Payson Long
New York State Department of Environmental Conservation (NYSDEC)
Division of Environmental Remediation
Bureau of Program Management
625 Broadway, 12th Floor
Albany, NY 12233-7012

Arcadis CE, Inc.
855 Route 146
Suite 210
Clifton Park
New York 12065
Tel 518 250 7300
Fax 518 250 7301
www.arcadis.com

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

Date:
July 20, 2018

Contact:
Andy Vitolins

Phone:
518.250.7300

Email:
andy.vitolins@arcadis.com

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 May 2018 reporting period.

Leachate Collection and Treatment System Operation and Maintenance

The leachate treatment system shut down on six occasions in May 2018 due to Clarifier Catch Tank high alarms reported by the program logic controller (PLC). The alarms were caused 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.

A total of 769,788 gallons of leachate were collected and treated through the system during May 2018. The corresponding average leachate recovery rate for the month was approximately 17 gallons per minute (gpm).

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

- 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 May 2018.

System Sampling

The monthly samples were collected on May 29, 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 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, except for carbon tetrachloride in the Influent. Carbon Tetrachloride was detected at 5.4 micrograms per liter in the sample collected from the Influent.

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 May 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 6.8 mg/L (Cell 2 effluent) to 1.5 mg/L (Cell 3 Bypass). Manganese concentrations ranged from a maximum of 6.0 mg/L (Clarifier Catch) to 0.27 mg/L (Cell 2 effluent).

TDS and TSS

The concentrations of TDS and TSS continue to fluctuate between sampling events. During the May sampling event, TDS concentrations ranged between 390 mg/L and 4,900 mg/L; TSS concentrations ranged from 6.0 mg/L and 20 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 180 mg/L, respectively.

Next Reporting Period Planned Activities

The following activities are anticipated for June 2018:

- Continuation of iron and solids treatment and processing; and
- Routine monthly and quarterly 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 – May 2018 Treatment System Analytical Data

Table 1. May 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 5/29/2018	CLARIFIER CATCH 5/29/2018	CELL 3 5/29/2018	CELL 2 5/29/2018	EFFLUENT 5/29/2018
Volatile Organic Compounds (ug/L)							
ACETONE	50	50	30 J	13 J	50 U	50 U	50 U
BENZENE	1	1	1.0	0.19 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	7.3	1.6	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	5.8	2.0 U	2.0 U	2.0 U	2.0 U
2-BUTANONE (MEK)	50	50	3.1 J	22	20 U	20 U	20 U
CARBON DISULFIDE	60	60	2.2 J	1.4 J	4.0 U	4.0 U	4.0 U
CARBON TETRACHLORIDE	5	5	**5.4**	1.1 J	5.0 U	5.0 U	5.0 U
CHLOROBENZENE	5	5	0.5 J	0.32 J	1.0 U	1.0 U	1.0 U
CHLORODIBROMOMETHANE	50	--	0.59	0.28 J	0.5 U	0.5 U	0.5 U
CHLOROETHANE	5	5	1.1 J	0.56 J	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	1.0 U	0.2 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	0.35 J	1.0 U	0.26 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)	--	--	4.6 J	2.6 J	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	0.2 J	0.2 J	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	0.16 J	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. May 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 5/29/2018	CLARIFIER CATCH 5/29/2018	CELL 3 5/29/2018	CELL 2 5/29/2018	EFFLUENT 5/29/2018
Polychlorinated Biphenyls (ug/L)							
PCB-1016 (AROCLOR 1016)	*	*	**0.36**	**5.6**	0.2 U	0.2 U	0.2 U
PCB-1221 (AROCLOR 1221)	*	*	0.2 U	2.0 U	0.2 U	0.2 U	0.2 U
PCB-1232 (AROCLOR 1232)	*	*	0.2 U	2.0 U	0.2 U	0.2 U	0.2 U
PCB-1242 (AROCLOR 1242)	*	*	0.2 U	2.0 U	0.2 U	0.2 U	0.2 U
PCB-1248 (AROCLOR 1248)	*	*	0.2 U	2.0 U	0.2 U	0.2 U	0.2 U
PCB-1254 (AROCLOR 1254)	*	*	0.2 U	2.0 U	0.2 U	0.2 U	0.2 U
PCB-1260 (AROCLOR 1260)	*	*	0.2 U	2.0 U	0.2 U	0.2 U	0.2 U
PCB-1262 (AROCLOR 1262)	*	*	0.2 U	2.0 U	0.2 U	0.2 U	0.2 U
PCB-1268 (AROCLOR 1268)	*	*	0.2 U	2.0 U	0.2 U	0.2 U	0.2 U
Metals (mg/L)							
ALUMINUM	--	2	0.05 U	0.05 U	0.05 U	0.085	0.05 U
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	0.05 U	0.066	0.05 U	0.062	0.055 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	--	--	75	91	100	95	90
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	**2.4**	**2.0**	**1.5**	**6.8**	**1.7**
LEAD	0.025	0.05	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
MAGNESIUM	35	35	17	18	18	16	17
MANGANESE	0.3	0.6	**0.46**	**6.0**	0.27	**1.1**	**1.4**
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	0.025 U	0.025 U
POTASSIUM	--	--	6.2	2.8	3.3	2.8	2.0 U
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	--	**2200**	**57**	**52**	**45**	**40**
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	0.026	0.05 U	0.020 U	0.05 U
Conventional Chemistry (mg/L)							
TOTAL DISSOLVED SOLIDS	--	--	4,900	500	460	390	390
TOTAL SUSPENDED SOLIDS	--	--	20	7.6	8.4	11	6.0

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.
* 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.
U - The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
J - The concentration is an approximate value.
mg/L - milligrams per liter
ug/L - micrograms per liter