131880

JOHN H. ALLGAIR, PE, PP, LS (1983-2001)
DAVID J. SAMUEL, PE, PP, CME
JOHN J. STEFANI, PE, LS, PP, CME
JAY B. CORNELL, PE, PP, CME
MICHAEL J. McCLELLAND, PE, PP, CME
GREGORY R. VALESI, PE, PP, CME

TIMOTHY W. GILLEN, PE, PP, CME
BRUCE M. KOCH, PE, PP, CME
LOUIS J. PLOSKONKA, PE, CME
TREVOR J. TAYLOR, PE, PP, CME
BEHRAM TURAN, PE, LSRP
LAURA J. NEUMANN, PE, PP
DOUGLAS ROHMEYER, PE, CFM, CME
ROBERT J. RUSSO, PE, PP, CME

October 16, 2017

Ms. Victoria Goldman
NJ Department of Environmental Protection
Bureau of Landfill and Hazardous Waste Permitting
Solid and Hazardous Waste Management Program
P.O. Box 414
401 East State Street
Trenton, New Jersey - 08625-04141

Ref: Quarterly Groundwater Monitoring Report – July 2017 Sampling Event
Overpeck County Park – Areas I, II, IIIA, IIIB and IV
PI# 131880

Dear Ms. Goldman:

On behalf of the County of Bergen, CME Associates (CME) has performed the (3rd) quarterly groundwater sampling event for 2017 at the Overpeck County Park landfill. The sampling was completed in accordance with the Modified Closure and Post Closure Plan Approval – Areas I and IV, dated October 30, 2015, and Overpeck County Park's Landfill Operation and Maintenance Manual, dated June 2016. The referenced properties are contiguous over the Borough of Leonia, Borough of Palisades Park, Township of Teaneck and the Ridge Field Park. A map depicting the location of the Overpeck County Park is included as **Figure 1** – Site Location Map.

CME performed the groundwater sampling activities between July 5th and July 14th, 2017, which included a total of twenty-six (26) monitoring wells located in Area I, Area II, Area III and Area IV. In addition, a pumping station/wet well (PS-1) in Area IIIA was sampled. A site plan showing the monitoring wells and the pump station is included as **Figure 2** – Site Plan.

Prior to the sampling activities, CME installed a new monitoring well to replace lost/damaged monitoring well, PMW-29, in Area IV on June 27, 2017. The replacement well was installed to a depth of about 17.5 feet below ground surface (bgs). The boring log, Form A and permit associated with the newly installed replacement well PMW-29R are included in **Appendix 1** – Monitoring Well Installation Documents.

Groundwater Sampling Activities

CME utilized a peristaltic pump to purge the shallow wells and a 2-inch diameter submersible pump to purge the deep wells. Each monitoring well was sampled in accordance with volume-averaged purging and sample collection methods and/or low-flow purging and sampling methods. The purged water was directed to a portable carbon filter prior to discharge near the wellhead. The submersible pumps were decontaminated before each use in accordance with the NJDEP Field Sampling Procedures Manual, dated August 2005 (revised April 2011) (FSPM). Groundwater samples were collected with dedicated disposable bailers. Samples were placed directly into laboratory provided bottles. The sample bottles were kept in coolers with ice packs and submitted to a NJDEP certified lab (TestAmerica, NJDEP Lab. # 12028) following proper chain-of-custody protocols. A copy of the field sampling records is included in **Appendix 2** – Field Sampling Records. A summary of the samples collected and related analytical tests are provided in **Table 1 –** Sampling Summary Table. All groundwater sample results were compared to the current NJDEP Groundwater Quality Standards (GWQS) for Class II-A Aquifers (N.J.A.C. 7:9C). Analytical results of samples collected from Area I through Area IV and associated QA/QC sample results are presented on **Table 2** through **Table 6**, respectively. Laboratory analytical reports are included in **Appendix 3** – Laboratory Analytical Reports.

Area I Wells

As shown in **Table 1** – Sampling Summary Table, samples from the six (6) monitoring wells located in this area were analyzed for Target Compound List plus 30 (TCL+30), Target Analyte List Metals (TAL Metals), Hexavalent Chromium (Cr^{+6}), Extractable Petroleum Hydrocarbons (EPH) and pH. A summary of the laboratory analytical results associated with samples collected from Area I are included in **Table 2** – Groundwater Analytical Results Summary – July 2017 – Area I.

The analytical results indicated the following:

- Aluminum was detected above the NJDEP GWQS of 200 µg/L in MW-2 at a concentration of 3640 µg/L.
- Arsenic was detected above the NJDEP GWQS of 3 µg/L in MW-1 at a concentration of 3.8 µg/L.

- Iron was detected above the NJDEP GWQS of 300 µg/L in MW-1 and MW-2, at concentrations of 3,140 µg/L and 3,500 µg/L, respectively.
- Manganese was detected above the NJDEP GWQS of 50 µg/L in MW-1 and MW-2, at concentrations of 3,990 µg/L and 1,420 µg/L, respectively.
- Sodium was detected above the NJDEP GWQS of 50,000 µg/L in MW-1 and MW-2, at concentrations of 132,000 µg/L and 58,700 µg/L, respectively.
- Dieldrin was detected above the NJDEP GWQS of 0.03 µg/L in MW-5, at a concentration of 0.062 µg/L.

Area II Wells

Area II sampling included six (6) shallow wells (MW-1 through MW-6). Groundwater samples were collected from these wells and analyzed for TCL+30, TAL Metals, Ammonia, Total Dissolved Solids (TDS), Nitrates, Nitrites, Total Kjeldahl Nitrogen (TKN), Cr+6, EPH, and pH analyses. A summary of the laboratory analytical results associated with samples collected from Area II are included in **Table 3** – Groundwater Analytical Results Summary – July 2017 – Area II.

The analytical results indicated the following:

- Total Dissolved Solids (mg/l) was detected above the NJDEP GWQS of 500 mg/L in wells MW-1, MW-2, MW-3, MW-5 and MW-6, at concentrations of 672 mg/L, 2,900 mg/L, 546 mg/L, 798 mg/L and 968 mg/L, respectively.
- Aluminum was detected above the NJDEP GWQS of 200 µg/L in MW-2, at a concentration of 8,780 µg/L.
- Arsenic was detected above the NJDEP GWQS of 3 µg/L in MW-2 and MW-6, at concentrations of 7.0 µg/L and 6.9 µg/L, respectively .
- Iron was detected above the NJDEP GWQS of 300 µg/L in MW-1, MW-2, MW-3, MW-4, MW-5 and MW-6, at concentrations of 49,900 µg/L, 20,900 µg/L, 50,200 µg/L, 25,900 µg/L, 10,700 µg/L and 9,680 µg/L, respectively.

- Lead was detected above the NJDEP GWQS of 5 µg/L in MW-1 and MW-2, at concentrations of 13.1 µg/L and 12.3 µg/L, respectively.
- Manganese was detected above the NJDEP GWQS of 50 µg/L in MW-1, MW-2, MW-3, MW-4, MW-5 and MW-6, at concentrations of 500 µg/L, 6,090 µg/L, 576 µg/L, 556 µg/L, 1,470 µg/L and 2,420 µg/L, respectively.
- Sodium was detected above the NJDEP GWQS of 50,000 µg/L in wells MW-1, MW-2, MW-4, and MW-6, at concentrations of 216,000 µg/L, 345,000 µg/L, 58,100 µg/L, and 114,000 µg/L, respectively.
- Bis(2-ethylhexyl) phthalate was detected above the NJDEP GWQS of 3 µg/L in wells MW-2, MW-3 and MW-4, at concentrations of 5.3 µg/L, 7.0 µg/L and 7.4 µg/L, respectively.

Area III Wells

Area III consisted of two sections (3A and 3B). Area IIIA included the deep wells MW-11D, MW-12D, MW-14D, MW-17D, and wet well, PS-1, associated with Pump Station #1. Area IIIB contained two shallow wells (MW-18 and MW-19). A third shallow well in Area IIIB (MW-20) was found damaged and could not be sampled. Groundwater samples from all the Area IIIA and Area IIIB wells were analyzed for TCL VOA+15+SIM, TAL Metals, Ammonia, TKN, TDS, Nitrates, and Nitrites. A summary of the laboratory analytical results associated with samples collected from Area III are included in **Table 4** – Groundwater Analytical Results Summary – July 2017 – Area III.

The analytical results indicated the following:

Deep Monitoring Wells

- Total Dissolved Solids were detected above the NJDEP GWQS of 500 mg/L in well MW-12D, at a concentration of 834 mg/L.
- Aluminum was detected above the NJDEP GWQS of 200 µg/L in MW-14D and MW-17D, at concentrations of 299 µg/L and 618 µg/L, respectively.
- Arsenic was detected above the NJDEP GWQS of 3 µg/L in MW-11D, MW-12D, and MW-17D, at a concentration of 5.4 µg/L, 3.1 µg/L, and 4.1 µg/L, respectively.

- Iron was detected above the NJDEP GWQS of 300 µg/L in MW-12D, MW-14D, and MW-17D, at concentrations of 361 µg/L, 1,110 µg/L, 866 µg/L, respectively.
- Manganese was detected above the NJDEP GWQS of 50 µg/L in MW-11D, and MW-14D, at concentrations of 90.3 µg/L, and 299 µg/L, respectively.
- Sodium was detected above the NJDEP GWQS of 50,000 µg/L in well MW-12D, at a concentration of 51,100 µg/L.
- 1,4-Dioxane was detected above the NJDEP GWQS of 0.4 µg/L in MW-14D, at a concentration of 0.51 µg/L.

Shallow Monitoring Wells (including Pump Station #1)

- Ammonia was detected above the NJDEP GWQS of 3 mg/L, in PS-1, MW-18, and MW-19, at concentrations of 131 mg/L, 81.7 mg/L, and 16.0 mg/L, respectively.
- Total Dissolved Solids were detected above the NJDEP GWQS of 500 mg/L, in PS-1, MW-18, and MW-19, at concentrations of 3,740 mg/L, 1,110 mg/L, and 1,360 mg/L, respectively.
- Benzene was detected above the NJDEP GWQS of 1 µg/L in PS-1, at a concentration of 3.1 µg/L.
- Chlorobenzene was detected above the NJDEP GWQS of 50 µg/L in PS-1, at a concentration of 52 µg/L.
- 1,4-Dioxane was detected above the NJDEP GWQS of 0.4 µg/L, in PS-1 and MW-18, at concentrations of 20 µg/L and 2.8 µg/L, respectively.
- Arsenic was detected above the NJDEP GWQS of 3 µg/L in MW-19, at a concentration of 5.4 µg/L.
- Iron was detected above the NJDEP GWQS of 300 µg/L in PS-1, MW-18, and MW-19, at concentrations of 34,400 µg/L, 41,900 µg/L, and 32,800 µg/L, respectively.
- Lead was detected above the NJDEP GWQS of 5 µg/L in MW-19, at a concentration of 29.8 µg/L.

- Manganese was detected above the NJDEP GWQS of 50 µg/L in PS-1, MW-18, and MW-19, at concentrations of 1,190 µg/L, 1,200 µg/L, and 795 µg/L, respectively.
- Sodium was detected above the NJDEP GWQS of 50,000 µg/L in PS-1 and MW-18, at concentrations of 767,000 µg/L, and 78,600 µg/L, respectively.

Area IV Wells

Area IV was listed to have nine (9) shallow wells (PMW-21, PMW-22, PMW-23, PMW-24, PMW-25, PMW-26, PMW-27, PMW-29 and PMW-30). However, after an extensive site search utilizing all available information and known GPS locations, one (1) of the wells (PMW-26) could not be located. The groundwater samples from the remaining eight (8) wells were analyzed for TCL+30, TAL Metals, EPH, Cr^{+6}, and pH. A summary of the laboratory analytical results associated with samples collected from Area IV are included in **Table 5** – Groundwater Analytical Results Summary – July 2017 – Area IV.

The analytical results indicated the following:

- Benzene was detected above the NJDEP GWQS of 1 µg/L in PMW-27 and PMW-30, at a concentration of 3.9 µg/L and 1.1 µg/L, respectively.
- Chlorobenzene was detected above the NJDEP GWQS of 50 µg/L in PMW-27, at a concentration of 58 µg/L.
- Aluminum was detected above the NJDEP GWQS of 200 µg/L in PMW-22 and PMW-25, at concentrations of 2,590 µg/L and 450 µg/L.
- Arsenic was detected above the NJDEP GWQS of 3 µg/L in PMW-22, PMW-25, and PMW-29, at concentrations of 7.8 µg/L, 9.4 µg/L and 7.2 µg/L, respectively.
- Iron was detected above the NJDEP GWQS of 300 µg/L in PMW-21, PMW-22, PMW-24, PMW-25, PMW-27, PMW-29 and PMW-30, at concentrations of 29,200 µg/L, 27,000 µg/L, 40,400 µg/L, 13,700 µg/L, 18,400 µg/L, 27,900 µg/L, and 68,200 µg/L, respectively.
- Lead was detected above the NJDEP GWQS of 5 µg/L in PMW-22, PMW-25 and PMW-30, at concentrations of 5.4 µg/L, 40.6 µg/L, and 11.4 µg/L, respectively.

- Manganese was detected above the NJDEP GWQS of 50 µg/L in PMW-21, PMW-22, PMW-23, PMW-24, PMW-25, PMW-27, PMW-29 and PMW-30, at concentrations of 718 µg/L, 6730 µg/L, 228 µg/L, 1840 µg/L, 165 µg/L, 61.6 µg/L, 7,590 µg/L and 761 µg/L, respectively.
- Sodium was detected above the NJDEP GWQS of 50,000 µg/L in PMW-21, PMW-22, PMW-24, PMW-25, PMW-27, and PMW-29 at concentrations of 52,200 µg/L, 196,000 µg/L, 111,000 µg/L, 254,000 µg/L, 89,700 µg/L, and 202,000 µg/L respectively.

The New Jersey Pollutant Discharge Elimination System Exceedance Report for Sanitary Landfills is included in **Appendix 4 –** NJPDES Exceedance Report for Sanitary Landfills.

Conclusions

The third 2017 quarterly groundwater sampling event showed ground water from the deeper zones is only impacted with metals, TDS, and 1,4-Dioxane at concentrations exceeding the applicable NJDEP GWQS. Shallow ground water is impacted with VOs, bis(2-ethylhexyl)phthalate, metals, ammonia, TDS and dieldrin at concentrations exceeding the applicable NJDEP GWQS.

Should you have any questions in this regard, please do not hesitate to contact us at (732) 951-2101.

