ARCADIS Design & Consultancy for natural and built assets

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Subject:
February 2017 Monthly Report
Site Management/RSO
Fort Edward Landfill
NYSDEC Site No. 558001
Contract No. D007618-39

Date:
April 11, 2017

Contact:
Dan Lang

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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 February reporting period. A summary of the analytical results of the February 2017 monthly system samples is also provided.

Leachate Collection and Treatment System Operation and Maintenance

The leachate collection system operated with minimal downtime during this period. Approximately 363,266 gallons of leachate were collected and treated through the system during February 2017. The corresponding average leachate recovery rate for the month was approximately 9.0 gallons per minute (gpm).

Process piping and associated fittings decommissioned from the original treatment system were transported offsite in a 10-cubic yard roll-off container by Casella on February 22, 2017. The waste was disposed of at the Casella Landfill located in Clinton County, New York.

System Optimization

Arcadis is currently in the process of upgrading the treatment system as described in the Fort Edward WA 2015 Work Scope, and as outlined in the Remedial System Optimization (HRP, 2015). The first and second phases of upgrades have been completed. These elements were summarized in the

previous Monthly Reports (Arcadis 2016 and 2017), respectively. The third phase of remedial system optimization upgrades completed in February 2017 included the following:

- Electrical power terminations to all major process equipment;
- Substantial completion of programmable logic controller (PLC) programming; and
- Review and approval of floc tank shop drawings.

During March, the following elements will also be completed:

- Installation of chemical (oxidizer, coagulant, and flocculant) metering pumps;
- Installation of rapid mix and flocculant chamber mixers;
- Installation of flocculent mixing tank skid; and
- Startup and testing of iron and solids treatment system equipment.

System Sampling

On February 28th, 2017, the monthly samples were collected from the treatment system influent (EW-4), treatment Cell-3 effluent collection chamber, the Polishing Pond effluent, and the Clarifier Catch, which was online beginning December 15, 2016.

Treatment plant flow during the February monthly sampling event was approximately 9.2 gpm. Because of the ongoing system upgrades and redesign efforts, Treatment Cell-1 is currently offline. The Treatment Cell-2 by-pass overflow pipe was frozen and had no flow, therefore a sample was not collected from this location. The 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, estimated concentrations of acetone were reported in each sample, however these detections are most likely attributable to laboratory contamination. Benzene, chlorobenzene, 1,4-dichlorobenzene, cis-1,2-dichloroethylene, and vinyl chloride were also reported at estimated concentrations in the influent sample. Benzene, chlorobenzene, and cis-1,2-dichloroethylene were reported at estimated concentrations in the Clarifier Catch sample and toluene was reported at an estimated concentration in the effluent sample. These were the only VOCs reported during the February 2017 sampling event. VOC concentrations were consistent with previous monthly data with exception of the estimated concentration of vinyl chloride, which had not been detected in recent sampling events.

PCBs

PCB-1242 was the only PCB Aroclor detected in the influent and the Clarifier Catch samples. PCBs were not detected in the Cell-3 sample or the effluent polishing pond sample during the February 2017 sampling event (Table 1). During previous monthly sampling events, PCB Aroclor 1221, 1232, or 1016 had generally been detected in the influent or Clarifier Catch samples.

Metals

Under the newly employed sampling program (initiated to evaluate treatment system effectiveness), several more metals were analyzed for and detected as compared to the previous sampling program. Calcium, iron, magnesium, manganese, potassium, selenium, sodium and zinc were all detected in the influent sample as well as one or more of the treatment train and effluent samples (Clarifier Catch, Cell-3, and effluent polishing pond). Barium was the only metal detected in the influent sample, but not in the effluent sample. The detected barium concentration was 50 micrograms per liter (µg/l), slightly higher than the laboratory reporting limit of 50 µg/l. Aluminum was detected in the Polishing Pond effluent sample, but not detected in the influent, Clarifier Catch, or Cell 3 samples during the month of February.

TDS and TSS

Concentrations of TDS and TSS continue to fluctuate between sampling events. During the February sampling event, concentrations of TSS were not detected in the Clarifier catch, Cell-3, or effluent samples, and TDS concentrations are consistent with previous sampling events.

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

Sincerely,

Arcadis CE, Inc.

