ARCADIS Design & Consultancy for natural and built assets

Payson Long
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Subject:
March 2020 Monthly Report
Fort Edward Landfill
NYSDEC Site No. 558001
Contract No. D007618-39

Date:
April 15, 2020

Contact:
Andy Vitolins

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Our ref:
30001370 (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 March 2020 reporting period at the above-referenced site.

Leachate Collection and Treatment System Operation and Maintenance

Beginning March 1, 2020, Aztech Environmental Technologies (Aztech) has conducted the routine OM&M of the leachate collection and treatment system.

The leachate collection system shut down on two occasions in March 2020 due to power loss at the treatment system. The issues were resolved each time by resetting the programmable logic controller (PLC).

Leachate extraction well EW-2 and leachate collection well EW-4 are currently the only wells operating. EW-1 is offline until the treatment system can be upgraded to treat the elevated concentrations of volatile organic compounds (VOCs) and polychlorinated bisphenols (PCBs) present at this well; EW-3 is temporarily offline due to a faulty well pump.

A total of 730,294 gallons of leachate were collected and treated through the system during March 2020. The corresponding average leachate recovery rate for the month was approximately 16.4 gallons per minute (gpm).

The following activities were completed during the March 2020 operating period:

- Iron and solids sludge processing was performed throughout the month. Five 55-gallon drums of sludge were generated during March 2020.

System Sampling

Water samples were collected by Aztech on March 30, 2020 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 second quarter of 2020.

The monthly samples were submitted to Eurofins TestAmerica for analysis of VOCs, 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, Cell 3 Bypass, and Polishing Pond Effluent samples but did not exceed the corresponding NYSDEC Class GA Standards.

PCBs

PCB Aroclor 1016 was detected in the Influent (0.74 micrograms per liter ((ug/L)), Clarifier Catch Tank (0.95 ug/L) and Cell 3 Bypass (.024 ug/L) samples at concentrations that exceed the NYSDEC Class GA Standard of 0.09 ug/L. No PCBs were detected in the Cell 2 Effluent or Polishing Pond Effluent samples during the March 2020 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 concentrations ranged from a maximum of 33 mg/L (Influent) to a minimum of 0.155 mg/L (Cell 3 Bypass). Manganese concentrations ranged from a maximum of 2.25 mg/L (Influent) to a minimum of 0.13 mg/L (Polishing Pond Effluent), which are consistent with previous data. Sodium concentrations exceeded the NYSEC Class GA Standard of 20 mg/L at all sample locations and ranged from a maximum of 52.3 mg/L (Clarifier Catch Tank) to a minimum of 32.2 mg/L (Polishing Pond Effluent).

TDS and TSS

The concentrations of TDS and TSS continue to fluctuate between sampling events. During the March 2020 sampling event, TDS concentrations ranged between 432 mg/L and 299 mg/L; TSS concentrations ranged from 11.4 mg/L and 84 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 to 226 mg/L, respectively.

Next Reporting Period Planned Activities

The following activities are anticipated for April 2020:

- Continuation of iron and solids treatment and processing;
- Repair EW-3 extraction well pump; 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.
Vice President