Very truly yours,
CME Associates

Behram Turan, P.E., LSRP
Principal

TABLE 1: SAMPLING SUMMARY TABLE
Overpeck Park Landfill
Teaneck, NJ 07666
NJPDES Permit #NJG1086422, PI ID: 545650

Sample ID	Sampling Date	Media	MW Diameter (inch)	Sampling Depth (ft)*	Depth To Water (ft)	Analysis	Sampling Method
Area I							
MW1	7/7/2017	Groundwater	4	21.00	6.12	TCL+30, TAL Metals, Cr^{+6}, EPH, pH.	Disposable Bailer
MW2	7/7/2017	Groundwater	2	20.00	6.85	TCL+30, TAL Metals, Cr^{+6}, EPH, pH.	Disposable Bailer
MW3	7/7/2017	Groundwater	4	19.00	3.00	TCL+30, TAL Metals, Cr^{+6}, EPH, pH.	Disposable Bailer
MW4	7/10/2017	Groundwater	4	20.40	3.12	TCL+30, TAL Metals, Cr^{+6}, EPH, pH.	Disposable Bailer
MW5	7/7/2017	Groundwater	4	20.10	3.10	TCL+30, TAL Metals, Cr^{+6}, EPH, pH.	Disposable Bailer
MW6	7/10/2017	Groundwater	4	18.40	2.95	TCL+30, TAL Metals, Cr^{+6}, EPH, pH.	Disposable Bailer
Area II							
MW1	7/11 & 7/13/2017	Groundwater	4	15.00	3.85	TCL+30, TAL Metals, Cr^{+6}, EPH, pH, Ammonia, TKN, TDS, Nitrite, Nitrate.	Disposable Bailer
MW2	7/13/2017	Groundwater	4	14.46	6.70	TCL+30, TAL Metals w/Hg, Cr^{+6}, EPH, pH, Ammonia, TKN, TDS, Nitrite, Nitrate.	Disposable Bailer
MW3	7/13/2017	Groundwater	4	10.60	8.00	TCL+30, TAL Metals w/Hg, Cr^{+6}, EPH, pH, Ammonia, TKN, TDS, Nitrite, Nitrate.	Disposable Bailer
MW4	7/13/2017	Groundwater	4	6.53	5.41	TCL+30, TAL Metals w/Hg, Cr^{+6}, EPH, pH, Ammonia, TKN, TDS, Nitrite, Nitrate.	Disposable Bailer
MW5	7/10 & 7/13/2017	Groundwater	4	12.00	5.30	TCL+30, TAL Metals w/Hg, Cr^{+6}, EPH, pH, Ammonia, TKN, TDS, Nitrite, Nitrate.	Disposable Bailer
MW6	7/10 & 7/13/2017	Groundwater	4	15.00	8.47	TCL+30, TAL Metals w/Hg, Cr^{+6}, EPH, pH, Ammonia, TKN, TDS, Nitrite, Nitrate.	Disposable Bailer
Area IIIA							
MW-11D	7/6/2017	Groundwater	4	104.00	5.64	TCL VO+15+SIM, TAL Metals, Ammonia, TKN, TDS, Nitrite, Nitrate.	Disposable Bailer
MW-12D	7/5/2017	Groundwater	4	105.00	11.81	TCL VO+15+SIM, TAL Metals, Ammonia, TKN, TDS, Nitrite, Nitrate.	Disposable Bailer
MW-14D	7/5/2017	Groundwater	4	45.00	18.60	TCL VO+15+SIM, TAL Metals, Ammonia, TKN, TDS, Nitrite, Nitrate.	Disposable Bailer

TABLE 1: SAMPLING SUMMARY TABLE
Overpeck Park Landfill
Teaneck, NJ 07666
NJPDES Permit #NJG1086422, PI ID: 545650

Sample ID	Sampling Date	Media	MW Diameter (inch)	Sampling Depth (ft)*	Depth To Water (ft)	Analysis	Sampling Method
Area IIIA							
MW-17D	7/5/2017	Groundwater	4	28.00	3.94	TCL VO+15+SIM, TAL Metals, Ammonia, TKN, TDS, Nitrite, Nitrate.	Disposable Bailer
PS-1	7/6/2017	Groundwater	36"	NA	NA	TCL VO+15+SIM, TAL Metals, Ammonia, TKN, TDS, Nitrite, Nitrate.	Disposable Bailer
Area IIIB (Aerodrome)							
(MW- 18)	7/6/2017	Groundwater	4	18.00	9.31	TCL VO+15+SIM, TAL Metals, Ammonia, TKN, TDS, Nitrite, Nitrate.	Disposable Bailer
(MW-19)	7/6/2017	Groundwater	4	20.00	11.34	TCL VO+15+SIM, TAL Metals, Ammonia, TKN, TDS, Nitrite, Nitrate.	Disposable Bailer
Area IV							
PMW-21	7/12/2017	Groundwater	4	20.00	10.95	TCL+30, TAL Metals, Cr^{+6}, EPH, pH.	Disposable Bailer
PMW-22	7/12/2017	Groundwater	4	23.00	5.15	TCL+30, TAL Metals, Cr^{+6}, EPH, pH.	Disposable Bailer
PMW-23	7/11/2017	Groundwater	4	23.50	6.52	TCL+30, TAL Metals, Cr^{+6}, EPH, pH.	Disposable Bailer
PMW-24	7/11/2017	Groundwater	4	23.00	12.17	TCL+30, TAL Metals, Cr^{+6}, EPH, pH.	Disposable Bailer
PMW-25	7/12/2017	Groundwater	4	22.00	7.18	TCL+30, TAL Metals, Cr^{+6}, EPH, pH.	Disposable Bailer
PMW-27	7/14/2017	Groundwater	4	22.08	9.70	TCL+30, TAL Metals, Cr^{+6}, EPH, pH.	Disposable Bailer
PMW-29	7/14/2017	Groundwater	2	15.00	9.50	TCL+30, TAL Metals, Cr^{+6}, EPH, pH.	Disposable Bailer
PMW-30	7/12/2017	Groundwater	4	17.00	7.66	TCL+30, TAL Metals, Cr^{+6}, EPH, pH.	Disposable Bailer

TABLE 1: SAMPLING SUMMARY TABLE
Overpeck Park Landfill
Teaneck, NJ 07666
NJPDES Permit #NJG1086422, PI ID: 545650

Sample ID	Sampling Date	Media	MW Diameter (inch)	Sampling Depth (ft)*	Depth To Water (ft)	Analysis	Sampling Method
Field and Trip Blanks							
FB070517	7/5/2017	Aqueous	N/A	N/A	N/A	TCL VO+15+SIM, TAL Metals, Ammonia, TKN, TDS, Nitrite, Nitrate.	Disposable Bailer
TB070517	7/5/2017	Aqueous	N/A	N/A	N/A	TCL VO+15+SIM	N/A
FB070617	7/6/2017	Aqueous	N/A	N/A	N/A	TCL VO+15+SIM, TAL Metals, Ammonia, TKN, TDS, Nitrite, Nitrate.	Disposable Bailer
FB070717	7/7/2017	Aqueous	N/A	N/A	N/A	TCL+30, TAL Metals, Cr^{+6}, EPH, pH.	Disposable Bailer
TB070717	7/7/2017	Aqueous	N/A	N/A	N/A	TCL VOs	N/A
FB071017	7/10/2017	Aqueous	N/A	N/A	N/A	TCL+30, TAL Metals, Cr^{+6}, EPH, pH.	Disposable Bailer
TB071017	7/10/2017	Aqueous	N/A	N/A	N/A	TCL VOs	N/A
FB071117	7/11/2017	Aqueous	N/A	N/A	N/A	TCL+30, TAL Metals, Cr^{+6}, EPH, pH.	Disposable Bailer
TB071117	7/11/2017	Aqueous	N/A	N/A	N/A	TCL VOs	N/A
FB071217	7/12/2017	Aqueous	N/A	N/A	N/A	TCL+30, TAL Metals, Cr^{+6}, EPH, pH.	Disposable Bailer
TB071217	7/12/2017	Aqueous	N/A	N/A	N/A	TCL VOs	N/A
FB071317	7/13/2017	Aqueous	N/A	N/A	N/A	TCL+30, TAL Metals w/Hg, Cr^{+6}, EPH, pH, Ammonia, TKN, TDS, Nitrite, Nitrate.	Disposable Bailer
FB071417	7/14/2017	Aqueous	N/A	N/A	N/A	TCL+30, TAL Metals, Cr^{+6}, EPH, pH.	Disposable Bailer
TB071417	7/14/2017	Aqueous	N/A	N/A	N/A	TCL VOs	N/A

TKN - Total Kieldahl Nitrogen
SIM - Selected Ion Monitoring
TDS - Total Dissolved Solids
Cr^{+6} - Hexavalent Chromium
*Depth to water measurement in parantheses

TABLE 2: GROUNDWATER ANALYTICAL RESULTS SUMMARY - JULY 2017 AREA I

Overpeck Park Landfill
Teaneck, NJ 07666
NJPDES Permit #NJG1086422, PI ID: 545650

	Client ID	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
	Lab Sample ID	460-136766-1	460-136766-2	460-136766-3	460-136831-1	460-136766-4	460-136831-2
	Sampling Date	7/7/2017	7/7/2017	7/7/2017	7/10/2017	7/7/2017	7/10/2017
	Matrix	Water	Water	Water	Water	Water	Water
	Dilution Factor	1	1	1	1	1	1
	Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
	GWQS	Result	Result	Result	Result	Result	Result
WETCHEM							
Chromium (hexavalent) (ug/l)	NA	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7
Cyanide, Total (mg/l)	0.1	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
pH (su)	NA	7.4	7.6	8.0	8.1	8.0	7.7
METALS							
Aluminum	200	29.9	[redacted]	26.0	60.5	<18.2	40.9
Arsenic	3	[redacted]	2.6	2.0	1.7	2.5	1.6
Iron	300	[redacted]	[redacted]	61.3	72.3	42.4	53.5
Lead	5	<0.38	3.6	0.39	<0.38	0.39	<0.38
Manganese	50	[redacted]	[redacted]	5.0	<2.5	<2.5	<2.5
Sodium	50000	[redacted]	[redacted]	28800	17500	27600	17700
Hg	2	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
VOA-8260C							
		<GWQS	<GWQS	<GWQS	<GWQS	<GWQS	<GWQS
SVOA-8270D SIM							
		<GWQS	<GWQS	<GWQS	<GWQS	<GWQS	<GWQS
SVOA-8270D							
		<GWQS	<GWQS	<GWQS	<GWQS	<GWQS	<GWQS
GCSVOA-8081B-PESTICIDES							
Dieldrin	0.03	<0.003	<0.003	<0.003	<0.003	[redacted]	0.026
GCSVOA-8082A-PCBs							
	0.5	<GWQS	<GWQS	<GWQS	<GWQS	<GWQS	<GWQS

TABLE 2: GROUNDWATER ANALYTICAL RESULTS SUMMARY - JULY 2017 AREA I

Overpeck Park Landfill
Teaneck, NJ 07666
NJPDES Permit #NJG1086422, PI ID: 545650

	Client ID	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
	Lab Sample ID	460-136766-1	460-136766-2	460-136766-3	460-136831-1	460-136766-4	460-136831-2
	Sampling Date	7/7/2017	7/7/2017	7/7/2017	7/10/2017	7/7/2017	7/10/2017
	Matrix	Water	Water	Water	Water	Water	Water
	Dilution Factor	1	1	1	1	1	1
	Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
	GWQS	Result	Result	Result	Result	Result	Result
GCSVOA-NJDEP EPH							
Total EPH (C9-C40)	NA	<0.2	0.29	<0.2	<0.2	<0.2	<0.2

GWQS - Ground Water Quality Standard
ND - Indicates the analyte was analyzed for but not detected.
NR - Not Analyzed
NA - No criterion for this contaminant.

[redacted] Concentration exceeds applicable GWQS
Concentration exceeded the applicable RL/MDL but did not exceed the applicable GWQS

TABLE 3: GROUNDWATER ANALYTICAL RESULTS SUMMARY - JULY 2017 AREA II

Overpeck Park Landfill
Teaneck, NJ 07666
NJPDES Permit #NJG1086422, PI ID: 545650

	Client ID	Area2-1	Area2-2	Area2-3	Area2-4	Area 2-5	Area 2-6
	Lab Sample ID	460-136909-1	460-137046-6	460-137046-3	460-137046-4	460-136831-3	460-136831-4
	Sampling Date	7/11/2017	7/13/2017	7/13/2017	7/13/2017	7/10/2017	7/10/2017
	Matrix	Water	Water	Water	Water	Water	Water
	Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
	GWQS	Result	Result	Result	Result	Result	Result
WETCHEM							
Kjeldahl Nitrogen as N (mg/l)	NA	2.0	1.6	5.2	2.9	1.9	2.0
Ammonia (as N) (mg/l)	3	1.3	0.44	2.5	2.7	1.9	1.7
Chromium (hexavalent) (ug/l)	NA	<2.7	<2.7	10.9	<2.7	<2.7	<2.7
Cyanide, Total (mg/l)	0.1	0.0077	0.010	0.0051	0.010	<0.002	<0.002
pH (su)	NA	6.6	7.2	7.3	7.2	7.2	7.4
Total Dissolved Solids (mg/l)	500				469		
Nitrate as N (mg/l)	10	0.019	<0.010	<0.10	<0.010	1	0.086
Nitrite as N (mg/l)	1	0.055	0.065	0.55	0.042	0.062	0.077
METALS							
Aluminum	200	106		22.4	27.0	18.2	125
Arsenic	3	0.88		0.64	0.64	0.73	
Iron	300						
Lead	5			4.6	1.7	2.6	0.38
Manganese	50						
Sodium	50000			38000		40900	
Hg	2	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
VOA-8260C							
Total Estimated Conc. (TICs)	NA	110	ND	ND	ND	ND	ND
SVOA-8270D SIM							
Total Conc		<GWQS	<GWQS	<GWQS	<GWQS	<GWQS	<GWQS

TABLE 3: GROUNDWATER ANALYTICAL RESULTS SUMMARY - JULY 2017 AREA II

Overpeck Park Landfill
Teaneck, NJ 07666
NJPDES Permit #NJG1086422, PI ID: 545650

	Client ID	Area2-1	Area2-2	Area2-3	Area2-4	Area 2-5	Area 2-6
	Lab Sample ID	460-136909-1	460-137046-6	460-137046-3	460-137046-4	460-136831-3	460-136831-4
	Sampling Date	7/11/2017	7/13/2017	7/13/2017	7/13/2017	7/10/2017	7/10/2017
	Matrix	Water	Water	Water	Water	Water	Water
	Unit	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
	GWQS	Result	Result	Result	Result	Result	Result
SVOA-8270D							
Bis(2-ethylhexyl) phthalate	3	1.3	[redacted]			<0.72	<0.72
GCSVOA-8081B-PESTICIDES							
		<GWQS	<GWQS	<GWQS	<GWQS	<GWQS	<GWQS
GCSVOA-8082A-PCBs							
	0.5	<GWQS	<GWQS	<GWQS	<GWQS	<GWQS	<GWQS
GCSVOA-NJDEP EPH							
Total EPH (C9-C40)	NA	0.45	0.44	0.48	0.46	<0.2	<0.2

GWQS - Ground Water Quality Standard
ND - Indicates the analyte was analyzed for but not detected
NR - Not Analyzed
NA - No criterion for this contaminant

[redacted] Concentration exceeds applicable GWQS
Concentration exceeded the applicable RL/MDL but did not exceed the applicable GWQS

TABLE 4: GROUNDWATER ANALYTICAL RESULTS SUMMARY - JULY 2017 AREA III
Overpeck Park Landfill
Teaneck, NJ 07666
NJPDES Permit #NJG1086422, PI ID: 545650

	Client ID	MW-17D	MW-14D	MW-12D	MW-11D	PS-1	MW-18	MW-19
	Lab Sample ID	460-136568-1	460-136568-2	460-136568-3	460-136648-1	460-136648-2	460-136648-3	460-136648-4
	Sampling Date	7/5/2017	7/5/2017	7/5/2017	7/6/2017	7/6/2017	7/6/2017	7/6/2017
	Matrix	Water	Water	Water	Water	Water	Water	Water
	Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	GWQS	Result	Result	Result	Result	Result	Result	Result
WETCHEM								
Kjeldahl Nitrogen as N (mg/l)	NA	0.14	0.61	0.75	0.34	148	80.5	16.1
Ammonia (as N) (mg/l)	3	<0.072	0.56	0.079	0.072			
Total Dissolved Solids (mg/l)	500	123	304		139			
Nitrate as N (mg/l)	10	0.98	<0.010	1.7	0.052	<0.010	<0.010	0.10
Nitrite as N (mg/l)	1	0.054	0.053	0.067	0.059	0.071	0.069	0.058
METALS								
Aluminum	200			182	149	162	119	47.4
Arsenic	3		1.5			1.9	0.98	
Iron	300				276			
Lead	5	0.55	1.7	<0.38	0.68	0.45	3.0	
Manganese	50	22.6		45.7				
Sodium	50000	12100	39200		16900			47000
Hg	2	0.17	0.17	0.17	0.17	0.17	0.17	0.17
VOA-8260C								
Benzene	1	<0.090	<0.090	<0.090	<0.090		0.33	<0.090
Chlorobenzene	50	<0.24	<0.24	<0.24	<0.24		6.1	0.72
VOA-8260C & SIM								
1,4-Dioxane	0.4	<0.2		<0.2	<0.2			<0.2

