OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

December 30, 2008

RE: WESTLAKE CITY LANDFILL
CUYAHOGA COUNTY
GROUND WATER
NOTICE OF VIOLATION

Mr. Don Glauner
Service Director
City of Westlake
27216 Hilliard Boulevard
Westlake, Ohio 44145

Dear Mr. Glauner:

On May 21, 2008, Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), received a submittal dated May 13, 2008, entitled *"Post Closure Groundwater Monitoring Report, October 2007 Sampling Episode, Former Westlake Sanitary Landfill Facility, Westlake, Ohio."* The report was prepared and submitted by Mr. Fraser Hamilton of Earth Consulting, LTD, on behalf of the City of Westlake.

Westlake Landfill closed under the 1990 Solid Waste Landfill Regulations, and is currently conducting post-closure ground water detection monitoring in accordance with OAC Rule 3745-27-10 of the 2003 revised Solid and Infectious Waste Regulations. The sampling report was prepared and submitted to conform with OAC Rule 3745-27-10(C)(10) of the 2003 revised Solid and Infectious Waste regulations.

The October 2007 sampling episode report was reviewed for compliance with OAC Rule 3745-27-10(D) and the facility's revised 2004 ground water detection monitoring plan (GWDMP). Ground water elevations were collected from all monitoring wells prior to purging or sampling.

Ground water samples were collected on October 30 (MW2) and October 31 (MW1, MW4, MW5 and MW7), 2007. According to the owner/operator *... monitoring wells MW3* [GW-3] *and MW6* [GW-6] *were to be redeveloped in order to allow for collection of samples ... however, there was insufficient recovery to allow for sampling"* (page 4). All ground water monitoring samples were analyzed for Appendix I parameters, total dissolved solids (TDS), total organic carbon (TOC), temperature, pH, and specific conductivity [OAC Rule 3745-27-10(D)(5)a)].

Ammonia and choroethane have been detected in ground water samples collected from all downgradient wells since at least the March 2004 sampling event (attached Tables 1 and 2). For example, recent ammonia concentrations in GW-5 range from 26.7 mg/l in

ground water samples collected during the October 2005 sampling event, to 20.3 mg/l during the May 2007 sampling event. In comparison, the range of ammonia concentrations detected in ground water samples from the background well, GW-7 over the same period, was 1.14 mg/l to 0.941 mg/l. This comparison shows that ammonia concentrations in ground water downgradient of the landfill are approximately 17 times higher than upgradient concentrations. It was noted that chloroethane was detected at GW-5 at an estimated concentration of 3.9 mg/L. Detections of chloroethane, along with elevated ammonia concentrations in downgradient wells, indicate that the landfill has impacted ground water flowing beneath the facility.

This report also included a section titled *Statistical Evaluation* (Section 4.0, page 3) for the discussion of how intrawell limits will be used to statistically analyze the October 2007 results.

Upon review of the document, Ohio EPA has identified the following violations of Ohio Administrative Code Chapter 3745-27-10:

1. **<u>OAC Rules 3745-27-10(A), 3745-27-10(C)(7)(h), 3745-27-10(D)(5)(a)(iii) and 3745-27-10(D)(7)</u>: which requires that the ground water monitoring program be capable of determining the impact of the facility on the quality of ground water and that the owner/operator determine whether statistically significant increases have occurred in the monitoring wells. According to the statistical procedures specified in paragraphs (C)(6) and (C)(7) of this rule, each constituent is required to be statistically analyzed.**

   The owner/operator has failed to statistically analyze the October 2007 sample results to determine whether any of the results constitute statistically significant increases as required by these rules. Specifically, the owner/operator has utilized intrawell prediction limits and trend analysis as the statistical method without approval from Ohio EPA. In addition, the owner/operator only applied trend analyses to pH, specific conductance and total dissolved solids, when statistical analysis of Appendix I constituents 1-66 should have been completed. Thus, the owner/operator has failed to implement a ground water detection monitoring program capable of determining the impact of the facility on the underlying ground water [OAC Rule 3745-27-10(A)].

