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

Date:
January 18, 2019

Contact:
Andy Vitolins

Phone:
518.250.7300

Email:
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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 December 2018 reporting period at the above-referenced site.

Leachate Collection and Treatment System Operation and Maintenance

The leachate treatment system shut down on six occasions in December 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 signal from the level transducer in the Clarifier Catch Tank, resulting in multiple high tank alarms activated by the high-level float switch. The issue was temporarily resolved each time by resetting the PLC. The issue was permanently resolved when the transducer was replaced and calibrated. Several discharge pump failure alarms were also triggered due to variable frequency drive (VFD) faults. The cause of the alarms was due to a delay of the start signals. The issue was temporarily resolved by rewiring the signals.

A total of 375,473 gallons of leachate were collected and treated through the system during December 2018. The corresponding average leachate recovery rate for the month was approximately 8.4 gallons per minute (gpm).

The following operation and maintenance (O&M) activities were completed during the December 2018 operating period:

- Arcadis continued treatment system upgrades and replaced the level transducer of the Clarifier Catch Tank. Arcadis also installed a wash-down curtain between the Filter Press and the motor control panels, and a floor grate on the Inclined Plate Clarifier.
- Iron and solids sludge processing was performed throughout the month. One 55-gallon drum of sludge was generated during December 2018.
- On December 4, 2018, Mobile Mini Storage Solutions delivered and placed the twenty-foot long by eight-foot wide by eight-foot tall storage container behind the treatment system building. The storage container will be used to house equipment and piping previously stored in the building.

System Sampling

Water samples were collected on December 12, 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 first quarter of 2019.

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 and estimated in the Clarifier Catch Tank sample but did not exceed the corresponding NYSDEC Class GA Standards.

PCBs

The 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 Cell 3 Effluent, Cell 2 Effluent, and Polishing Pond Effluent samples during the December 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 4.3 mg/L (Influent) to 1.0 mg/L (Polishing Pond

Effluent). Manganese concentrations ranged from a maximum of 1.5 mg/L (Clarifier Catch Tank) to 1.1 mg/L (Polishing Pond Effluent), which are consistent with previous data.

TDS and TSS

The concentrations of TDS and TSS continue to fluctuate between sampling events. During the December sampling event, TDS concentrations ranged between 260 mg/L and 420 mg/L; TSS concentrations ranged from 1.4 mg/L and 7.7 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 January 2019:

- Continued analysis and testing of the discharge pump VFDs;
- 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 – December 2018 Treatment System Analytical Data
Waste Disposal Documents

Table 1. December 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 12/18/2018	CLARIFIER CATCH 12/18/2018	CELL 3 12/18/2018	CELL 2 12/18/2018	EFFLUENT 12/18/2018
Volatile Organic Compounds (ug/L)							
ACETONE	50	50	50 U	50 U	50 U	50 U	50 U
BENZENE	1	1	1.0 U	1.0 U	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	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	50	50	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
BROMOMETHANE	5	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
2-BUTANONE (MEK)	50	50	20 U	20 U	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	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
CHLORODIBROMOMETHANE	50	--	0.5 U	0.5 U	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	1.0 U	1.0 U	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	0.18 J	1.0 U	1.0 U	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	1.0 U	1.0 U	1.0 U	1.0 U	1.0 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. December 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 12/18/2018	CLARIFIER CATCH 12/18/2018	CELL 3 12/18/2018	CELL 2 12/18/2018	EFFLUENT 12/18/2018
Polychlorinated Biphenyls (ug/L)							
PCB-1016 (AROCLOR 1016)	*	*	**0.39**	**0.51**	0.26 U	0.20 U	0.20 U
PCB-1221 (AROCLOR 1221)	*	*	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
PCB-1232 (AROCLOR 1232)	*	*	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
PCB-1242 (AROCLOR 1242)	*	*	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
PCB-1248 (AROCLOR 1248)	*	*	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
PCB-1254 (AROCLOR 1254)	*	*	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
PCB-1260 (AROCLOR 1260)	*	*	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
PCB-1262 (AROCLOR 1262)	*	*	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
PCB-1268 (AROCLOR 1268)	*	*	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
ALUMINUM	--	2	0.05 U	0.05 U	0.05 U	0.05 U	0.093
ANTIMONY	0.003	0.006	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
ARSENIC	0.025	0.05	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
BARIUM	1	2	0.05 U	0.05 U	0.050 U	0.050 U	0.050 U
BERYLLIUM	0.003	0.003	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
CADMIUM	0.005	0.01	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
CALCIUM	--	--	95	95	100	100	97
CHROMIUM, TOTAL	0.05	0.1	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
COBALT	--	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
COPPER	0.2	1	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
IRON	0.3	0.6	**4.3**	**2.2**	**1.2**	**3.8**	**1.0**
LEAD	0.025	0.05	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
MAGNESIUM	35	35	19	19	19	18	20
MANGANESE	0.3	0.6	**1.5**	**1.5**	**1.5**	**0.94**	**1.1**
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	0.01 U	0.010	0.01 U	0.01 U	0.01 U
POTASSIUM	--	--	2.4	2.4	3.4	2.6	4.5
SELENIUM	0.01	0.02	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
SILVER	0.05	0.1	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
SODIUM	20	--	**46**	**50**	**49**	**41**	**40**
THALLIUM	0.0005	0.0005	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
VANADIUM	--	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
ZINC	2	5	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Conventional Chemistry (mg/L)							
TOTAL DISSOLVED SOLIDS	--	--	260	330	420	320	370
TOTAL SUSPENDED SOLIDS	--	--	7.7	5.7	2.6	6.3	1.4

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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