



**Environmental  
Protection Agency**

John R. Kasich, Governor  
Mary Taylor, Lt. Governor  
Scott J. Nally, Director

October 25, 2011

**RE: HOLMES COUNTY LANDFILL  
GROUND WATER  
NOTICE OF VIOLATION**

**CERTIFIED MAIL 7011 0470 0002 3496 0163**

Joe Miller, Chairman  
Holmes County Board of Commissioners  
2 Court Street, Suite 14  
Millersburg, OH 44654

Dear Mr. Miller:

The Ohio Environmental Protection Agency (Ohio EPA) has reviewed the following document:

**Ground Water Detection Monitoring Report June 2011 Semiannual Event  
Holmes County SLF  
September 13, 2011**

On behalf of Holmes County SLF, North Point Engineering (NPE) and KU Resources (KU) prepared and submitted to the Ohio EPA, the above referenced document. The Ground Water Detection Monitoring Report, dated September 13, 2011 was received by Ohio EPA, Northeast District Office (NEDO) on September 13, 2011. Holmes County SLF is operating under the 2003 Revision to Ohio Administrative Code (OAC) Rule 3745-27-10, and at the time of this sampling event, in accordance with OAC Rule 3745-27-10(D) and (E), Detection and Assessment Monitoring Program.

KU purged the monitoring wells on June 29, 2011, and sampled on June 30, 2011 for Appendix I parameters 18, 25, 33, 61, 63, and 66. Two significant zones of saturation are monitored; the upper zone of Bedford Coal is monitored by ten wells and two piezometers, and the lower zone, shale, siltstone and sandstone, is monitored by four wells.

Interwell statistics revealed verified Statistically Significant Increases (SSIs) for sodium and potassium in wells UZ-1 and UZ-12, but these SSIs were not verified by intrawell statistics. Initial SSIs for ammonia and sodium in UZ-2 was unverified, using the 1 of 3 resampling method on August 30-31, 2011, and determined to both be false positives.

Currently, detection monitoring wells UZ-1, LZ-3R, and LZ-2 and UZ-12 are under assessment. Detection monitoring wells UZ-1, LZ-3R, and LZ-2 entered assessment monitoring activities on July 13, 2010. They were joined in assessment monitoring activities by the detection monitoring well UZ-12 on January 7, 2011. Alternate source

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demonstrations (ASDs) for monitoring wells UZ-1 and LZ-3R dated August 12, 2011, and for monitoring well LZ-2 dated May 20, 2011, are currently under review, and are discussed in separate Interoffice Memorandums (IOMs).

Ohio EPA has identified the following violations:

- 1. Holmes County SLF remains in violation of OAC 3745-27-10(E)(1) requiring a ground water quality assessment monitoring program for UZ-1, UZ-12, LZ-2 and LZ-3R. The owner or operator has failed to comply with the requirements regarding ground water quality assessment monitoring. Unless the director approves the report submitted in accordance with paragraph (D)(7)(c) of this rule, the owner or operator shall implement a ground water quality assessment plan capable of determining the concentration, rate, and extent of migration of waste-derived constituent(s) in the ground water upon determining a statistically significant increase over background in accordance with paragraph (D)(7) of this rule. The owner or operator shall implement and comply with the ground water quality assessment plan and the requirements of this rule.**

Detection monitoring wells UZ-1, LZ-3R, and LZ-2 entered assessment monitoring activities on July 13, 2010. They were joined in assessment monitoring activities by detection monitoring well UZ-12 on January 7, 2011. To date, Holmes County SLF has neither submitted a ground water quality assessment plan, nor conducted any of the assessment ground water monitoring activities at these wells as required by this rule.

Holmes County SLF is currently taking measures to return to compliance. An alternate source demonstration (ASD) was submitted for monitoring well LZ-2 dated May 20, 2011. In addition, an ASD was submitted for monitoring wells UZ-1 and LZ-3R, dated August 12, 2011. Both ASDs are currently under review, and are discussed in separate Interoffice Memorandums (IOMs).

Until the time those wells are approved by the Director to return to detection monitoring, they remain under assessment monitoring. To date, there has been no ASD submittal for monitoring well UZ-12 and the well remains in assessment monitoring.