   In order to return to compliance, the owner/operator must immediately determine whether or not statistically significant increases over background have occurred based on analysis of the October 2007 data according to the statistical procedures specified in paragraphs 3745-27-10(C)(6), 3745-27-10(C)(7), and 3745-27-10(D)(7) of this rule. The use of intrawell analysis is not acceptable until

it can be demonstrated that the ground water has not been affected by the landfill within the relevant well(s). This demonstration should include at least two ground water sampling events to prove no impact and that the background wells have not been impacted by historical landfill operations.

The use of trend analysis is also not acceptable. The owner/operator must choose either ANOVA (parametric or nonparametric), a tolerance or prediction interval, or control charts. Furthermore, the owner/operator should notify the director of any statistically significant increase as required by OAC Rule 3745-27-10(D)(7)(a).

2. **OAC Rules 3745-27-10(A) and 3745-27-10(C)(1): which require that the ground water monitoring program be capable of determining the impact of the facility on the quality of ground water and that the owner/operator collect representative ground water samples for analysis.**

   The owner/operator has collected field filtered ground water samples which have not been analyzed for total metals during the past several years. This is not acceptable. USEPA has long since banned the use of field filtration of metal samples because it was found that proper and careful sampling techniques produced far more representative and reproducible results than field filtering. Furthermore, field filtering may actually remove mobile components thereby underestimating the true concentrations of various components in ground water. Ohio EPA concurs with this assessment and has likewise banned field filtration.

   To return to compliance with these rules, the owner/operator must begin collecting and analyzing ground water samples for total metals from all wells. The GWDMP Sampling and Analysis Plan (SAP) must be revised to include the collection and analysis of total metals.

3. **OAC Rules 3745-27-10(A) and 3745-27-10(D)(5)(a)(ii)(*b*): which require that the ground water monitoring program be capable of determining the impact of the facility on the quality of ground water and that the owner/operator collect semiannual ground water samples from all monitoring wells.**

   The October 2007 sampling episode report indicated that ground water samples were not collected and analyzed from two monitoring wells, GW-3 and GW-6, at the facility. As such, these wells were not sampled in accordance with OAC Rule 3745-27-10(D)(5) and the owner/operator has failed to implement a ground water detection monitoring program capable of determining the impact of the facility on the underlying ground water [OAC Rule 3745-27-10(A)].

To return to compliance with these rules, the owner/operator must attempt to successfully sample GW-3 and GW-6 using a new sampling method that is documented in a revised GWDMP or install and sample new wells in place of GW-3 and GW-6. In either case, the collection of representative ground water samples should be achieved as required by this rule and the facility's GWDMP.

4. **<u>OAC Rule 3745-27-10(C)(3)(d)</u>: which requires that the owner/operator provide a potentiometric map constructed from the October 2007 sampling data.**

   The Fall 2007 potentiometric surface map (Figure 1) does not accurately illustrate the ground water flow direction beneath the facility. This figure did not contain the following information: static water level elevations consistent with those values reported in Report Table 1 (table incorrectly labeled as *"Summary of Groundwater Elevations"*), correctly drawn and labeled ground water contours, and different well identification labels (MW1, MW2, etc. versus GW1, GW2, etc.) than those designated in the Facility's 2004 GWDMP.

   To return to compliance, the owner/operator must revise Figure 1 to accurately depict the ground water flow direction based on the October 2007 static water level elevations to comply with OAC Rule 3745-27-10(C)(3)(d) of the revised 2003 Solid and Infectious Waste Regulations. The revised table and figure should be resubmitted to Ohio EPA for further review.

5. **<u>OAC Rule 3745-27-10(C)(10)</u>: which requires that the owner/operator submit all ground water information no later than seventy-five days after sampling the wells. This information should include all ground water elevation, sample analysis and statistical analysis results.**

   Ohio EPA has determined that the owner/operator failed to comply with OAC Rule 3745-27-10(C)(10) because the October 2007 sampling episode report was not received within the 75-day deadline by Ohio EPA.