GWQS - Ground Water Quality Standard
ND - Indicates the analyte was analyzed for but not detected
NR - Not Analyzed
NA - No criterion for this contaminant

Concentration exceeds applicable GWQS
Concentration exceeded the applicable RL/MDL but did not exceed the applicable GWQS

TABLE 5: GROUNDWATER ANALYTICAL RESULTS SUMMARY - JULY 2017 AREA IV
Overpeck Park Landfill
Teaneck, NJ 07666
NJPDES Permit #NJG1086422, PI ID: 545650

	Client ID	PMW-21	PMW-22	PMW-25	PMW-30	PMW-27	PMW-29	PMW-24	PMW-23
	Lab Sample ID	460-136992-1	460-136992-2	460-136992-3	460-136992-4	460-137153-1	460-137153-2	460-136909-2	460-136909-3
	Sampling Date	7/12/2017	7/12/2017	7/12/2017	7/12/2017	7/14/2017	7/14/2017	7/11/2017	7/11/2017
	Matrix	Water	Water	Water	Water	Water	Water	Water	Water
	Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	GWQS	Result	Result	Result	Result	Result	Result	Result	Result
WETCHEM									
Chromium (hexavalent) (ug/l)	NA	<5.5	<27.3	<5.5	<5.5	<2.7	<2.7	4.5	<2.7
Cyanide, Total (mg/l)	0.1	0.0030	<0.002	0.0033	<0.002	<0.002	<0.002	0.0031	<0.002
pH (su)	NA	6.8	6.7	7.3	6.8	7.1	7.2	6.7	8.1
METALS									
Aluminum	200	<18.2			21.6	19.1	152	27.2	<18.2
Arsenic	3	<0.64			1.1	0.74		<0.64	1.7
Iron	300								138
Lead	5	0.66				0.47	0.43	0.55	<0.38
Manganese	50								
Sodium	50000				49600				15200
Hg	2	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
GCSVOA-NJDEP EPH									
Total EPH (C9-C40)	NA	0.92	0.63	2.6	1.1	2.0	0.52	0.42	<0 2
GCSVOA-8082A-PCBs									
Total PCBs	0.5	<GWQS	<GWQS	<GWQS	<GWQS	<GWQS	<GWQS	<GWQS	<GWQS
GCSVOA-8081B-PESTICIDES									
Endrin ketone	NA	<0.008	<0.008	<0.008	0.010	<0.080	<0.008	<0.008	<0.008
SVOA-8270D									
Di-n-butyl phthalate	700	<0.84	<0.84	<0.82	<0.85	1.8	1.4	<0.82	<0.82
SVOA-8270D SIM									
Bis(2-chloroethyl)ether	7	<0.0092	<0.0092	0.11	<0.0094	<0.009	<0.009	<0.009	<0.009
VOA-8260C									
Benzene	1	<0.090	<0.090	0.12			<0.090	<0.090	<0.090
Chlorobenzene	50	7.6	0.26	<0.24	11		<0.24	<0.24	<0.24

GWQS - Ground Water Quality Standard
ND - Indicates the analyte was analyzed for but not detected
NR - Not Analyzed
NA - No criterion for this contaminant

Concentration exceeds applicable GWQS
Concentration exceeded the applicable RL/MDL but did not exceed the applicable GWQS

TABLE 6: GROUNDWATER ANALYTICAL RESULTS SUMMARY - JULY 2017 FIELD & TRIP BLANKS
Overpeck Park Landfill
Teaneck, NJ 07666
NJPDES Permit #NJG1086422, PI ID: 545650

	Client ID	FB070517	TB070517	FB070617	FB070717	TB070717	FB071017	TB071017
	Lab Sample ID	460-136568-4	460-136568-5	460-136648-5	460-136766-5	460-136766-6	460-136831-5	460-136831-6
	Sampling Date	7/5/2017	7/5/2017	7/6/2017	7/7/2017	7/7/2017	7/10/2017	7/10/2017
	Matrix	Water	Water	Water	Water	Water	Water	Water
	Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	GWQS	Result	Result	Result	Result	Result	Result	Result
WETCHEM								
Kjeldahl Nitrogen as N (mg/l)	NA	<0.14	NR	0.19	NR	NR	NR	NR
Ammonia (as N) (mg/l)	3	<0.072	NR	<0.072	NR	NR	NR	NR
Total Dissolved Solids (mg/l)	500	<10	NR	<10	NR	NR	NR	NR
Nitrate as N (mg/l)	10	<0.010	NR	<0.010	NR	NR	NR	NR
Nitrite as N (mg/l)	1	0.031	NR	0.032	NR	NR	NR	NR
Chromium (hexavalent) (ug/l)	NA	NR	NR	NR	<2.7	NR	<2.7	NR
Cyanide, Total (mg/l)	0.1	NR	NR	NR	<0.002	NR	<0.002	NR
pH (su)	NA	NR	NR	NR	5.9	NR	5.9	NR
METALS								
		<GWQS	NR	<GWQS	<GWQS	NR	<GWQS	NR
GCSVOA-NJDEP EPH								
Total EPH (C9-C40)	NA	NR	NR	NR	<0.2	NR	<0.2	NR
GCSVOA-8082A-PCBs								
Total PCBs	0.5	NR	NR	NR	<GWQS	NR	<GWQS	NR
GCSVOA-8081B-PESTICIDES								
		NR	NR	NR	<GWQS	NR	<GWQS	NR
SVOA-8270D SIM								
		NR	NR	NR	<GWQS	NR	<GWQS	NR
SVOA-8270D								
		NR	NR	NR	<GWQS	NR	<GWQS	NR
VOA-8260C SIM								
1,4-Dioxane	0.4	<0.2	<0.2	<0.2	NR	NR	NR	NR
VOA-8260C								
Acetone	6000	6.6	23	39	59	15	4.8	7.9
Methylene Chloride	3		0.34	<0.21	<0.21	<0.21	0.32	0.25

GWQS - Ground Water Quality Standard
ND - Indicates the analyte was analyzed for but not detected
NR - Not Analyzed
NA - No criterion for this contaminant

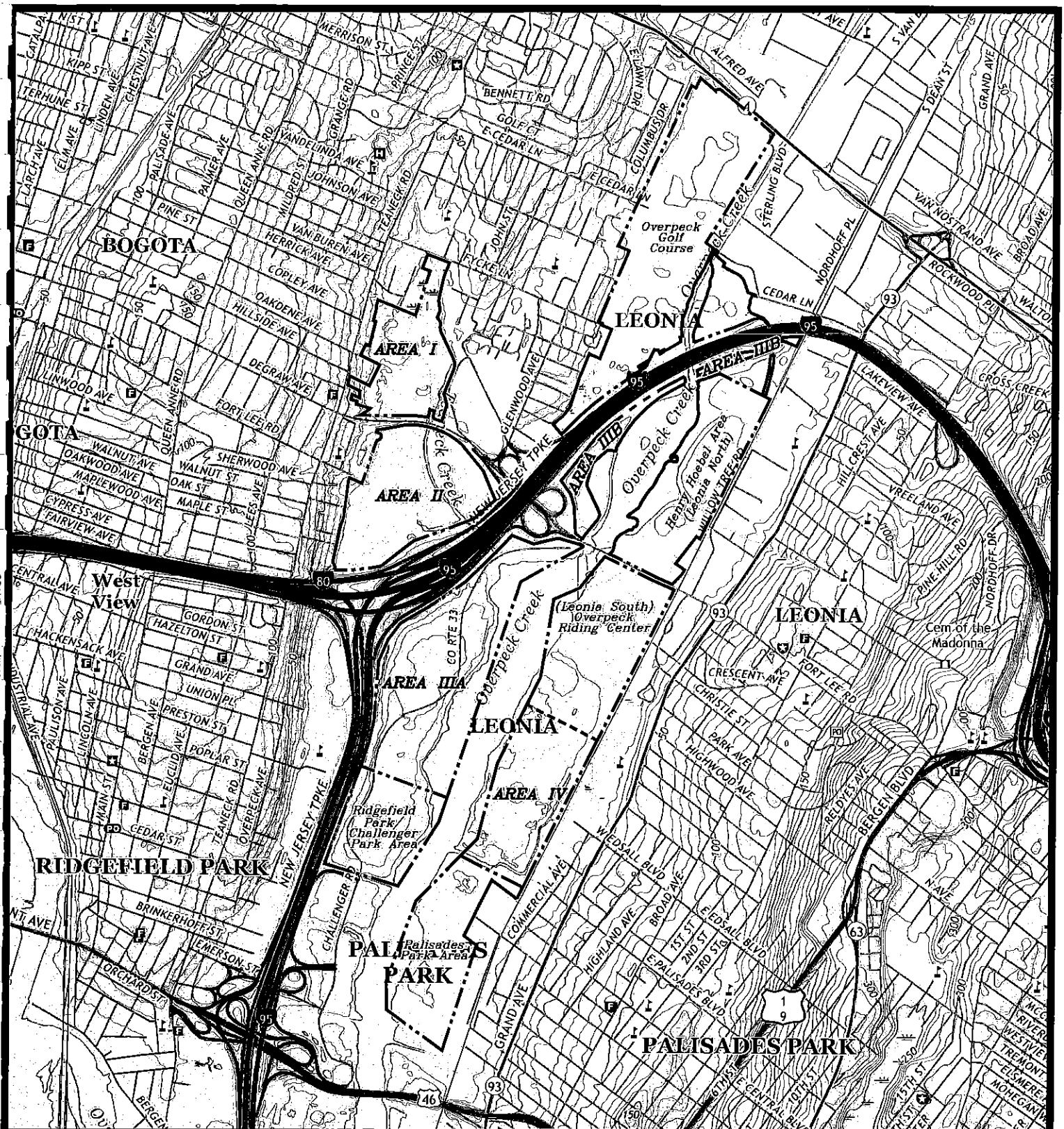
Concentration exceeds applicable GWQS
Concentration exceeded the applicable RL/MDL but did not exceed the applicable GWQS

TABLE 6: GROUNDWATER ANALYTICAL RESULTS SUMMARY - JULY 2017 FIELD & TRIP BLANKS
Overpeck Park Landfill
Teaneck, NJ 07666
NJPDES Permit #NJG1086422, PI ID: 545650

	Client ID	FB071117	TB071117	FB071217	TB071217	FB071317	FB071417	TB071417
	Lab Sample ID	460-136909-4	460-136909-5	460-136992-5	460-136992-6	460-137046-7	460-1371533	460-137153-4
	Sampling Date	7/11/2017	7/11/2017	7/12/2017	7/12/2017	7/13/2017	7/14/2017	7/14/2017
	Matrix	Water	Water	Water	Water	Water	Water	Water
	Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	GWQS	Result	Result	Result	Result	Result	Result	Result
WETCHEM								
Kjeldahl Nitrogen as N (mg/l)	NA	NR	NR	NR	NR	<0.14	NR	NR
Ammonia (as N) (mg/l)	3	NR	NR	NR	NR	<0.072	NR	NR
Total Dissolved Solids (mg/l)	500	NR	NR	NR	NR	<10	NR	NR
Nitrate as N (mg/l)	10	NR	NR	NR	NR	<0.010	NR	NR
Nitrite as N (mg/l)	1	NR	NR	NR	NR	0.044	NR	NR
Chromium (hexavalent) (ug/l)	NA	<2.7	NR	<2.7	NR	<2.7	<2.7	NR
Cyanide, Total (mg/l)	0.1	<0.002	NR	<0.002	NR	<0.002	<0.0025	NR
pH (su)	NA	5.9	NR	6	NR	6.7	5.9	NR
METALS								
		<GWQS	NR	<GWQS	NR	<GWQS	<GWQS	NR
GCSVOA-NJDEP EPH								
Total EPH (C9-C40)	NA	<0.2	NR	<0.2	NR	<0.2	<0.2	NR
GCSVOA-8082A-PCBs								
Total PCBs	0.5	<GWQS	NR	<GWQS	NR	<GWQS	<GWQS	NR
GCSVOA-8081B-PESTICIDES								
		<GWQS	NR	<GWQS	NR	<GWQS	<GWQS	NR
SVOA-8270D SIM								
		<GWQS	NR	<GWQS	NR	<GWQS	<GWQS	NR
SVOA-8270D								
		<GWQS	NR	<GWQS	NR	<GWQS	<GWQS	NR
VOA-8260C SIM								
1,4-Dioxane	0.4	NR	NR	NR	NR	NR	NR	NR
VOA-8260C								
Acetone	6000	10	15	5.9	7.6	<1.1	9	28
Methylene Chloride	3	0.4	<0.21	0.25	0.25	1.5	0.47	0.56

GWQS - Ground Water Quality Standard
ND - Indicates the analyte was analyzed for but not detected
NR - Not Analyzed
NA - No criterion for this contaminant

Concentration exceeds applicable GWQS
Concentration exceeded the applicable RL/MDL but did not exceed the applicable GWQS



PREPARED BY

CME ASSOCIATES

CONSULTING AND MUNICIPAL ENGINEERS

3759 U.S. Hwy 1 South - Suite 100, Monmouth Junction, NJ 08852
Phone:(732)951-2101 Fax: (732)951-2106

SCALE

2000 1000 0 2000

1' = 2000'

COMPASS

N W E S

TITLE

FIGURE 1
SITE LOCATION MAP
OVERPECK COUNTY PARK
BERGEN COUNTY
NEW JERSEY

CLIENT **BERGEN COUNTY DEPARTMENT OF PARKS**
ONE BERGEN COUNTY PLAZA
HUDSON STREET, HACKENSACK, NJ 07601

SOURCE USGS WEEHAWKEN, CENTRAL PARK, & YONKERS, NY-NJ, AND HACKENSACK, NJ 7.5-MINUTE SERIES QUADRANGLES; US TOPO 2016

PROJECT NO.	SCALE	DATE
IBC00276.05	1' = 2000'	8/3/2017

APPENDIX 1

MONITORING WELL INSTALLATION DOCUMENTS

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Well Permitting
Mail Code 401-04Q PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201710501

WELL PERMIT

New Well

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit

Certifying Driller: VICTOR MUSHINSKI, MONITORING LICENSE # 233858

Permit Issued to: ENVIRONMENTAL MANAGEMENT ASSOC

Company Address: 5303 RT 33/34 FARMINGDALE, NJ 07727

PROPERTY OWNER

Name: COUNTY OF BERGEN COUNTY OF BERGEN

Organization: County of Bergen

Address: Administration Building

City: Hackensack State: New Jersey Zip Code: 07601

PROPOSED WELL LOCATION

Facility Name: County of Bergen

Address: County Park

County: Bergen Municipality: Leonia Boro Lot: 1 Block: 703

Easting (X): 630780 Northing (Y): 738547
Coordinate System: NJ State Plane (NAD83) - USFEET

Local ID: PMW-29

SITE CHARACTERISTICS

PROPOSED CONSTRUCTION

WELL USE: MONITORING

Other Use(s):

Diameter (in.): 2

Regulatory Program Requiring Wells/Borings:

Depth (ft.): 15

Case ID Number:

Pump Capacity (gpm): 0

Deviation Requested: N

Drilling Method: Hollow Stem Augers

Attachments:

SPECIFIC CONDITIONS/REQUIREMENTS

Approval Date: September 18, 2017
Expiration Date: September 18, 2018

Approved by the authority of:
Bob Martin
Commissioner

Terry D. Pilawski

Terry Pilawski, Chief
Bureau of Water Allocation and Well Permitting

New Jersey State Department of Environmental Protection
Bureau of Water Allocation and Wells
PO BOX 420 Trenton, NJ 08625-0420 Tel: 609-984-6831

