ARCADIS Design & Consultancy for natural and built assets

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

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

Date:
January 8, 2019

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 November 2018 reporting period at the above-referenced site.

Leachate Collection and Treatment System Operation and Maintenance

The leachate collection system operated with minimal downtime during the November 2018 operating period. A total of 232,259 gallons of leachate were collected and treated through the system during November 2018. The corresponding average leachate recovery rate for the month was approximately 5.4 gallons per minute (gpm).

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

- Arcadis continued treatment system upgrades and testing of the new programmable logic controller (PLC). The electrical wiring box at leachate collection EW-4 was replaced as the existing wiring box was in poor condition.
- Crushed stone was placed in certain areas around the perimeter of the treatment building and access roads to fill low-lying areas prone to ponding.
- Iron and solids sludge processing was performed throughout the month. One 55-gallon drum of sludge was generated during November 2018.

- On November 15, 2018, ten drums of filter sludge were transported for off-site disposal by HEPACO, LLC. The disposal documents are attached to this report.
- The annual landfill inspection was performed on November 26, 2018. The results of the inspection will be provided to NYSDEC under a separate cover.

System Sampling

Water samples were collected on November 26, 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 in the Influent, Clarifier Catch Tank, and Polishing Pond Effluent samples, but did not exceed the corresponding NYSDEC Class GA Standards.

Based on data collected in 2017, 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 recommendations presented in the January 31, 2018 Remedial System Optimization Report (RSO) can be implemented and evaluated. These recommendations include VOC removal within the Inclined Plate Clarifier (IPC). Air diffusers placed in the IPC, for example, may volatize VOCs before they are discharged to the CWTS. This would reduce contaminant loading of the CWTS and the potential for VOCs impacts to the Polishing Pond.

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 November 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 5.3 mg/L (Influent) to 0.81 mg/L (Polishing Pond Effluent). Manganese concentrations ranged from a maximum of 1.7 mg/L (Clarifier Catch Tank) to 0.55 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 November sampling event, TDS concentrations ranged between 390 mg/L and 490 mg/L; TSS concentrations ranged from 2.3 mg/L and 11 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 December 2018:

- Continued upgrades to the treatment system equipment and PLC;
- 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 – November 2018 Treatment System Analytical Data
Waste Disposal Documents

Table 1. November 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 11/26/2018	CLARIFIER CATCH 11/26/2018	CELL 3 11/26/2018	CELL 2 11/26/2018	EFFLUENT 11/26/2018
Volatile Organic Compounds (ug/L)							
ACETONE	50	50	50 U	50 U	50 U	50 U	34 J
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	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	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	0.16 J	0.16 J	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	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	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	--	--	100 U	100 U	100 U	100 U	100 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	--	--	2.0 U	2.0 U	2.0 U	2.0 U	2.0 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	2.0 U	2.0 U	2.0 U	2.0 U	2.0 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. November 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 11/26/2018	CLARIFIER CATCH 11/26/2018	CELL 3 11/26/2018	CELL 2 11/26/2018	EFFLUENT 11/26/2018
Polychlorinated Biphenyls (ug/L)							
PCB-1016 (AROCLOR 1016)	*	*	**0.26**	**0.50**	0.19 U	0.19 U	0.19 U
PCB-1221 (AROCLOR 1221)	*	*	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
PCB-1232 (AROCLOR 1232)	*	*	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
PCB-1242 (AROCLOR 1242)	*	*	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
PCB-1248 (AROCLOR 1248)	*	*	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
PCB-1254 (AROCLOR 1254)	*	*	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
PCB-1260 (AROCLOR 1260)	*	*	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
PCB-1262 (AROCLOR 1262)	*	*	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
PCB-1268 (AROCLOR 1268)	*	*	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
ALUMINUM	--	2	0.05 U	0.38	0.05 U	0.05 U	0.057
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	0.059	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	--	--	82	87	120	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	**5.3**	**1.5**	**4.6**	**5.1**	**0.81**
LEAD	0.025	0.05	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
MAGNESIUM	35	35	19	20	21	18	20
MANGANESE	0.3	0.6	**1.6**	**1.7**	**1.1**	**0.88**	**0.55**
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	0.015	0.01 U	0.01 U	0.01 U
POTASSIUM	--	--	2.4	2.4	4.0	2.9	5.4
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	--	**51**	**56**	**57**	**43**	**44**
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	--	--	390	400	490	430	420
TOTAL SUSPENDED SOLIDS	--	--	7.1	4.0	11	3.4	2.3

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

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

GENERATOR

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
[illegible]	1	80[illegible]	010670304 JJK

5. Generator's Name and Mailing Address

NYSDEC FORT EDWARD LANDFILL
45 LEAVY HOLLOW LANE
FORT EDWARD, NY 12828

Generator's Site Address (if different than mailing address)

Generator's Phone: [illegible]

6. Transporter 1 Company Name: Freehold Cartage, Inc. — U.S. EPA ID Number: NJD054126164

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address

WAYNE DISPOSAL, INC
49350 NORTH I-94 SERVICE DRIVE
BELLEVILLE, MI 48111

U.S. EPA ID Number: MID048090633

Facility's Phone: [illegible]

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. RQ,UN3432,POLYCHLORINATED BIPHENYLS SOLID,MIXTURE 9,PGIII,ERG-171 #E180070WDI	10	DM	2000	P	B007	PCB6	
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information

NEEDS CD SENT TO US WASTE 24 HR EMERGENCY CONTACT JOEL MELINO 800-888-7586 CC19052

HEAPCO- NY

[illegible handwriting] 4125 [illegible]

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name	Signature	Month	Day	Year
[illegible] NYSDEC	[signature]	1	15	18

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

	Printed/Typed Name	Signature	Month	Day	Year
Transporter 1	[handwritten name, illegible]	[signature]	1	15	18
Transporter 2					

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name	Signature	Month	Day	Year

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

GENERATOR'S INITIAL COPY