Copies:
Jeremy Wyckoff, Arcadis
Jasmine Mullins, Arcadis
File

Enclosures:
Table 1 – March 2020 Treatment System Analytical Data

Table 1. March 2020 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	CLARIFIER CATCH	CELL 3	CELL 2	PPE
			3/30/2020	3/30/2020	3/30/2020	3/30/2020	3/30/2020
Volatile Organic Compounds (ug/L)							
ACETONE	50	50	5.0 U	5.0 U	5.0 U	5.0 U	9.1 J
BENZENE	1	1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
BROMODICHLOROMETHANE	50	50	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
BROMOFORM	50	50	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
BROMOMETHANE	5	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-BUTANONE (MEK)	50	50	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
CARBON DISULFIDE	60	60	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
CARBON TETRACHLORIDE	5	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
CHLOROBENZENE	5	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
CHLORODIBROMOMETHANE	50	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
CHLOROETHANE	5	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
CHLOROFORM	7	7	1.0 U	1.8	0.68 J	1.0 U	1.0 U
CHLOROMETHANE	5	--	1.0 U	0.89 J	1.0 U	1.0 U	1.0 U
CYCLOHEXANE	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-DIBROMO-3-CHLOROPROPANE	0.04	0.04	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.0006	0.0006	1.0 U	1.0 U	1.0 U	1.0 U	1.0 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
DICHLOROBROMOMETHANE	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
DICHLORODIFLUOROMETHANE	5	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 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	1.0 U	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	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
TRANS-1,3-DICHLOROPROPENE	0.4	0.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
ETHYLBENZENE	5	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-HEXANONE	50	50	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
ISOPROPYLBENZENE (CUMENE)	5	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
METHYL ACETATE	--	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 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	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE	--	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 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
1,2,4-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	1.0 U	1.0 U	1.0 U	1.0 U	1.0 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	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
XYLENES, TOTAL	5	5	2.0 U	2.0 U	2.0 U	2.0 U	2.0 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

Table 1. March 2020 Treatment System Analytical Data, Fort Edward Landfill
Fort Edward, New York. NYSDEC Site No. 558001

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Chemical Name	NYSDEC Class GA GW Standard	NYSDEC Class GA GW Effluent Limitation	INFLUENT	CLARIFIER CATCH	CELL 3	CELL 2	PPE
			3/30/2020	3/30/2020	3/30/2020	3/30/2020	3/30/2020
Polychlorinated Biphenyls (ug/L)							
PCB-1016 (AROCLOR 1016)	*	*	**0.74**	**0.95**	**0.24 J**	0.5 U	0.5 U
PCB-1221 (AROCLOR 1221)	*	*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PCB-1232 (AROCLOR 1232)	*	*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PCB-1242 (AROCLOR 1242)	*	*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PCB-1248 (AROCLOR 1248)	*	*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PCB-1254 (AROCLOR 1254)	*	*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PCB-1260 (AROCLOR 1260)	*	*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PCB-1262 (AROCLOR 1262)	*	*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PCB-1268 (AROCLOR 1268)	*	*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Metals (mg/L)							
ALUMINUM	--	2.0	0.2 U	0.761	0.2 U	0.2 U	0.402
ANTIMONY	0.003	0.006	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
ARSENIC	0.03	0.05	0.0061 J	0.015 U	0.015 U	0.015 U	0.015 U
BARIUM	1.0	2.0	0.055	0.040	0.028 J	0.038 J	0.030
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	0.004 U	0.005 J	0.002 U	0.002 U	0.002 U
CALCIUM	--	--	77.1	77.5	77.4	86.3	75.9
CHROMIUM, TOTAL	0.05	0.10	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
COBALT	--	--	0.0022 J	0.0021 J	0.004 U	0.0014 J	0.004 U
COPPER	0.2	1.0	0.006 JB	0.009 JB	0.008 JB	0.0035 JB	0.0022 JB
IRON	0.3	0.6	**33**	**7.02**	0.155	**1.88**	**0.915**
LEAD	0.03	0.05	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
MAGNESIUM	35	35	17	17.1	14.2	14.1	14.5
MANGANESE	0.3	0.6	**1.65**	**2.25**	0.29	0.23	0.13
MERCURY	0.0007	0.0014	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
NICKEL	0.1	0.2	0.04 U	0.0088 J	0.01 U	0.003 J	0.0022 J
POTASSIUM	--	--	2.57	2.55	3.43	2.42	2.25
SELENIUM	0.01	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
SILVER	0.05	0.1	0.01 U	0.006 U	0.006 U	0.006 U	0.005 U
SODIUM	20	--	**44.2**	**52.3**	**39.8**	**36.4**	**32.2**
THALLIUM	0.0005	0.0005	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
VANADIUM	--	--	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
ZINC	2	5	0.0285	0.0246	0.0028 J	0.0140	0.0033 J
Conventional Chemistry (mg/L)							
TOTAL DISSOLVED SOLIDS	--	--	398	432	385	377	299
TOTAL SUSPENDED SOLIDS	--	--	59.2	11.4	15.2	84	12.4

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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