Well Permit Number
E201710501

WELL PERMIT

New Well

DEVIATION INFORMATION	
Purpose:	
Unusual Conditions:	
Reason for Deviation:	
Proposed Well Construction	

GENERAL CONDITIONS/REQUIREMENTS
A copy of this permit shall be kept at the worksite / on the property and shall be exhibited upon request. [N.J.A.C. 7:9D-1]
A well record must be submitted by the well driller to the Bureau of Water Systems and Well Permitting. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the well record shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Record: within ninety (90) days after the well is completed.[N.J.A.C. 7:9D-1]
All well drilling/pump installation activities shall comply with N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
For this permit to remain valid, the well approved in this permit shall be constructed within one year of the effective date of the permit. [N.J.A.C. 7:9D-1]
If the pump capacity applied for is less than 70 gpm, no subsequent increase to 70 gpm or more shall be made without prior approval of the Bureau of Water Systems and Well Permitting. [N.J.A.C. 7:9D-1]
If the use of the well is to be changed a well permit for the proposed use of the well shall be submitted for review and approval. [N.J.A.C. 7:9D-1]
If you or a future property owner intend to redesignate this well as a Category 1 well (domestic, non-public, community water supply or public non-community water supply wells), the well must be constructed as a Category 1 well per the Well Construction and Abandonment Regulations at N.J.A.C. 7:0D-1.1 et seq. In addition, if the current or future property owner intends to have this well redesignated as a community water supply well, the well must be constructed by a Master well driller, which would include having a Master well driller on-site at all times during construction of the well, as specified in the Well Construction and Abandonment Regulations. Otherwise, the New Jersey Department of Environmental Protection will not allow the well to be redesignated, and a new well would have to be installed. [N.J.A.C. 7:9D-1.7((a))1i]
In accepting this permit the Property Owner and Driller agree to abide by the following terms and conditions [N.J.A.C. 7:9D-1]
In the event that this well is not constructed the well driller shall notify the Bureau of Water Systems and Well Permitting of the permit cancellation. Unless prior written approval is obtained from the Bureau of Water Systems and Well Permitting the Cancellation notification shall be submitted electronically through the New Jersey Department of Environmental Protection's Regulatory Services Portal Submit Well Permit Cancellation : by the expiration date of this permit.[N.J.A.C. 7:9D-1]
In the event this well is abandoned, the Owner or Well driller shall assume full responsibility for having the well decommissioned in a manner satisfactory to the New Jersey Department of Environmental Protection in accordance with the provisions of N.J.A.C. 7:9D-1 et seq. [N.J.A.C. 7:9D-1]
The granting of this permit shall not be construed in any way to affect the title or ownership of property, and shall not make the New Jersey Department of Environmental Protection or the State a party in any suit or question of ownership of property. [N.J.A.C. 7:9D-1]
The issuance of this permit shall not be deemed to affect in any way action by the New Jersey Department of Environmental Protection on any future application. [N.J.A.C. 7:9D-1]
This permit conveys no rights, either expressed, or implied to divert water. [N.J.A.C. 7:9D-1]
This permit does not waive the obtaining of Federal or other State or local Government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained. [N.J.A.C. 7:9D-1]
This permit is NONTRANSFERABLE [N.J.A.C. 7:9D]
This well shall not be used for the supply of potable / drinking water. [N.J.A.C. 7:9D-1]

CME ASSOCIATES	**Boring Log**	**ID: PMW-29R** **Sheet:** 1 of 1

Date:	6/28/2017	**Project:**	Overpeck County Landfill
Location:	40 Fort Lee Road, Leonia, NJ	**File Number:**	PBC00276.05
Method:	Direct-push Geoprobe	**Client:**	Bergen County Department of Parks
Contractor:	EMA, Farmingdale, NJ	**Geologist:**	Sal Kokol
Operator:	Kenny/Jack/Lou	**Ground Elevation:**	~ 10' AMSL

Surface Condition: Overgrown vegetation

Comments: Cleared 50' from road to boulders (40' from sewer line)

Depth (feet bgs)	Stratigraphy	PID (ppm)	Soil Description	Remarks
1		0.0	Brown medium to fine SAND, little Silt, roots, rock fragments, cobbles, little coarse to fine Gravel	Thick roots, cobbles; first attempt - refusal, moved 2' east
2		0.0		
3		0.0		
4		0.0	Grayish-dark brown, medium to fine Sand and Silt, little Gravel, rock fragments (micaceous)	Bouncing on cobbles - pulled out granitic rock from auger (schist/gneiss-like)
5		0.0		
6		0.0		
7		0.0	Grading to reddish-brown with cobbles at 5', grading to wet at 7'	
8		0.0		
9		0.0		
10		0.0	Brownish-red, coarse to fine SAND, little Silt, little coarse to fine Gravel, moist	9.5' to 10': reddish-brown Clay in auger
11		0.0	Brownish-gray Silt and Sand, little coarse to fine Gravel, wet	No odors
12		0.0		
13		0.0		
14		0.0		**Installed monitoring well PMW-29 to a depth of 17.5'. 10' screen. 10' casing. (2.5' stickup)**
15		0.0		

End Boring at: 15 feet bgs
Groundwater at: 6.5 feet bgs

Comments: n/a

New Jersey Department of Environmental Protection
Site Remediation Program

MONITORING WELL CERTIFICATION FORM A - AS-BUILT CERTIFICATION

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Bergen County Landfill

List all AKAs: Overpeck County Park

Street Address: 40 Fort Lee Road

Municipality: Leonia (Township, Borough or City)

County: Bergen County Zip Code: 07605

Program Interest (PI) Number(s): 131880 Case Tracking Number(s):

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner: Bergen County Department of Parks
2. Well Location (Street Address): Overpeck County Park, Borough of Leonia, Bergen County, NJ 07605
3. Well Location (Municipal Block and Lot) Block# 703 Lot # 1

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing):	E201710501
2. Site Well Number as shown on application or plans):	PMW-29R
3. Well Completion Date:	6/28/2017
4. Distance from Top of Casing (cap off) to ground surface (nearest 0.01'):	2.86 ft.
5. Total Depth of Well to the nearest ½ foot:	17.5 ft.
6. Depth to Top of Screen (or top of open hole) from top of casing (nearest 0.01'):	10.0 ft.
7. Screen Length (or length of open hole) in feet:	10.00 ft.
8. Screen or Slot Size:	10
9. Screen or Slot Material:	PVC
10. Casing Material (PVC, steel, or other – specify):	PVC
11. Casing Diameter (inches):	2 inches.
12. Static Water Level from top of casing at the time of installation (nearest 0.01'):	9.02 ft.
13. Yield (gallons per minute):	2GPM
14. Development Techinque (specify):	Pumping
15. Length of Time well is developed/pumped or bailed (hours and minutes):	30 minutes

New Jersey Department of Environmental Protection
Site Remediation Program

Monitoring Well Certification Form B - Location Certification

Date Stamp
(For Department use only)

SECTION A. SITE NAME AND LOCATION

Site Name: Overpeck County Park

List all AKAs: Block 703 - Lot 1

Street Address: 40 Fort Lee Road

Municipality: Borough of Leonia (Township, Borough or City)

County: Bergen Zip Code: 07605

Program Interest (PI) Number(s): 131880 Case Tracking Number(s):

SECTION B. WELL OWNER AND LOCATION

1. Name of Well Owner: Bergen County Department of Parks
2. Well Location (Street Address): Overpeck County Park, Borough of Leonia, Bergen County, NJ 07605
3. Well Location (Municipal Block and Lot) Block# 703 Lot # 1

SECTION C. WELL LOCATION SPECIFICS

1. Well Permit Number (This number must be permanently affixed to the well casing): E201710501
2. Site Well Number (As shown on application or plans): PMW-29R
3. Geographic Coordinate NAD 83 to nearest 1/100 of a second:
   Latitude: North 40-51-35.69 Longitude: West 073-59-55.07
4. New Jersey State Plane Coordinates NAD 83 datum, US survey feet units, to nearest foot:
   North 738,559 East 630,799
5. Elevation of Top of Inner Casing (cap off) at reference mark (nearest 0.01'): 10.36'
   Elevation Top of Outer casing: 10.54' Elevation of ground: 7.5'
   Check one: ☒ NAVD 88 ☐ NVGD29 ☐ On Site Datum ☐ Other
6. Source of elevation datum (benchmark, number/description and elevation/datum). If an on-site datum is used, identify here, assume datum of 100', and give approximated actual elevation (referencing NAVD 88).
   New Jersey Geodetic Survey Bench Mark No. 16-1-1 (20.429' NGVD 1929) with a translation of (-1.227') or an NAVD 1988 Elevation = 19.202'.
7. Significant observations and notes:

SECTION D. LAND SURVEYOR'S CERTIFICATION

SEAL

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

Professional Land Surveyor's Signature: Date 10/12/2017

Surveyor's Name: Thomas F. Miller License Number: 36264

Firm Name: CME Associates Certificate of Authorization #:

Mailing Address 3141 Bordentown Avenue

City/Town: Parlin State New Jersey Zip Code: 08859

Phone Number 732-727-8000 Ext.: 1229 Fax: 732-727-3989

APPENDIX 2

FIELD SAMPLING RECORDS

Low Flow Sampling Data Sheet

CME Associates Lab Certification ID # 12032

Sheet 1 of 1

Site: Overpeck Park
Date: 7-5-17
Weather: 85°F, overcast

Instrument: (Horiba U52) _____
Pine Serial # (Sensor): 24297

Monitor Well #: MW-12D
Well Permit #: _____

Well Depth: 122'
Well Diameter: 4"

Screened/Open Interval: _____

PID READINGS (PPM): Background: _____
Beneath Outer Cap: _____
Beneath Inner Cap: _____

Pump Intake: 105' ft below TOC
Depth To Water Before Pump Install: 11.81 ft below TOC

Purge Method: Low Flow
Sampling Method: Bladder Pump
Final Depth to Water: 13.08

Purged Dry? Yes ___ No X
Time Start/Time Sampled: 16:00/17:05
Product Thickness and/or sheen? Yes ___ No X

Time	Purging	Sampling	pH (pH units)		Specific Conductivity (mS/cm)		Redox Potential (mv)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Temperature (Degrees C)		Pumping Rate	Depth to Water
			READING	CHANGE	READING	CHANGE	READING	CHANGE	READING	CHANGE	READING	CHANGE	READING	CHANGE	(mL/min)	(ft below TOC)
16:00	X															11.81
16:00	X															11.94
16:10	X		7.63		0.965		144		5.63		33.8		19.60			12.17
16:15	X		7.70		0.981		118		1.70		25.7		16.20			12.48
16:21	X		7.65		0.985		141		1.49		18.0		16.19			12.92
16:26	X		7.66		0.989		139		1.70		17.5		15.84			13.05
16:31	X		7.74		0.993		145		2.74		18.2		15.66			13.04
16:37	X		7.66		0.996		140		3.13		18.3		15.70			13.05
16:42	X		7.65		0.997		140		3.28		18.3		15.56			13.04
16:47	X		7.66		0.998		141		3.26		18.1		15.58			13.05
16:55	X	X	7.65		0.998		142		3.22		18.3		15.55			13.08

COMMENTS: Set pump @ 105'; Controller: Compressed 55; 5" refill, 15" discharge"
Start Sampling 16:55 – Complete 17:05

Parameters stable when 3 consecutive readings are within: ± 0.1 pH; ± 3% conductivity and temperature; ± 10 mv ORP; ± 10% for turbidity and DO.

3 hr/new well calibration check:

	Value	Time	Temp		Initial	*Use Site Calibration Form if
pH 7.00 Buffer Check:	_____	_____	_____	(6.80-7.20 pH units)	_____	Recalibrate? recalibration required
Span 0.718 mS/cm Check:	_____	_____	_____	(5%: 0.682-0.754 mS/cm)	_____	Recalibrate? (Yes/No)
Turbidity 100 NTU Check:	_____	_____	_____	(5%: 95-105 NTU units)	_____	Recalibrate? (Yes/No)

Low Flow Sampling Data Sheet

CME Associates Lab Certification ID # 12032

Sheet 1 of 1

Site: Overpeck LF
Date: 7/5/17
Weather: Sunny, 85°F

Instrument: (Horiba U52) 21
Pine Serial # (Sensor): 21317

Monitor Well #: MW-14D
Well Permit #:

Well Depth: 54 53.5
Well Diameter:

Screened/Open Interval:

PID READINGS (PPM): Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake: 45' ft below TOC
Depth To Water Before Pump Install: 18.60 ft below TOC

Purge Method: Bladder Pump.
Sampling Method:
Final Depth to Water:

Purged Dry? Yes ___ No X
Time Start/Time Sampled: 14:30 / 15:25
Product Thickness and/or sheen? Yes ___ No X

Time	Purging	Sampling	pH (pH units)		Specific Conductivity (mS/cm)		Redox Potential (mv)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Temperature (Degrees C)		Pumping Rate	Depth to Water
			READING	CHANGE	READING	CHANGE	READING	CHANGE	READING	CHANGE	READING	CHANGE	READING	CHANGE	(mL/min)	(ft below TOC)
1430	X		7.41		0.500		-155		4.71		18.7		20.05			18.60
1435	X		7.35		0.501		-165		1.62		13.0		19.50			18.90
1440	X		7.14		0.503		-171		0.00		5.0		17.75			19.20
1445	X		7.12		0.504		-182		0.00		4.0		16.70			19.23
1450	X		7.12		0.504		-183		0.00		3.4		15.25			19.26
1455	X		7.13		0.503		-183		0.00		4.1		15.42			19.27
1500	X		7.12		0.504		-184		0.00		3.9		15.40			19.29
1505	X		7.12		0.504		-187		0.00		3.8		15.40			19.30
1510	X	X	7.12		0.503		-185		0.00		3.9		15.47			19.30

COMMENTS:

Sampling Complete 15:25

Parameters stable when 3 consecutive readings are within: ± 0.1 pH; ± 3% conductivity and temperature; ± 10 mv ORP; ± 10% for turbidity and DO.

3 hr/new well calibration check:

	Value	Time	Temp		Initial	*Use Site Calibration Form if
pH 7.00 Buffer Check:				(6.80-7.20 pH units)		Recalibrate? recalibration required
Span 0.718 mS/cm Check:				(5%: 0.682-0.754 mS/cm)		Recalibrate? (Yes/No)
Turbidity 100 NTU Check:				(5%: 95-105 NTU units)		Recalibrate? (Yes/No)

Low Flow Sampling Data Sheet

CME Associates Lab Certification ID # 12032

Site: Overpeck Park
Date: 7-5-17
Weather: 85°F, Overcast/Sunny

Instrument: (Horiba U52) _____
Pine Serial # (Sensor): 21317 24297

Sheet 1 of 1

Monitor Well #: MW-17D
Well Permit #: _____

Well Depth: 103
Well Diameter: 4"

Screened/Open Interval: _____

PID READINGS (PPM): Background: _____
Beneath Outer Cap: _____
Beneath Inner Cap: _____

Pump Intake: 28' (some obstruction present) ft below TOC
Depth To Water Before Pump Install: 3.94 ft below TOC

Purge Method: Low Flow
Sampling Method: Bladder Pump
Final Depth to Water: 4.08

Purged Dry? Yes ___ No X
Time Start/Time Sampled: 12:15 / 13:30
Product Thickness and/or sheen? Yes ___ No X

Time	Purging	Sampling	pH (pH units)		Specific Conductivity (mS/cm)		Redox Potential ORP (mv)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Temperature (Degrees C)		Pumping Rate	Depth to Water
			READING	CHANGE	READING	CHANGE	READING	CHANGE	READING	CHANGE	READING	CHANGE	READING	CHANGE	(mL/min)	(ft below TOC)
12:15			8.90	-	0.190	-	59	-	2.24	-	10.7	-	26.15	-		
12:20			7.76	-1.14	0.186	-0.004	75	+16	1.77	-0.47	6.0	4.7	26.73	+0.58		
12:25																
12:30																
12:35			7.31		0.185		83		1.91		23.3		28.17			
12:40			7.44		0.177		98		1.59		73.1		19.62			4.04
12:45			7.32		0.179		98		3.06		61.7		18.36			4.07
12:50			7.35		0.179		99		2.00		54.2		18.31			4.08
12:55			7.46		0.180		104		1.73		56.8		17.78			4.09
13:00			7.40		0.180		97		1.69		58.2		17.76			4.09
13:05			7.41		0.180		103		1.52		61.0		17.68			4.09
14:00			7.40		0.180		99		1.66		56.7		17.65			4.08

COMMENTS:

Parameters stable when 3 consecutive readings are within: ± 0.1 pH; ± 3% conductivity and temperature; ± 10 mv ORP; ± 10% for turbidity and DO.