Daniel Lang
Associate Vice President

Copies:
Jeremy Wyckoff, Arcadis
File

Enclosures:
Table
1 February Treatment System Analytical Data

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

		INFLUENT	CLARIFIER CATCH	CELL 3	EFFLUENT
Chemical Name	**Units**	**2/28/2017**	**2/28/2017**	**2/28/2017**	**2/28/2017**
VOCs					
1,1,1-TRICHLOROETHANE	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-TRICHLOROETHANE	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-DICHLOROETHANE	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-TRICHLOROBENZENE	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-DIBROMO-3-CHLOROPROPANE	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	ug/L	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DICHLOROBENZENE	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-DICHLOROETHANE	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-DICHLOROETHYLENE	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-DICHLOROPROPANE	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,3-DICHLOROBENZENE	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
1,4-DICHLOROBENZENE	ug/L	0.15 J	1.0 U	1.0 U	1.0 U
2-HEXANONE	ug/L	10 U	10 U	10 U	10 U
ACETONE	ug/L	12 J	23 J	29 J	22 J
BENZENE	ug/L	0.2 J	0.14 J	1.0 U	1.0 U
BROMOCHLOROMETHANE	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
BROMODICHLOROMETHANE	ug/L	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
BROMOMETHANE	ug/L	2.0 U	2.0 U	2.0 U	2.0 U
2-BUTANONE (MEK)	ug/L	20 U	20 U	20 U	20 U
CARBON DISULFIDE	ug/L	4.0 U	4.0 U	4.0 U	4.0 U
CARBON TETRACHLORIDE	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
CHLOROBENZENE	ug/L	0.29 J	0.23 J	1.0 U	1.0 U
CHLORODIBROMOMETHANE	ug/L	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	ug/L	2.0 U	2.0 U	2.0 U	2.0 U
CIS-1,2-DICHLOROETHYLENE	ug/L	0.43 J	0.28 J	1.0 U	1.0 U
TRANS-1,2-DICHLOROETHYLENE	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
CIS-1,3-DICHLOROPROPENE	ug/L	0.5 U	0.5 U	0.5 U	0.5 U
CYCLOHEXANE	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
DICHLORODIFLUOROMETHANE	ug/L	2.0 U	2.0 U	2.0 U	2.0 U
ETHYLBENZENE	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
ISOPROPYLBENZENE (CUMENE)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
M,P-XYLENES	ug/L	2.0 U	2.0 U	2.0 U	2.0 U
METHYL ACETATE	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
METHYL TERT-BUTYL ETHER (MTBE)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	ug/L	10 U	10 U	10 U	10 U
METHYLCYCLOHEXANE	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
METHYLENE CHLORIDE	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
O-XYLENE (1,2-DIMETHYLBENZENE)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
STYRENE	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
TETRACHLOROETHYLENE(PCE)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
TOLUENE	ug/L	1.0 U	1.0 U	1.0 U	0.24 J
1,2,3-TRICHLOROETHYLENE	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
TRANS-1,3-DICHLOROPROPENE	ug/L	0.5 U	0.5 U	0.5 U	0.5 U
1,4-DIOXANE	ug/L	50 U	50 U	50 U	50 U
TRICHLOROETHYLENE (TCE)	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
TRICHLOROFLUOROMETHANE	ug/L	2.0 U	2.0 U	2.0 U	2.0 U
VINYL CHLORIDE	ug/L	0.18 J	2.0 U	2.0 U	2.0 U
XYLENES, TOTAL	ug/L	3.0 U	3.0 U	3.0 U	3.0 U
1,1,1,2- TETRACHLOROETHANE	ug/L	1.0 U	1.0 U	1.0 U	1.0 U

Notes:
U - The compound was analyzed for by 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

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

		INFLUENT	CLARIFIER CATCH	CELL 3	EFFLUENT
Chemical Name	**Units**	**2/28/2017**	**2/28/2017**	**2/28/2017**	**2/28/2017**
PCBs					
PCB-1016 (AROCLOR 1016)	ug/L	0.2 U	0.2 U	0.2 U	0.2 U
PCB-1221 (AROCLOR 1221)	ug/L	0.2 U	0.2 U	0.2 U	0.2 U
PCB-1232 (AROCLOR 1232)	ug/L	0.2 U	0.2 U	0.2 U	0.2 U
PCB-1242 (AROCLOR 1242)	ug/L	0.93	0.84	0.2 U	0.2 U
PCB-1248 (AROCLOR 1248)	ug/L	0.2 U	0.2 U	0.2 U	0.2 U
PCB-1254 (AROCLOR 1254)	ug/L	0.2 U	0.2 U	0.2 U	0.2 U
PCB-1260 (AROCLOR 1260)	ug/L	0.2 U	0.2 U	0.2 U	0.2 U
PCB-1262 (AROCLOR 1262)	ug/L	0.2 U	0.2 U	0.2 U	0.2 U
PCB-1268 (AROCLOR 1268)	ug/L	0.2 U	0.2 U	0.2 U	0.2 U
METALS					
ALUMINUM	mg/L	0.05 U	0.050 U	0.05 U	0.085
ANTIMONY	mg/L	0.05 U	0.050 U	0.05 U	0.050 U
ARSENIC	mg/L	0.01 U	0.01 U	0.01 U	0.01 U
BARIUM	ug/L	54	50 U	50 U	50 U
BERYLLIUM	mg/L	0.004 U	0.004 U	0.004 U	0.004 U
CADMIUM	mg/L	0.004 U	0.004 U	0.004 U	0.004 U
CALCIUM	mg/L	94	92	83	74
CHROMIUM, TOTAL	ug/L	10 U	10 U	10 U	10 U
COBALT	ug/L	50 U	50 U	50 U	50 U
COPPER	mg/L	0.01 U	0.011	0.01 U	0.01 U
IRON	mg/L	11	5.6	0.81	1.5
LEAD	mg/L	0.01 U	0.01 U	0.01 U	0.01 U
MAGNESIUM	mg/L	25	24	15	15
MANGANESE	ug/L	1800	1900	430	660
MERCURY	mg/L	0.0001 U	0.0001 U	0.0001 U	0.0001 U
NICKEL	mg/L	0.01 U	0.01 U	0.01 U	0.01 U
POTASSIUM	mg/L	3.8	3.7	4.7	3.7
SELENIUM	mg/L	0.052	0.057	0.05 U	0.06
SILVER	mg/L	0.005 U	0.005 U	0.005 U	0.005 U
SODIUM	mg/L	51	50	30	23
THALLIUM	mg/L	0.05 U	0.05 U	0.05 U	0.05 U
VANADIUM	ug/L	10 U	10 U	10 U	10 U
ZINC	mg/L	0.025	0.048	0.02 U	0.02 U
OTHER					
TOTAL DISSOLVED SOLIDS	mg/L	290	410	210	190
TOTAL SUSPENDED SOLIDS	mg/L	18	5.0 U	5.0 U	5.0 U

Notes:
U - The compound was analyzed for by not detected. The associated value is the compound quantitation limit.
mg/L - milligrams per liter
ug/L micrograms per liter