   In order to comply with OAC Rule 3745-27-10(C)(10), the owner/operator must ensure that all future ground water detection monitoring reports are submitted to Ohio EPA within the 75-day deadline.

In addition to the above cited violations, Ohio EPA has identified the following deficiency in the October 2007 sampling episode report:

1. The report text, analytical result tables and figures do not follow the labeling format found in the Facility's 2004 GWDMP. For example, the Facility's 2004 GWDMP refers to the monitoring wells in terms of *"MW1, MW2, MW3."* However, the text, associated figures and the ground water elevation table use two designations for monitoring wells (GW1, GW2, etc. versus MW1, MW2, etc.).

   The report text, the potentiometric map (Figure 1) and the results table (Report Table 2) should follow the labeling format found (MW1, MW2, etc.) in the Facility's 2004 GWDMP. All text, table and figure discrepancies should be revised to follow the Facility's 2004 GWDMP and resubmitted for Ohio EPA review.

Please submit the revisions to the October 2007 ground water detection monitoring report to this office within sixty days of receipt of this letter. If you have any questions regarding this review, please contact me at (330) 963-1224. Please submit all correspondence to my attention at the Ohio EPA Northeast District Office, 2110 East Aurora Road, Twinsburg, Ohio 44087.

Nothing in this letter shall be construed to authorize any waiver from the requirements of any applicable state or federal laws or regulations. This letter shall not be interpreted to release the Entity from responsibility under Chapters 3704, 3714, 3734, or 6111 of the Ohio Revised Code or under the Federal Clean Water or Comprehensive Environmental Response, Compensation, and Liability Acts for remedying conditions resulting from any release of contaminants to the environment.

Sincerely,

Clarissa Gereby

Clarissa Gereby,
Environmental Specialist
Division of Solid and Infectious Waste Management

CG:cl

cc: Carl Preusser, Cuyahoga County Health Department
File: [Kurko/LAND/Westlake City LF/GRO/18]

Project #1582

Table 1: 2004 - 2007 Ammonia Analytical Results

Parameter	Sampling Event	Monitoring Wells						
		GW-1	GW-2	GW-3	GW-5	GW-6	GW-4	GW-7
		downgradient					side-gradient	upgradient
Ammonia, Nitrogen (mg/L)	3/2004	<1	<1	<1	<1	NS	<1	<1
	11/2004	NA	NA	NA	NA	NA	NA	NA
	4/2005	<0.5	<0.5	<0.5	1.7	<5	<0.5	<1
	10/2005	0.55	0.42	1.2 (diluted x 2)	26.7 (diluted x 40)	NS	1.49 (diluted x 4)	1.14 (diluted x 4)
	4/2006	0.56	0.51	NS	24 (diluted x 10)	NS	0.58	1.19 (diluted x 2)
	11/2006	0.451	0.467	NS	27.4	NS	1.22	1.17
	3/2007	0.618	0.442	NS	20.3	NS	0.354	0.941
	10/2007	0.438	0.429	NS	25	NS	1.46	0.202

NA indicates that the well was not analyzed for this parameter during this particular sampling event.
NS indicates that the well was not sampled during this particular sampling event.
J indicates an estimated value (the analyte was detected at a level less than the Reporting Limit and greater than or equal to the Method).
Diluted x 2 indicates that the sample was diluted and the dilution factor (x number).

Table 2: 2004 - 2007 Chloroethane Analytical Results			
Parameter	Sampling Event	Monitoring Wells	
		GW-5	GW-7
		downgradient	upgradient
Chloroethane (g/L)	3/2004	5	<5
	11/2004	<5	<5
	4/2005	<5	<5
	10/2005	4.5 J	<0.80
	5/2006	4.2 J	<0.80
	11/2006	*Results not included in November 2007 Sampling Report	*Results not included in November 2007 Sampling Report
	5/2007	3.9 J	<0.446
	10/2007	3.44 ZJ	<0.450 Z

J indicates an estimated value (the analyte was detected at a level less than the Reporting Limit and greater than or equal to the Method).
Z indicates that there was no MS/MDS analyzed with this batch due to insufficient sample volume.