3 hr/new well calibration check:

	Value	Time	Temp		Initial	*Use Site Calibration Form if
pH 7.00 Buffer Check:	_____	_____	_____	(6.80-7.20 pH units)	_____	Recalibrate? recalibration required
Span 0.718 mS/cm Check:	_____	_____	_____	(5%: 0.682-0.754 mS/cm)	_____	Recalibrate? (Yes/No)
Turbidity 100 NTU Check:	_____	_____	_____	(5%: 95-105 NTU units)	_____	Recalibrate? (Yes/No)

Low Flow Sampling Data Sheet

CME Associates Lab Certification ID # 12032

Sheet 1 of 1

Site: Overpeck Park
Date: 7-6-17
Weather: 73°F, light rain

Instrument: (Horiba U52) 14297
Pine Serial # (Sensor): 24297

Monitor Well #: MW-11D
Well Permit #:

Well Depth: ~~120'~~ 105'
Well Diameter: 4"

Screened/Open Interval:

PID READINGS (PPM): Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake: ft below TOC
Depth To Water Before Pump Install: 5.64 ft below TOC

Purge Method: Low Flow
Sampling Method: Bladder Pump
Final Depth to Water:

Purged Dry? Yes No
Time Start/Time Sampled: / 11:05
Product Thickness and/or sheen? Yes No

Time	Purging	Sampling	pH (pH units)		Specific Conductivity (mS/cm)		Redox Potential (mv)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Temperature (Degrees C)		Pumping Rate	Depth to Water
			READING	CHANGE	READING	CHANGE	READING	CHANGE	READING	CHANGE	READING	CHANGE	READING	CHANGE	(mL/min)	(ft below TOC)
10:20			8.85		0.150		54		8.61		25.0		23.32		~~5.64~~	5.64
10:25			8.50		0.151		63		5.46		18.5		23.14			5.64
10:30			8.51		0.151		68		3.89		14.3		22.77			5.64
10:40			8.41		0.151		71		2.12		12.9		22.14			5.64
10:50			8.48		0.152		87		1.81		12.2		21.49			5.64
10:55			8.46		0.153		84		1.83		12.4		21.41			5.64
11:00			8.45		0.153		86		1.85		12.2		21.40			5.64

COMMENTS:

Parameters stable when 3 consecutive readings are within: ± 0.1 pH; ± 3% conductivity and temperature; ± 10 mv ORP; ± 10% for turbidity and DO.

3 hr/new well calibration check:

	Value	Time	Temp		Initial	*Use Site Calibration Form if
pH 7.00 Buffer Check:				(6.80-7.20 pH units)		Recalibrate? **recalibration required**
Span 0.718 mS/cm Check:				(5%: 0.682-0.754 mS/cm)		Recalibrate? (Yes/No)
Turbidity 100 NTU Check:				(5%: 95-105 NTU units)		Recalibrate? (Yes/No)

Low Flow Sampling Data Sheet

CME Associates Lab Certification ID # 12032

Sheet 1 of 1

Site: Overpeck Park
Date: 7-6-17
Weather: 73°F, overcast

Instrument: (Horiba U52) 14297
Pine Serial # (Sensor): 24297

Monitor Well #: MW-19
Well Permit #:

Well Depth: 21
Well Diameter: 4"

Screened/Open Interval: _____

PID READINGS (PPM): Background: _____
Beneath Outer Cap: _____
Beneath Inner Cap: _____

Pump Intake: _____ ft below TOC
Depth To Water Before Pump Install: 11.34 ft below TOC

Purge Method: Low Flow
Sampling Method: Bladder
Final Depth to Water: _____

Purged Dry? Yes____ No____
Time Start/Time Sampled: _____ / 12:30
Product Thickness and/or sheen? Yes____ No____

Time	Purging	Sampling	pH (pH units)		Specific Conductivity (mS/cm)		Redox Potential (mv)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Temperature (Degrees C)		Pumping Rate	Depth to Water
			READING	CHANGE	READING	CHANGE	READING	CHANGE	READING	CHANGE	READING	CHANGE	READING	CHANGE	(mL/min)	(ft below TOC)
1:55			6.90		2.01		-83		12.80		47.6		21.85			11.60
2:05			6.78		2.07		-74		7.15		51.1		19.54			11.62
2:10			7.02		2.09		-101		8.38		113		17.45			11.63
2:15			7.19		1.95		-101		7.74		201		17.00			11.64
2:20			7.19		1.93		-99		7.69		203		17.01			11.64
2:25			7.21		1.91		-96		7.67		204		17.15			11.64

COMMENTS:

Parameters stable when 3 consecutive readings are within: ± 0.1 pH; ± 3% conductivity and temperature; ± 10 mv ORP; ± 10% for turbidity and DO.

3 hr/new well calibration check:

	Value	Time	Temp		Initial	*Use Site Calibration Form if
pH 7.00 Buffer Check:	_____	_____	_____	(6.80-7.20 pH units)	_____	Recalibrate? **recalibration required**
Span 0.718 mS/cm Check:	_____	_____	_____	(5%: 0.682-0.754 mS/cm)	_____	Recalibrate? (Yes/No)
Turbidity 100 NTU Check:	_____	_____	_____	(5%: 95-105 NTU units)	_____	Recalibrate? (Yes/No)

Low Flow Sampling Data Sheet

CME Associates Lab Certification ID # 12032

Sheet 1 of 1

Site: Overpeck L.F
Date: 7/6/17
Weather: Overcast 78°

Instrument: (Horiba U52) _____
Pine Serial # (Sensor): 24287

Monitor Well #: MW-18
Well Permit #: _____

Well Depth: 22.3
Well Diameter: 4"

Screened/Open Interval: _____

PID READINGS (PPM): Background: _____
Beneath Outer Cap: _____
Beneath Inner Cap: _____

Pump Intake: 18 ft below TOC
Depth To Water Before Pump Install: 9.31 ft below TOC

Purge Method: _____
Sampling Method: _____
Final Depth to Water: _____

Purged Dry? Yes ____ No X
Time Start/Time Sampled: 12:30 / 13:25
Product Thickness and/or sheen? Yes ____ No X

Time	Purging	Sampling	pH (pH units)		Specific Conductivity (mS/cm)		Redox Potential (mv)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Temperature (Degrees C)		Pumping Rate	Depth to Water
			READING	CHANGE	READING	CHANGE	READING	CHANGE	READING	CHANGE	READING	CHANGE	READING	CHANGE	(mL/min)	(ft below TOC)
12:30	X															9.31
12:35	X															9.53
12:40	X		6.48		2.02		-102		3.72		32.4		2166			9.62
12:45	X		6.47		2.07		-98		1.52		15.7		1893			9.71
12:50	X		6.36		2.08		-99		0.19		9.7		16.85			9.86
12:55	X		6.32		2.08		-99		0.00		10.1		16.28			9.87
13:00	X		6.45		2.08		-99		0.00		9.9		15.59			9.97
13:05	X		6.21		2.07		-98		0.00		9.8		15.31			9.98
13:10	X		6.22		2.08		-98		0.00		9.9		15.50			9.38
13:15	X	X	6.21		2.08		-97		0.00		9.8		15.49			9.88

COMMENTS: Pump set @ 18' 10 Refill, 20 discharge
Complete Sampling: 13:20

Parameters stable when 3 consecutive readings are within: ± 0.1 pH; ± 3% conductivity and temperature; ± 10 mv ORP; ± 10% for turbidity and DO.

3 hr/new well calibration check:

	Value	Time	Temp		Initial	*Use Site Calibration Form if
pH 7.00 Buffer Check:	_____	_____	_____	(6.80-7.20 pH units)	_____	Recalibrate? recalibration required
Span 0.718 mS/cm Check:	_____	_____	_____	(5%: 0.682-0.754 mS/cm)	_____	Recalibrate? (Yes/No)
Turbidity 100 NTU Check:	_____	_____	_____	(5%: 95-105 NTU units)	_____	Recalibrate? (Yes/No)

ICON Engineering - A Division of CME Associates
Lab Cert. No 12032

Monitoring Well Stabilization Record

WELL NO: MW-1 Equipment: Horiba U52
DATE: 7/7/17 Pine Serial:

PROJECT: Overpeck L.F.
LOCATION: Bergen County.

PARAMETER	VOLUME EXTRACTED									
	INITIAL									
Time	9.25	9:50	10:20	10:35	10:50	11:05				
Temperature (degrees C)	15.49	13.60	13.46	1331	1319	13.20				
pH (pH Units)	7.65	7.12	6.95	6.94	6.90	6.86				
ORP	+134	-79	-54	-46	-44	-40				
Specific Conductivity (mS/cm)	0.951	0.943	0.942	0.941	0.941	0.941				
Turbity (NTU)	42.0	19.0	22.0	14.0	11.0	9.5				
Dissolved Oxygen (mg/l)	8.02	6.4	2.4	3.2	1.3	0.9				
Color	Clear	→	→	→	→	→				
Odor	None	→	→	→	→	→				

Depth to water measured from north side of the top of riser pipe

Well Diameter D (in): 4"
Depth of well (feet): 22.0
Initial depth to water (feet btc): 6.12
Height of water column in riser h (feet): ~16'
Volume of water in riser (gallons):

Total volume to be purged (gallons): 31-32 gallons

Formula for Calculating Purge Volume: π(DxD/4)h x 7.48 gallons/cf
2": 0.163 gal/ft *4": 0.653 gal/ft* *6": 1.469 gal/ft*

Purge Method: Peristaltic Pump.
Sampling Method: Bailer
Final depth to water (feet): 7.94 (good recharge).
Purged dry? (Yes or (No)) NO
Time start / Time sampled: 9:25 / 11:20
Product thickness and/or sheen? No

TARGET PARAMETERS:

COMMENTS: Rain - Very heavy from 9:40-12:30, Local floods, wetlands rise
Access to well covered w/heavy vegetation - cleaning w/machete ~20 min.
Purge rate 0.3-0.35 gpm ⇒ Approx. purge time 100 minutes

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Lab Cert. No 12032

Monitoring Well Stabilization Test

WELL NO: MW-2
DATE: 7-7-17
Instrument: **Horiba U-52** Pine Serial # (From sensor, not meter screen): _____ Horiba Serial #: 24297

PROJECT: Overpeck
LOCATION: Area 1

PARAMETER	VOLUME EXTRACTED										
	INITIAL										
Time	9:40	9:45	9:50	9:55	10:00	10:05	10:10	10:15			
Specific Conductivity (mS/cm)	1.35	1.38	1.40	1.43	1.44	1.44	1.45	1.45			
pH (pH units)	7.48	7.23	7.18	6.99	7.05	7.07	7.10	7.17			
Temperature (degrees C)	16.29	14.55	13.99	13.96	13.72	13.51	13.53	13.60			
Turbidity (NTU)	120	64.1	37.1	24.3	23.1	21.7	19.4	13.1			
Color	colorless	"	"	"	"	"	"	"			
Odor	ND	ND	ND	ND	ND	ND	ND	ND			
Dissolved Oxygen (mg/l)	1.71	1.04	0.80	0.41	0.32	0.20	0.18	0.12			
Salinity (ppt)	0.7	—	—	—	—	—	—	→			
ORP	121	129	131	136	135	139	136	139			

Depth to water measured from north side of the top of riser pipe

Well Diameter D (feet): 2"
Depth of well (feet): 23.20
Initial depth to water (feet btc): 6.85
Height of water column in riser h (feet): 16.35
Volume of water in well (gallons): 2.665

Total volume to be purged (gallons): 8.00

Formula for Calculating Purge Volume: $\pi (D^2/4)\,h \times 7.48$ gallons/cf

2": 0.163* Water (ft) 4": 0.653* Water (ft) 6": 1.469* Water (ft)

Purge Method: Peristaltic
Sampling Method: Bailer
Final depth to water (feet): 6.90
Purged dry? Yes___ No X
Time start / Time sampled: 9:40 / 10:20
Product thickness and/or sheen? Yes___ No X

TARGET PARAMETERS: _____

COMMENTS: Pump set up to 20 ft
flow rate = 0.25 mL/min

ICON Engineering - A Division of CME Associates
Lab Cert. No 12032

Monitoring Well Stabilization Test

WELL NO: MW-3
DATE: _____
Instrument: **Horiba U-52** Pine Serial # (From sensor, not meter screen): _____

PROJECT: Overpeck Park
LOCATION: Area 1
Horiba Serial #: 24297

PARAMETER	VOLUME EXTRACTED										
	INITIAL										
Time	2:15	2:20	2:30	2:40	2:50	3:00	3:10	3:20	3:30	3:40	3:45
Specific Conductivity (mS/cm)	0.827	0.883	0.926	0.920	0.916	0.915	0.915	0.915	0.916	0.915	0.915
pH (pH units)	7.92	7.51	7.30	7.26	7.30	7.34	7.34	7.35	7.37	7.39	7.40
Temperature (degrees C)	17.48	14.84	12.72	12.63	12.69	12.85	13.01	12.95	12.82	12.97	13.12
Turbidity (NTU)	12.4	6.7	1.0	0.5	1.7	3.3	3.2	3.3	3.5	3.2	3.0
Color	colorless	"	"	"	"	"	"	"	"	"	"
Odor	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dissolved Oxygen (mg/l)	6.01	4.92	2.70	2.53	2.44	2.21	2.33	2.47	2.19	2.17	2.15
Salinity (ppt)	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4
ORP	139	141	162	164	163	162	164	164	164	163	163

Depth to water measured from north side of the top of riser pipe

Well Diameter D (feet): 4
Depth of well (feet): 22.40
Initial depth to water (feet btc): 3.00
Height of water column in riser h (feet): 19.40
Volume of water in well (gallons): 12.67

Total volume to be purged (gallons): 38.00

Formula for Calculating Purge Volume: $\pi (D^2/4)\, h \times 7.48$ gallons/cf

2": 0.163* Water (ft) 4": 0.653* Water (ft) 6": 1.469* Water (ft)

Purge Method: Peristaltic
Sampling Method: Bailer
Final depth to water (feet): 3.28
Purged dry? Yes___ No X
Time start / Time sampled: 2:15 / 3:50
Product thickness and/or sheen? Yes___ No X

TARGET PARAMETERS: _____

COMMENTS: flow rate ≈ 0.4 mL/min
pump set up to 19 ft

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Monitoring Well Stabilization Record

WELL NO: MW-5 Equipment: Horiba U52
DATE: 7/7/17 Pine Serial:

PROJECT: Overpeck Landfill
LOCATION: Bergen County

PARAMETER	VOLUME EXTRACTED									
	INITIAL									
Time	1415	1430	1445	1500	1515	1530				
Temperature (degrees C)	14.0	12.80	11.88	11.40	11.31	11.26				
pH (pH Units)	7.58	7.51	7.44	7.25	7.20	7.18				
ORP	88	96	118	146	162	166				
Specific Conductivity (mS/cm)	0.653	0.652	0.645	0.644	0.644	0.644				
Turbity (NTU)	27.5	12.0	4.5	0.0	0.0	0.0				
Dissolved Oxygen (mg/l)	11.9	6.92	0.0	0.0	0.0	0.0				
Color	Clear	→	→	→	→	→				
Odor	ND	→	→	→	→	→				

Depth to water measured from north side of the top of riser pipe

Well Diameter D (in): 4"
Depth of well (feet): 21.10
Initial depth to water (feet btc): 3.10
Height of water column in riser h (feet): 18.0
Volume of water in riser (gallons):

Total volume to be purged (gallons): ≈ 35 gallons

Formula for Calculating Purge Volume: π(DxD/4)h x 7.48 gallons/cf
2": 0.163 gal/ft ***4": 0.653 gal/ft*** ***6": 1.469 gal/ft***

Purge Method: Peristaltic Pump.
Sampling Method: Bailer
Final depth to water (feet): 3.27
Purged dry? (Yes or (No)) NO
Time start / Time sampled: 14:15 / 15:40
Product thickness and/or sheen? No

TARGET PARAMETERS: TCL+30, TAL, EPH, Cr^{+6}, pH.

