	*	*	0.2 U	0.77 U	0.19 U	0.2 U	0.19 U
PCB-1232 (AROCLOR 1232)	*	*	0.2 U	0.77 U	0.19 U	0.2 U	0.19 U
PCB-1242 (AROCLOR 1242)	*	*	0.2 U	0.77 U	0.19 U	0.2 U	0.19 U
PCB-1248 (AROCLOR 1248)	*	*	0.2 U	0.77 U	0.19 U	0.2 U	0.19 U
PCB-1254 (AROCLOR 1254)	*	*	0.2 U	0.77 U	0.19 U	0.2 U	0.19 U
PCB-1260 (AROCLOR 1260)	*	*	0.2 U	0.77 U	0.19 U	0.2 U	0.19 U
PCB-1262 (AROCLOR 1262)	*	*	0.2 U	0.77 U	0.19 U	0.2 U	0.19 U
PCB-1268 (AROCLOR 1268)	*	*	0.2 U	0.77 U	0.19 U	0.2 U	0.19 U
Metals (mg/L)							
ALUMINUM	--	2	0.05 U	0.41	0.05 U	0.083	0.22
ANTIMONY	0.003	0.006	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
ARSENIC	0.025	0.05	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
BARIUM	1	2	0.055	0.05 U	0.05 U	0.05 U	0.05 U
BERYLLIUM	0.003	0.003	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
CADMIUM	0.005	0.01	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U
CALCIUM	--	--	76	80	51	80	72
CHROMIUM, TOTAL	0.05	0.1	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
COBALT	--	--	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
COPPER	0.2	1	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
IRON	0.3	0.6	**35**	**1.2**	**0.71**	**2.3**	**1.1**
LEAD	0.025	0.05	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
MAGNESIUM	35	35	18	18	9.8	14	15
MANGANESE	0.3	0.6	**1.5**	**3.0**	**0.77**	**0.35**	0.28
MERCURY	0.0007	0.0014	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
NICKEL	0.1	0.2	0.025 U	0.025 U	0.025 U	0.012	0.025 U
POTASSIUM	--	--	2.6	2.9	4.6	2.9	2.0
SELENIUM	0.01	0.02	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
SILVER	0.05	0.1	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U
SODIUM	20	--	**48**	**64**	**27**	**36**	**30**
THALLIUM	0.0005	0.0005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
VANADIUM	--	--	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
ZINC	2	5	0.05 U	0.027	0.05 U	0.020 U	0.05 U
Conventional Chemistry (mg/L)							
TOTAL DISSOLVED SOLIDS	--	--	360	400	280	320	290
TOTAL SUSPENDED SOLIDS	--	--	150	8.3 U	1.7	1.4	37

Notes:
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Constitutents 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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