COMMENTS: Purge rate ≈ 0.4 gpm. Approx. time frame 90 minutes.

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Monitoring Well Stabilization Record

WELL NO: MW-4 Equipment: Horiba U52
DATE: 7/10/17 Pine Serial: 21317

PROJECT: Overpeck 1 F.
LOCATION: Bergen Cty.

PARAMETER	VOLUME EXTRACTED									
	INITIAL									
Time	9:15	9:30	9:45	10:00	10:15	10:30	10:45			
Temperature (degrees C)	12.03	11.85	11.35	11.21	11.35	11.28	11.25			
pH (pH Units)	8.14	7.80	7.82	7.78	7.71	7.63	7.54			
ORP	81	103	110	116	122	134	141			
Specific Conductivity (mS/cm)	0.590	0.589	0.589	0.589	0.590	0.589	0.590			
Turbity (NTU)	14.0	3.0	1.0	0.0	0.0	0.0	0.0			
Dissolved Oxygen (mg/l)	7.27	2.84	2.92	2.27	1.92	1.07	0.72			
Color	Clear	Clear	Clear	Clear	Clear	Clear	Clear			
Odor	None	None	None	None	None	None	None			

Depth to water measured from north side of the top of riser pipe

Formula for Calculating Purge Volume: π(DxD/4)h x 7.48 gallons/cf
2": 0.163 gal/ft *4": 0.653 gal/ft* *6": 1.469 gal/ft*

Well Diameter D (in): 4"
Depth of well (feet): 21.40
Initial depth to water (feet btc): 3.12
Height of water column in riser h (feet):
Volume of water in riser (gallons):

Total volume to be purged (gallons): ≈35 gallons

Purge Method: Peristaltic Pump
Sampling Method: Bailer
Final depth to water (feet): 8.51
Purged dry? (Yes or (No))
Time start / Time sampled: 9:15 / 11:00
Product thickness and/or sheen? (No)

TARGET PARAMETERS: TCL+30, TAL Metals, EPH, Cr^{+6}, pH.

COMMENTS: Purging 0.4 gpm ⇒ Approx 90 minutes to purge.
Stop Purge @ 10:45; Collect samples 10:45 – 11:00
Purge water discharged through portable C-filter.

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Monitoring Well Stabilization Record

WELL NO: MW-6 Equipment: Horiba U52
DATE: 7/10/17 Pine Serial: 21317

PROJECT: Overpeck Landfill
LOCATION: Bergen Cty.

PARAMETER	VOLUME EXTRACTED									
	INITIAL									
Time	12:15	12:30	12:45	13:00	13:15	13:30	13:45			
Temperature (degrees C)	13.17	12.15	11.84	11.52	11.34	11.30	11.25			
pH (pH Units)	7.36	7.42	7.44	7.45	7.47	7.48	7.50			
ORP	180	191	199	196	208	201	217			
Specific Conductivity (mS/cm)	0.642	0.650	0.651	0.651	0.651	0.652	0.652			
Turbity (NTU)	15.4	12.0	8.7	3.4	0.0	6.4	2.7			
Dissolved Oxygen (mg/l)	8.4	3.5	2.45	1.29	0.74	0.96	0.84			
Color	Clear	Clear	Clear	Clear	Clear	Clear	Clear			
Odor	None	None	None	None	None	None	None			

Depth to water measured from north side of the top of riser pipe

Well Diameter D (in): 4"
Depth of well (feet): 19.40
Initial depth to water (feet btc): 3.45
Height of water column in riser h (feet): 15.95
Volume of water in riser (gallons):

Total volume to be purged (gallons): ≈ 31 gallons

Formula for Calculating Purge Volume: π(DxD/4)h x 7.48 gallons/cf
2": 0.163 gal/ft ***4": 0.653 gal/ft*** ***6": 1.469 gal/ft***

Purge Method: Peristaltic Pump
Sampling Method: Bailer
Final depth to water (feet): 8.17 - recharges rapidly.
Purged dry? (Yes or (No)) No
Time start / Time sampled: 12:15 / 1400
Product thickness and/or sheen? (None)

TARGET PARAMETERS: TAL Metals, TCL+30, EPH, Cr^{+6}, pH.

COMMENTS: Difficult well access. -
Purging @ 0.3 gpm ⇒ 90-100 min. purge time;

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WELL NO: Area 2-S
DATE: 7-10-17
Instrument: **Horiba U-52** Pine Serial # (From sensor, not meter screen): 24297

Monitoring Well Stabilization Test

PROJECT: Overpeck Park
LOCATION: Area 2
Horiba Serial #: ~~[illegible]~~

PARAMETER	VOLUME EXTRACTED										
	INITIAL										
Time	1:40	1:50	2:00	2:10	2:20	2:30	2:40				
Specific Conductivity (mS/cm)	0.989	0.996	0.984	1.09	1.13	1.17	1.21				
pH (pH units)	7.93	7.31	7.16	6.81	6.70	6.70	6.70				
Temperature (degrees C)	14.85	14.71	15.75	15.62	15.73	15.66	15.56				
Turbidity (NTU)	59	6.7	2.4	2.2	3.2	3.3	3.0				
Color	colorless	colorless	colorless	colorless	colorless	colorless	colorless				
Odor	ND	ND	ND	ND	ND	ND	ND				
Dissolved Oxygen (mg/l)	0.03	0.00	0.00	0.00	0.00	0.00	0.00				
Salinity (ppt)	0.5	0.5	0.5	0.5	0.6	0.6	0.6				
ORP	108	109	12	-29	-40	-48	-52				

Depth to water measured from north side of the top of riser pipe

Well Diameter D (feet): 4"
Depth of well (feet): 15.20
Initial depth to water (feet btc): 5.00
Height of water column in riser h (feet): 10.2
Volume of water in well (gallons): 6.66

Total volume to be purged (gallons): 19.98

Formula for Calculating Purge Volume: $\pi (D^2/4)\, h \times 7.48$ gallons/cf

2": 0.163* Water (ft) 4": 0.653* Water (ft) 6": 1.469* Water (ft)

Purge Method: Peristaltic
Sampling Method: Bailer
Final depth to water (feet): 5.40
Purged dry? Yes___ No X
Time start / Time sampled: 1:40 / 2:50
Product thickness and/or sheen? Yes___ No X

COMMENTS: flow rate ≈ 0.3 gallons/minute
pump set up ~~[illegible]~~ at 12" bgs

TARGET PARAMETERS: ___

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Monitoring Well Stabilization Test

WELL NO: Area 2-6
DATE: 7-10-17
Instrument: **Horiba U-52** Pine Serial # (From sensor, not meter screen): 24297 Horiba Serial #: [redacted]

PROJECT: Overpeck Park
LOCATION: Area 2

PARAMETER	VOLUME EXTRACTED										
	INITIAL										
Time	9:15	9:25	9:35	9:45	9:55	10:05	10:15	10:25	10:35	10:45	10:55
Specific Conductivity (mS/cm)	1.51	1.44	1.32	1.54	1.59	1.58	1.52	1.44	1.55	1.55	1.54
pH (pH units)	7.78	7.46	7.13	7.15	6.95	6.87	6.79	7.11	7.09	7.07	7.02
Temperature (degrees C)	15.93	15.72	15.48	15.39	13.39	13.49	13.34	13.95	13.35	13.36	13.32
Turbidity (NTU)	69.3	71.9	81.3	9.0	6.0	9.2	15.3	5.4	11.7	14.1	13.0
Color	colorless	colorless	colorless	colorless	colorless	colorless	colorless	colorless	colorless	colorless	colorless
Odor	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dissolved Oxygen (mg/l)	5.58	5.55	5.54	10.43	0.00	0.00	0.00	9.14	0.00	0.00	0.00
Salinity (ppt)	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.8
ORP	-83	-80	-76	-91	-88	-93	-92	-71	-78	-83	-94

Depth to water measured from north side of the top of riser pipe

Well Diameter D (feet): 4"
Depth of well (feet): 21.10
Initial depth to water (feet btc): 7.59
Height of water column in riser h (feet): 13.51
Volume of water in well (gallons): 8.82

Total volume to be purged (gallons): 26.46

Formula for Calculating Purge Volume: $\pi (D^2/4)\, h \times 7.48$ gallons/cf

2": 0.163* Water (ft) 4": 0.653* Water (ft) 6": 1.469* Water (ft)

Purge Method: Peristaltic
Sampling Method: Bailer
Final depth to water (feet): 12.55
Purged dry? Yes ___ No X
Time start / Time sampled: 9:15 / 11:05
Product thickness and/or sheen? Yes ___ No X

COMMENTS: flow rate ≈ 0.25 gallons/min had to lower to 0.2 gallons/min @ 10:35 due to dropping water level had to set up @ 15' since tubing was getting caught there

TARGET PARAMETERS: ___

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(Area 2)

WELL NO: MW-1
DATE: 7/11/17
Instrument: Horiba U-52 Pine Serial # (From sensor, not meter screen): _____ Horiba Serial #: _____

Monitoring Well Stabilization Test

PROJECT: Overpeck Landfill
LOCATION: Bergen County.

PARAMETER	VOLUME EXTRACTED										
	INITIAL										
Time	9:40	9:50	10:00	10:15	10:30	10:45	11:00	11:15			
Specific Conductivity (mS/cm)	1.06	1.06	1.06	1.05	1.05	1.06	1.06	1.06			
pH (pH units)	7.06	6.93	6.85	6.74	6.67	6.64	6.61	6.62			
Temperature (degrees C)	13.46	12.74	11.65	11.27	11.08	HP 11.02	11.12	11.14			
Turbidity (NTU)	16.5	11.0	7.4	2.4	0.0	0.0	0.0	0.0			
Color	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear			
Odor	Organic	Organic	Organic	Organic	Organic	Organic	Organic	Organic			
Dissolved Oxygen (mg/l)	7.65	5.12	3.76	2.38	1.74	0.86	0.29	0.11			
Salinity (ppt)	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5			
ORP	-170	-164	-157	-151	-151	-151	-150	-150			

Depth to water measured from north side of the top of riser pipe

Well Diameter D (in): 4"
Depth of well (feet): 16'
Initial depth to water (feet btc): 3.10
Height of water column in riser h (feet): ~13'
Volume of water in well (gallons): _____

Total volume to be purged (gallons): ≈25 gallons

Formula for Calculating Purge Volume: $\pi (D^2/4)\, h \times 7.48$ gallons/cf

2": 0.163* Water (ft) 4": 0.653* Water (ft) 6": 1.469* Water (ft)

Purge Method: Peristaltic Pump
Sampling Method: Bailer
Final depth to water (feet): 3.88
Purged dry? Yes___ No X
Time start / Time sampled: 9:40 / 11:25
Product thickness and/or sheen? Yes___ No___

TARGET PARAMETERS: _____

COMMENTS: Purging 0.3gpm; pump rate kept varying up+down → 0.3 is an average.
Samples collected between 11:15 - 11:25

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Monitoring Well Stabilization Test

WELL NO: PMW-23
DATE: 7/8/17
Instrument: **Horiba U-52** Pine Serial # (From sensor, not meter screen): 21317 Horiba Serial #:
PROJECT: Overpeck Landfill
LOCATION: Bergen Cty.

PARAMETER	VOLUME EXTRACTED										
	INITIAL										
Time	15:20	15:30	15:45	16:00	16:15	16:30	16:45				
Specific Conductivity (mS/cm)	0.240	0.239	0.239	0.240	0.239	0.240	0.240				
pH (pH units)	7.91	7.69	7.63	7.58	7.55	7.52	7.51				
Temperature (degrees C)	14.97	14.82	14.71	14.81	14.75	14.72	14.75				
Turbidity (NTU)	16.0	0.0	0.0	0.0	0.9	1.2	0.0				
Color	Clear	Clear	Clear	Clear	Clear	Clear	Clear				
Odor	None	None	None	None	None	None	None				
Dissolved Oxygen (mg/l)	3.36	0.0	0.0	0.0	0.0	0.0	0.0				
Salinity (ppt)	0.1	0.1	0.1	0.1	0.1	0.1	0.1				
ORP	40	8	6	-7	-18	-17	-18				

Depth to water measured from north side of the top of riser pipe

Well Diameter D (~~ft~~ in): 4"
Depth of well (feet): 24.5
Initial depth to water (feet btc): 6.52
Height of water column in riser h (feet): ~18'
Volume of water in well (gallons):

Total volume to be purged (gallons): ~35 gallons.

Formula for Calculating Purge Volume: $\pi (D^2/4)\, h \times 7.48$ gallons/cf

2": 0.163* Water (ft) 4": 0.653* Water (ft) 6": 1.469* Water (ft)

Purge Method: Peristaltic Pump
Sampling Method: Bailer
Final depth to water (feet): 8.14
Purged dry? Yes___ No X
Time start / Time sampled: 15:20 / 17:00
Product thickness and/or sheen? Yes___ No___

TARGET PARAMETERS: TCL+30, TAL Metals, EPH, Cr+6, pH.

COMMENTS: purging @ 0.3 gpm - 0.35 gpm ; Stopped purge @ 16:45.
16:45 Started sampling ; Complete sampling 17:00.

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Monitoring Well Stabilization Test

WELL NO: PMW-24
DATE: 7/11/17
Instrument: **Horiba U-52** Pine Serial # (From sensor, not meter screen): _____ Horiba Serial #: _____

PROJECT: Overpeck Landfill
LOCATION: Bergen Cty, NJ

PARAMETER	VOLUME EXTRACTED										
	INITIAL										
Time	13:15	13:30	13:45	14:00	14:15	14:30	14:45				
Specific Conductivity (mS/cm)	2.20	2.20	2.20	1.92	1.85	1.71	1.59				
pH (pH units)	6.46	6.41	6.40	6.38	6.35	6.27	6.26				
Temperature (degrees C)	13.56	13.31	13.36	13.31	13.21	13.18	13.05				
Turbidity (NTU)	65	17	9	2.8	0.0	0.0	0.8				
Color	Clear	Clear	Clear	Clear	Clear	Clear	Clear				
Odor	Light Organic	→	→	→	→	→	Light Organic				
Dissolved Oxygen (mg/l)	3.40	1.72	0.85	0.7	0.0	0.0	0.0				
Salinity (ppt)											
ORP	-70	-68	-67	-66	-64	-69	-68				

Depth to water measured from north side of the top of riser pipe

Well Diameter D (~~feet~~ in): 4"
Depth of well (feet): 24'
Initial depth to water (feet btc): 12.17
Height of water column in riser h (feet): 11.83
Volume of water in well (gallons): _____

Total volume to be purged (gallons): ≃24 gallons

Formula for Calculating Purge Volume: $\pi (D^2/4)\, h \times 7.48$ gallons/cf

2": 0.163* Water (ft) 4": 0.653* Water (ft) 6": 1.469* Water (ft)

Purge Method: Peristaltic pump.
Sampling Method: Bailer
Final depth to water (feet): 15.62
Purged dry? Yes___ (No X)
Time start / Time sampled: 13:15 / 15:00
Product thickness and/or sheen? Yes___ No X

COMMENTS: Avg. 0.3 gpm; light organic odor remains throughout. purged about 26 gallons, collected samples from 14:45-15:00

TARGET PARAMETERS: TCL+30, TAL Metals, EPH, Cr^{+6}, pH.

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Monitoring Well Stabilization Test

WELL NO: PMW-21
DATE: 7/12/17
Instrument: **Horiba U-52** Pine Serial # (From sensor, not meter screen): 21317

PROJECT: Overpeck L.F.
LOCATION: Bergen Cty.
Horiba Serial #:

PARAMETER	VOLUME EXTRACTED										
	INITIAL	✓	✓	✓	✓	✓	✓	✓			
Time	11:15	11:25	11:35	11:45	11:55	12:10	12:20	12:30			
Specific Conductivity (mS/cm)	1.18	1.13	1.15	1.16	1.15	1.16	1.17	1.17			
pH (pH units)	6.65	6.50	6.36	6.38	6.35	6.36	6.37	6.37			
Temperature (degrees C)	17.05	15.87	15.73	15.68	15.61	15.52	15.24	15.08			
Turbidity (NTU)	3.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0			
Color	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear			
Odor	None	None	None	None	None	None	None	None			
Dissolved Oxygen (mg/l)	4.62	0.66	0.0	0.0	0.0	0.0	0.0	0.0			
Salinity (ppt)	0.6	0.6	0.6	0.5	0.6	0.6	0.6	0.6			
ORP	-101	-89	-84	-79	-71	-63	-59	-56			

Depth to water measured from north side of the top of riser pipe

Well Diameter D (feet): 4"
Depth of well (feet): 21.0'
Initial depth to water (feet btc): 10.95
Height of water column in riser h (feet):
Volume of water in well (gallons):

Total volume to be purged (gallons): ~20 gallons

Formula for Calculating Purge Volume: $\pi (D^2/4)\, h \times 7.48$ gallons/cf

2": 0.163* Water (ft) 4": 0.653* Water (ft) 6": 1.469* Water (ft)

Purge Method: Peristaltic Pump
Sampling Method: Bailer
Final depth to water (feet): 11.02
Purged dry? Yes___ No X
Time start / Time sampled: 11:15 / 12:40
Product thickness and/or sheen? Yes___ No X

TARGET PARAMETERS: TCL+30, TAL Metals, EPH, Cr^{+6}, pH.

COMMENTS: Purging 0.3 gpm ≈ 70 min purge, Collected Samples 12:30-12:40

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Monitoring Well Stabilization Test

WELL NO: PMW-22
DATE: 7/12/17
Instrument: Horiba U-52 Pine Serial # (From sensor, not meter screen): 21317 Horiba Serial #:
PROJECT: Overpeck L.F
LOCATION: Bergen Cty.

PARAMETER	VOLUME EXTRACTED										
	INITIAL										
Time	14:20	14:40	15:00	15:20	15:40	16:00					
Specific Conductivity (mS/cm)	0.852	0.827	0.835	0.840	0.835	0.832					
pH (pH units)	7.24	7.41	7.37	7.31	7.28	7.27					
Temperature (degrees C)	17.4	16.35	15.42	15.21	15.05	14.96					
Turbidity (NTU)	36	18	9	6	11	10					
Color	Clear	Clear	Clear	Clear	Clear	Clear					
Odor	None	None	None	None	None	None					
Dissolved Oxygen (mg/l)	1.7	0.2	0.0	0.0	0.0	0.0					
Salinity (ppt)	0.7	0.7	0.7	0.8	0.7	0.7					
ORP	-97	-103	-108	-113	-112	-112					

Depth to water measured from north side of the top of riser pipe

Well Diameter D (feet): 4"
Depth of well (feet): 24'
Initial depth to water (feet btc): 5.15
Height of water column in riser h (feet): ~19'
Volume of water in well (gallons):

Total volume to be purged (gallons): ~36 gallons

Formula for Calculating Purge Volume: $\pi (D^2/4)\, h \times 7.48$ gallons/cf

2": 0.163* Water (ft) 4": 0.653* Water (ft) 6": 1.469* Water (ft)

Purge Method: Peristaltic
Sampling Method: Bailer
Final depth to water (feet): 9.17
Purged dry? Yes___ No X
Time start / Time sampled: 14:20 / 16:10
Product thickness and/or sheen? Yes___ No X

TARGET PARAMETERS: TAL Metals, TCL +30, EPH, Cr^{+6}, pH.

COMMENTS: Purge 0.35 gpm ≈ 100 minutes

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Monitoring Well Stabilization Test

WELL NO: PMW-25
DATE: 7-12-17
PROJECT: Overpeck Park
LOCATION:
Instrument: Horiba U-52 Pine Serial # (From sensor, not meter screen): 24297 Horiba Serial #:

PARAMETER	VOLUME EXTRACTED										
	INITIAL					DRY					
Time	1:25	1:35	1:45	1:55	2:05	2:10					
Specific Conductivity (mS/cm)	2.35	2.29	2.27	2.25	2.23						
pH (pH units)	7.31	7.16	7.09	7.03	6.99						
Temperature (degrees C)	23.50	14.49	14.39	13.85	13.79						
Turbidity (NTU)	212	196	199	213	215						
Color	brown tint	colorless	colorless	colorless	colorless						
Odor	ND	ND	ND	ND	ND						
Dissolved Oxygen (mg/l)	2.62	0.00	0.00	0.00	0.00						
Salinity (ppt)	1.2	1.2	1.2	1.1	1.1						
ORP	35	-50	-67	-73	-81						

Depth to water measured from north side of the top of riser pipe

Well Diameter D (feet): 4"
Depth of well (feet): 26.15
Initial depth to water (feet btc): 7.18
Height of water column in riser h (feet): 18.97
Volume of water in well (gallons): 12.39

Total volume to be purged (gallons): 37.16

Formula for Calculating Purge Volume: $\pi (D^2/4)\, h \times 7.48$ gallons/cf

2": 0.163* Water (ft) 4": 0.653* Water (ft) 6": 1.469* Water (ft)

Purge Method: Peristaltic
Sampling Method: Bailer
Final depth to water (feet): 16.90
Purged dry? Yes X No
Time start / Time sampled: 1:25 / 4:15
Product thickness and/or sheen? Yes No X

TARGET PARAMETERS:

COMMENTS: pump set up to 22 ft bgs
flow rate ≈ 0.4 gallons/minute

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Monitoring Well Stabilization Test

WELL NO: PMW-30
DATE: 7/12/17
PROJECT: Overpeck Park
LOCATION:
Instrument: Horiba U-52 Pine Serial # (From sensor, not meter screen): 24297 Horiba Serial #:

PARAMETER	VOLUME EXTRACTED										
	INITIAL										
Time	2:30	2:40	2:50	3:00	3:10	3:20	3:30	3:40	3:45		
Specific Conductivity (mS/cm)	1.35	1.53	1.55	1.54	1.54	1.53	1.53	1.52	1.53		
pH (pH units)	7.82	6.45	6.40	6.37	6.36	6.38	6.37	6.37	6.37		
Temperature (degrees C)	20.44	16.22	16.00	16.24	16.31	16.22	16.20	16.17	16.19		
Turbidity (NTU)	14.8	17.7	7.9	6.5	7.3	6.7	6.0	5.5	5.1		
Color	colorless	colorless	colorless	colorless	colorless	colorless	colorless	colorless	colorless		
Odor	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Dissolved Oxygen (mg/l)	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Salinity (ppt)	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8		
ORP	-53	-79	-81	-82	-83	-83	-84	-85	-85		

Depth to water measured from north side of the top of riser pipe

Well Diameter D (feet): 4"
Depth of well (feet): 21.10
Initial depth to water (feet btc): 7.66
Height of water column in riser h (feet): 13.44
Volume of water in well (gallons): 8.776

Total volume to be purged (gallons): 26.33

Formula for Calculating Purge Volume: $\pi (D^2/4)\, h \times 7.48$ gallons/cf

2": 0.163* Water (ft) 4": 0.653* Water (ft) 6": 1.469* Water (ft)

Purge Method: Peristaltic
Sampling Method: Bailer
Final depth to water (feet): 7.65
Purged dry? Yes___ No X
Time start / Time sampled: 2:30 / 3:55
Product thickness and/or sheen? Yes___ No X

TARGET PARAMETERS:

COMMENTS: flow rate ≈ 0.4 gallons/minute
pump set up to 17 ft bgs

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Monitoring Well Stabilization Test

WELL NO: Area 2-1
DATE: 7/13/17
Instrument: Horiba U-52 Pine Serial # (From sensor, not meter screen): 21317 Horiba Serial #:

PROJECT: Overpeck L.F.
LOCATION: Bergen Cty.

PARAMETER	VOLUME EXTRACTED										
	INITIAL										
Time	14:00	14:10	14:20	14:30							
Specific Conductivity (mS/cm)	1.02	1.04	1.04	1.04							
pH (pH units)	6.85	6.72	6.71	6.70							
Temperature (degrees C)	15.18	15.62	15.74	15.92							
Turbidity (NTU)	12.4	8.7	9.5	6.1							
Color	Clear	Clear	Clear	Clear							
Odor	Light Organic	→	→	→							
Dissolved Oxygen (mg/l)	6.5	3.71	2.18	1.76							
Salinity (ppt)	0.5	0.5	0.5	0.5							
ORP	-125	-110	-112	-110							

Depth to water measured from north side of the top of riser pipe

Well Diameter D (feet): 4"
Depth of well (feet): 16.00"
Initial depth to water (feet btc): 3.85
Height of water column in riser h (feet): 12.15
Volume of water in well (gallons): 7.9

Total volume to be purged (gallons): ____

Formula for Calculating Purge Volume: $\pi (D^2/4)\, h \times 7.48$ gallons/cf

2": 0.163* Water (ft) 4": 0.653* Water (ft) 6": 1.469* Water (ft)

Purge Method: Peristaltic Pump
Sampling Method: Bailer
Final depth to water (feet): 4.00
Purged dry? Yes___ No X
Time start / Time sampled: 14:00 / 14:30
Product thickness and/or sheen? Yes___ No X

COMMENTS: Well was purged + sampled on 7/11/17. Additional parameters added to sampling event, additional samples collected after purging 1-volume (≈ 8 gallons) ✓
Purge rate 0.3 gpm, purge time ≈ 30 min. Sample collected @ 14:30.
* Temp. gets warmer due to weather conditions - Hot, Hazy, Humid → 90°F.

TARGET PARAMETERS: Ammonia, TKN, TDS, Nitrite, Nitrate

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Monitoring Well Stabilization Test

WELL NO: Area 2-2
DATE: 7-13-17
Instrument: **Horiba U-52** Pine Serial # (From sensor, not meter screen): 24297 Horiba Serial #:

PROJECT: Overpeck Park
LOCATION: Area 2

PARAMETER	VOLUME EXTRACTED										
	INITIAL										
Time	2:40	2:50	3:00	3:10	3:20	3:35					
Specific Conductivity (mS/cm)	4.39	4.34	4.01	4.28	4.25	4.25					
pH (pH units)	6.94	6.63	6.33	6.29	6.58	6.61					
Temperature (degrees C)	16.25	15.26	15.25	14.74	15.50	16.14					
Turbidity (NTU)	23.0	11.9	9.1	21.7	133	133					
Color	colorless	colorless	colorless	colorless	colorless	colorless					
Odor	ND	ND	ND	ND	ND	ND					
Dissolved Oxygen (mg/l)	0.48	0.00	0.00	0.00	0.00	0.00					
Salinity (ppt)	2.4	2.3	2.1	2.3	2.3	0.8					
ORP	143	142	109	70	72	70					

Depth to water measured from north side of the top of riser pipe

Well Diameter D (feet): 4"
Depth of well (feet): 15.46
Initial depth to water (feet btc): 6.70
Height of water column in riser h (feet): 8.76
Volume of water in well (gallons): 5.72

Total volume to be purged (gallons): 17.16

Formula for Calculating Purge Volume: $\pi (D^2/4)\, h \times 7.48$ gallons/cf

2": 0.163* Water (ft) 4": 0.653* Water (ft) 6": 1.469* Water (ft)

Purge Method: Peristaltic
Sampling Method: Bailer
Final depth to water (feet): 9.88
Purged dry? Yes___ No X
Time start / Time sampled: 2:40 / 3:35
Product thickness and/or sheen? Yes___ No X

COMMENTS: flow rate ≈ 0.4 gallons/minute

TARGET PARAMETERS:

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Monitoring Well Stabilization Test

WELL NO: Area 2-3
DATE: 7/13/17
Instrument: Horiba U-52 Pine Serial # (From sensor, not meter screen): 21317 Horiba Serial #:

PROJECT: Overpeck Landfill
LOCATION: Bergen Cty.

PARAMETER	VOLUME EXTRACTED										
	INITIAL										
Time	10:45	10:50	10:55	11:00	11:10	11:15	11:20	11:25			
Specific Conductivity (mS/cm)	2.38	1.76	1.54	1.18	0.928	0.862	0.820	0.821			
pH (pH units)	7.04	6.80	6.79	6.79	6.77	6.76	6.75	6.75			
Temperature (degrees C)	16.93	16.20	16.34	16.51	16.32	16.25	16.18	16.19			
Turbidity (NTU)	180	24	42.0	11.0	2.5	0.0	0.0	0.0			
Color	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear			
Odor	None	None	None	None	None	None	None	None			
Dissolved Oxygen (mg/l)	1.17	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Salinity (ppt)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4			
ORP	-258	-130	-128	-121	-116	-112	-110	-110			

Depth to water measured from north side of the top of riser pipe

Well Diameter D (feet): 4"
Depth of well (feet): 11.60
Initial depth to water (feet btc): 8.00
Height of water column in riser h (feet): 3.60
Volume of water in well (gallons):

Total volume to be purged (gallons): ~7 gallons

Formula for Calculating Purge Volume: $\pi (D^2/4)\, h \times 7.48$ gallons/cf

2": 0.163* Water (ft) 4": 0.653* Water (ft) 6": 1.469* Water (ft)

Purge Method: Peristaltic Pump
Sampling Method: Bailer
Final depth to water (feet): 8.12
Purged dry? Yes ___ No X
Time start / Time sampled: 10:45 / 11:40
Product thickness and/or sheen? Yes ___ No X

COMMENTS: purging 0.2 gallons/min. 35-40 mins purge
Sample (11:25 - 11:40)

TARGET PARAMETERS:

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Monitoring Well Stabilization Test

WELL NO: Area 2-4
DATE: 7-13-17
Instrument: **Horiba U-52** Pine Serial # (From sensor, not meter screen): 24297 Horiba Serial #:

PROJECT: Overpeck Park
LOCATION: Area 2

PARAMETER	VOLUME EXTRACTED											
	INITIAL											
Time	11:35	11:40	11:45	11:50	11:55							
Specific Conductivity (mS/cm)	0.634	0.718	0.738	0.742	0.748							
pH (pH units)	7.57	6.80	6.70	6.65	6.61							
Temperature (degrees C)	21.61	16.38	15.80	15.45	15.48							
Turbidity (NTU)	24.8	18.7	11.4	11.3	13.6							
Color	colorless	colorless	colorless	colorless	colorless							
Odor	organic	organic	organic	organic	organic							
Dissolved Oxygen (mg/l)	6.29	0.00	0.00	0.00	0.00							
Salinity (ppt)	0.3	0.3	0.4	0.4	0.4							
ORP	-126	-100	-102	-102	-102							

Depth to water measured from north side of the top of riser pipe

Well Diameter D (feet): 4"
Depth of well (feet): 7.53
Initial depth to water (feet btc): 5.41
Height of water column in riser h (feet): 2.12
Volume of water in well (gallons): 1.38

Total volume to be purged (gallons): 4.15

Formula for Calculating Purge Volume: $\pi (D^2/4)\, h \times 7.48$ gallons/cf

2": 0.163* Water (ft) 4": 0.653* Water (ft) 6": 1.469* Water (ft)

Purge Method: Peristaltic
Sampling Method: Bailer
Final depth to water (feet): 5.49
Purged dry? Yes___ No X
Time start / Time sampled: ___/___
Product thickness and/or sheen? Yes___ No X

COMMENTS: flow rate ≈ 0.25 gallons/minute

TARGET PARAMETERS:

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Monitoring Well Stabilization Test

WELL NO: Area 2-5
DATE: 7/13/17
Instrument: Horiba U-52 Pine Serial # (From sensor, not meter screen): 24297 Horiba Serial #:

PROJECT: Overpeck Park
LOCATION: Area 2

PARAMETER	VOLUME EXTRACTED										
	INITIAL										
Time	9:35	9:40	9:50	10:00							
Specific Conductivity (mS/cm)	0.97	1.12	1.22	1.21							
pH (pH units)	7.35	7.02	6.85	6.81							
Temperature (degrees C)	15.65	15.73	15.60	15.65							
Turbidity (NTU)	6.7	4.3	2.7	1.5							
Color	Clear	Clear	Clear	Clear							
Odor	ND	ND	ND	ND							
Dissolved Oxygen (mg/l)	0.8	0.0	0.0	0.0							
Salinity (ppt)	0.5	0.5	0.5	0.5							
ORP	+91	+12	-34	-46							

Depth to water measured from north side of the top of riser pipe

Well Diameter D (feet): 4"
Depth of well (feet): 15.20
Initial depth to water (feet btc): 5.30
Height of water column in riser h (feet): 9.9
Volume of water in well (gallons): 6.5

Total volume to be purged (gallons): —

Formula for Calculating Purge Volume: $\pi (D^2/4)\, h \times 7.48$ gallons/cf

2": 0.163* Water (ft) 4": 0.653* Water (ft) 6": 1.469* Water (ft)

Purge Method: Peristaltic Pump
Sampling Method: Bailer
Final depth to water (feet): 5.40
Purged dry? Yes___ No X
Time start / Time sampled: 9:35 / 10:00
Product thickness and/or sheen? Yes___ No___

COMMENTS: Well purged + sampled on 7/13/17.
Additional parameters sampled after 8 gallon purge (little more than 1 volume).
Purging ~ 0.3 gpm -> 25 minutes - pump set at 12' bgs.

TARGET PARAMETERS: _____

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Monitoring Well Stabilization Test

WELL NO: Area 2-6
DATE: 7/13/17
Instrument: **Horiba U-52** Pine Serial # (From sensor, not meter screen): 21317 Horiba Serial #:

PROJECT: Overpeck L.F.
LOCATION: Bergen Cty.

PARAMETER	VOLUME EXTRACTED											
	INITIAL											
Time	0900	0910	0920	0930								
Specific Conductivity (mS/cm)	1.65	1.52	1.51	1.50								
pH (pH units)	7.15	7.03	7.01	6.99								
Temperature (degrees C)	14.73	14.82	14.92	14.88								
Turbidity (NTU)	7.80	4.2	2.2	3.7								
Color	Clear	Clear	Clear	Clear								
Odor	ND	ND	ND	ND								
Dissolved Oxygen (mg/l)	5.6	2.8	1.4	0.7								
Salinity (ppt)	0.7	0.7	0.7	0.7								
ORP	-78	-65	-92	-75								

Depth to water measured from north side of the top of riser pipe

Well Diameter D (feet): 4"
Depth of well (feet): 21.10
Initial depth to water (feet btc): 8.47
Height of water column in riser h (feet): 12.63
Volume of water in well (gallons): 8.25

Total volume to be purged (gallons): —

Formula for Calculating Purge Volume: $\pi (D^2/4)\, h \times 7.48$ gallons/cf

2": 0.163* Water (ft) (4": 0.653* Water (ft)) 6": 1.469* Water (ft)

Purge Method: Peristaltic Pump
Sampling Method: Bailer
Final depth to water (feet): 10.15
Purged dry? Yes___ No X
Time start / Time sampled: 0900 / 9:30
Product thickness and/or sheen? Yes___ No X

TARGET PARAMETERS:

COMMENTS: Well purged & Sampled on 7/10/17; Additional parameters sampled today after purging 1 well volume. Flow rate 0.3 gpm ⇒ Approx. 25 minutes. Samples Collected @ 09:30

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Monitoring Well Stabilization Test

WELL NO: PMW-27
DATE: 1-14-17
PROJECT: Overpeck Park
LOCATION:
Instrument: **Horiba U-52** Pine Serial # (From sensor, not meter screen): 24297 Horiba Serial #:

PARAMETER	VOLUME EXTRACTED										
	INITIAL										
Time	12:00	12:10	12:20	12:30	12:40	12:50	13:00	13:10			
Specific Conductivity (mS/cm)	2.75	2.88	2.77	2.75	2.66	1.15	1.13	1.22			
pH (pH units)	8.45	8.42	7.50	6.82	6.45	6.95	6.68	6.56			
Temperature (degrees C)	15.15	13.57	14.78	15.63	16.91	17.55	17.85	17.97			
Turbidity (NTU)	123	128	117	118	102	90.6	76.0	76.1			
Color	colorless	colorless	colorless	colorless	colorless	colorless	colorless	colorless			
Odor	organic	organic	organic	organic	organic	organic	organic	organic			
Dissolved Oxygen (mg/l)	5.03	0.00	0.00	0.00	0.00	0.00	0.00	0.0			
Salinity (ppt)	1.5	1.5	1.4	1.4	1.4	0.6	0.6	0.6			
ORP	173	170	111	89	82	115	128	135			

Depth to water measured from north side of the top of riser pipe

Well Diameter D (feet): 4"
Depth of well (feet): 23.08
Initial depth to water (feet btc): 9.70
Height of water column in riser h (feet): 13.38
Volume of water in well (gallons): 8.737

Total volume to be purged (gallons): 26.21

Formula for Calculating Purge Volume: $\pi (D^2/4)\, h \times 7.48$ gallons/cf

2": 0.163* Water (ft) 4": 0.653* Water (ft) 6": 1.469* Water (ft)

Purge Method: Peristaltic
Sampling Method: Bailer
Final depth to water (feet): 9.71
Purged dry? Yes___ No X
Time start / Time sampled: 12:00 / 13:20
Product thickness and/or sheen? Yes___ No X

COMMENTS: flow rate ≈ 0.4 gallons/minute

TARGET PARAMETERS:

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Monitoring Well Stabilization Test

WELL NO: MW-29
DATE: 7/14-17
Instrument: **Horiba U-52** Pine Serial # (From sensor, not meter screen): 24297 Horiba Serial #:

PROJECT: Overpeck L.F.
LOCATION: Bergen County.

PARAMETER	VOLUME EXTRACTED											
	INITIAL											
Time	15:35	15:40	15:45	15:50	15:55							
Specific Conductivity (mS/cm)	2.06	2.14	2.11	2.09	2.08							
pH (pH units)	7.66	7.59	7.53	7.44	7.40							
Temperature (degrees C)	16.53	14.14	14.19	14.43	14.47							
Turbidity (NTU)	39.0	40.5	23.0	19.6	18.0							
Color	Clear	Clear	Clear	Clear	Clear							
Odor	Organic	Organic	Organic	Organic	Organic							
Dissolved Oxygen (mg/l)	1.20	0.0	0.0	0.0	0.0							
Salinity (ppt)	1.1	1.1	1.1	1.1	1.1							
ORP	-63	-70	-73	-75	-76							

Depth to water measured from north side of the top of riser pipe

Well Diameter D (feet): 2"
Depth of well (feet): 17
Initial depth to water (feet btc): 9.5
Height of water column in riser h (feet): 7.5
Volume of water in well (gallons): 1.22

Total volume to be purged (gallons): 3.67

Formula for Calculating Purge Volume: $\pi (D^2/4)\, h \times 7.48$ gallons/cf

2": 0.163* Water (ft) 4": 0.653* Water (ft) 6": 1.469* Water (ft)

Purge Method: Peristaltic Pump
Sampling Method: Bailer
Final depth to water (feet): 12.35
Purged dry? Yes___ No X
Time start / Time sampled: 15:35 / 16:15
Product thickness and/or sheen? Yes___ No X

TARGET PARAMETERS: TCL+30, TAL Metals, EPH, Cr^{+6}, pH.

COMMENTS: Purge rate ≈ 0.2 gpm
Pump set at (intake) 15' bgs, Sample collected 16:15

APPENDIX 3

LABORATORY ANALYTICAL REPORTS

APPENDIX 4

NEW JERSEY POLLUTANT DISCHARGE ELIMINATION SYSTEM
EXCEEDANCE REPORT FOR SANITARY LANDFILLS

New Jersey Department of Environmental Protection
Solid & Hazardous Waste Management Program

NJPDES-DGW Exceedance Report for Sanitary Landfills

Facility Name: Overpeck Park Landfill NJPDES-DGW Permit #: NJG0186422

Sampling Date: July 6 - 14, 2017 Reporting Period: July 2017 to September 2017
Month/Year to Month/Year

NJ Lab Cert. #: 12028 Applicable GW Classification: Class IIA

During the above monitoring event, did any analytical parameter exceed the applicable Ground Water Quality Criteria (GWQC)?
No ____ Yes X
(if yes, specify details in the table below)

Parameter	Well ID	Units	GWQC	Lab Result
1,4-Dioxane	PS-1	µg/L	0.4	20
1,4-Dioxane	MW-18	µg/L	0.4	2.8
1,4-Dioxane	MW-14D	µg/L	0.4	0.61
Aluminum	Area2-2 (MW-2)	µg/L	200	8780
Aluminum	MW-2	µg/L	200	3640
Aluminum	MW-17D	µg/L	200	618
Aluminum	MW-14D	µg/L	200	299
Aluminum	PMW-22	µg/L	200	2,590
Aluminum	PMW-25	µg/L	200	450
Arsenic	MW-1	µg/L	3	3.8
Arsenic	Area2-2 (MW-2)	µg/L	3	7.0
Arsenic	Area2-6 (MW-6)	µg/L	3	6.9
Arsenic	MW-17D	µg/L	3	4.1
Arsenic	MW-12D	µg/L	3	3.1
Arsenic	MW-11D	µg/L	3	5.4
Arsenic	MW-19	µg/L	3	5.4
Arsenic	PMW-22	µg/L	3	7.8
Arsenic	PMW-25	µg/L	3	9.4
Arsenic	PMW-29	µg/L	3	7.2
Benzene	PS-1	µg/L	1	3.1
Benzene	PMW-27	µg/L	1	3.9
Benzene	PMW-30	µg/L	1	1.1
Bis(2-ethylhexyl) phthalate	Area2-2 (MW-2)	µg/L	3	5.3
Bis(2-ethylhexyl) phthalate	Area2-3 (MW-3)	µg/L	3	7.0
Bis(2-ethylhexyl) phthalate	Area2-4 (MW-4)	µg/L	3	7.4
Chlorobenzene	PS-1	µg/L	50	62.0
Chlorobenzene	PMW-27	µg/L	50	58.0
Dieldrin	MW-5	µg/L	0.03	0.062
Iron	MW-1	µg/L	300	3,140.0
Iron	MW-2	µg/L	300	3,500.0
Iron	Area2-1 (MW-1)	µg/L	300	49,900.0
Iron	Area2-2 (MW-2)	µg/L	300	20,900.0
Iron	Area2-3 (MW-3)	µg/L	300	50,200.0
Iron	Area2-4 (MW-4)	µg/L	300	26,900.0
Iron	Area2-5 (MW-5)	µg/L	300	10,700.0
Iron	Area2-6 (MW-6)	µg/L	300	9,680.0
Iron	MW-17D	µg/L	300	866.0
Iron	MW-14D	µg/L	300	1,110.0
Iron	MW-12D	µg/L	300	361.0
Iron	PS-1	µg/L	300	34,400.0
Iron	MW-18	µg/L	300	41,900.0
Iron	MW-19	µg/L	300	32,800.0
Iron	PMW-24	µg/L	300	40,400.0
Iron	PMW-22	µg/L	300	27,000.0
Iron	PMW-27	µg/L	300	18,400.0
Iron	PMW-21	µg/L	300	29,200.0

Parameter	Well ID	Units	GWQC	Lab Result
Iron	PMW-26	µg/L	300	13,700.0
Iron	PMW-29	µg/L	300	27,900.0
Iron	PMW-30	µg/L	300	68,200.0
Lead	Area2-1 (MW-1)	µg/L	5	13.1
Lead	Area2-2 (MW-2)	µg/L	5	12.3
Lead	MW-19	µg/L	5	29.8
Manganese	MW-1	µg/L	50	3990
Manganese	MW-2	µg/L	50	1420
Manganese	Area2-1 (MW-1)	µg/L	50	500
Manganese	Area2-2 (MW-2)	µg/L	50	6090
Manganese	Area2-3 (MW-3)	µg/L	50	576
Manganese	Area2-4 (MW-4)	µg/L	50	556
Manganese	Area2-5 (MW-5)	µg/L	50	1470
Manganese	Area2-6 (MW-6)	µg/L	50	2420
Manganese	MW-14D	µg/L	50	299
Manganese	MW-11D	µg/L	50	90.3
Manganese	PS-1	µg/L	50	1190
Manganese	MW-18	µg/L	50	1200
Manganese	MW-19	µg/L	50	795
Manganese	PMW-21	µg/L	50	718
Manganese	PMW-22	µg/L	50	6730
Manganese	PMW-23	µg/L	50	228
Manganese	PMW-24	µg/L	50	1840
Manganese	PMW-25	µg/L	50	165
Manganese	PMW-27	µg/L	50	61.6
Manganese	PMW-29	µg/L	50	7690
Manganese	PMW-30	µg/L	50	761
Sodium	MW-1	µg/L	50000	3990
Sodium	MW-2	µg/L	50000	1420
Sodium	Area2-1 (MW-1)	µg/L	50000	216000
Sodium	Area2-2 (MW-2)	µg/L	50000	345000
Sodium	Area2-4 (MW-4)	µg/L	50000	58100
Sodium	Area2-6 (MW-6)	µg/L	50000	114000
Sodium	MW-12D	µg/L	50000	51100
Sodium	PMW-21	µg/L	50000	52200
Sodium	PMW-22	µg/L	50000	196000
Sodium	PMW-24	µg/L	50000	111000
Sodium	PMW-25	µg/L	50000	264000
Sodium	PMW-27	µg/L	50000	89700
Sodium	PMW-29	µg/L	50000	202000
Ammonia	PS-1	µg/L	3	131
Ammonia	MW-18	µg/L	3	81.7
Ammonia	MW-19	µg/L	3	16
Total Dissolved Solids	Area2-1 (MW-1)	µg/L	500	672
Total Dissolved Solids	Area2-2 (MW-2)	µg/L	500	2900
Total Dissolved Solids	Area2-3 (MW-3)	µg/L	500	546
Total Dissolved Solids	Area2-5 (MW-5)	µg/L	500	798
Total Dissolved Solids	Area2-6 (MW-6)	µg/L	500	968
Total Dissolved Solids	MW-12D	µg/L	500	834
Total Dissolved Solids	PS-1	µg/L	500	3740
Total Dissolved Solids	MW-18	µg/L	500	1,110
Total Dissolved Solids	MW-19	µg/L	500	1,360

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this

Signature: X

Print Name: James Koth

Title: Bergen County Parks Department Director