- 2. Holmes County SLF remains in violation of OAC Rules 3745-27-10 (C)(1) and 3745-27-10(C)(1)(a) which requires the ground water monitoring program to include consistent sampling and analysis procedures and statistical methods that are protective of human health and the environment and that are designed to ensure monitoring results that**

**provide an accurate representation of ground water quality at the background and downgradient wells; and requires the owner/operator to document these consistent sampling and analysis procedures in a plan and to follow it.**

Due to a miscommunication between NPE management and field personnel, the ground water from monitoring wells that recovered following purging (UZ-6, UZ-7, UZ-9, UZ-10, and UZ-11), were not sampled until the following day on June 30, 2011, and therefore are not representative of ground water quality. The August 12, 2011 Interoffice Memorandum (IOM) discusses this issue and possible procedure for low yield well sampling.

To return to compliance with these rules, the owner/operator needs to revise their plan to more clearly and appropriately specify how low yield wells will be purged and sampled. The owner/operator is advised to adhere to Chapter 10 of the Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring; and the owner/operator needs to implement and follow their revised plan during the next semiannual sampling event at Holmes County SLF. Future sampling events should include sampling the same day as purging for those wells that have recovered with sufficient lowering of turbidity to collect a sample representative of ground water quality.

- 3. Holmes County SLF is in violation of OAC Rules 3745-27-10 (C)(6). The owner or operator shall specify one of the following statistical methods to be used in evaluating ground water monitoring data. The statistical method chosen shall be conducted separately for each of the parameters required to be statistically evaluated in paragraph (D)(5) of this rule. The statistical method specified shall ensure protection of human health and the environment. Submit to Ohio EPA any changes made to the statistical method.**

Holmes County Landfill is utilizing both interwell and intrawell statistical methods for all well and ground water parameter combinations. This is not the intent of this rule, which clearly requires that only one method be selected for statistical analysis for each of the parameters required to be statistically evaluated. Using two separate statistical methods to analyze the same data separately to achieve different results on a semiannual basis is a failure of statistical plan design and implementation. The statistical method specified in the statistical analysis plan (SAP) entitled "Statistical Methods for Ground-Water Monitoring at the HCLF Landfill", July 2007, is an intrawell methodology using combined Shewhart-CUSUM control charts for routine detection monitoring at the facility (page 36).

To return to compliance with these rules, the owner/operator needs to implement and follow their SAP for all future semiannual sampling events at Holmes SLF. Specifically, this would entail using only intrawell statistical methods as specified in the plan.

- 4. Holmes County SLF is in violation of OAC Rules 3745-27-10(C)(1) and 3745-27-10 (C)(6)(b) which require, in part, the ground water monitoring program include statistical methods that are protective of human health and the environment and that are designed to ensure monitoring results that provide an accurate representation of ground water quality at the background and downgradient wells installed in accordance with paragraph (B), (D), (E), and (F) of this rule; and the owner/operator selected the use of a control chart approach that gives control limits for each constituent required to be statistically evaluated in paragraph (D)(5) of this rule. However, the owner/operator failed to recognize that the selection and use of the control chart method for volatile organic compound (VOC) data that is non-detect at various practical quantitation limits (PQLs) over time would result in unacceptably high intra-well statistical limits for routine statistical comparisons.**

Specifically, a review of the statistical analysis report in Appendix E revealed that the owner/operator is using the intra-well control chart approach for VOCs (1,1-dichloroethane, chloroethane, benzene, and vinyl chloride) that have never been officially detected in ground water samples at Holmes SLF. Close scrutiny of the control charts for the VOCs revealed that the background data being used is a mixture of different practical quantitation limits (PQLs) ranging from 1.0 ug/L to 10 ug/L depending on the well and VOC. Somehow in the computation of the control chart limits, likely through substitution of one-half the PQL for non-detect values, unacceptably large control chart limits were constructed. For example, depending on the well, the limit for 1,1-dichloroethane ranges from 2.0 ug/L to 11.7419 ug/L, benzene ranges from 2.0 ug/L to 4.1112 ug/L, chloroethane ranges from 2.0 ug/L to 27.2611 ug/L, and vinyl chloride ranges from 2.0 ug/L to 4.1112 ug/L (which exceeds the MCL). These are unacceptably large control chart limits for VOCs that have never been officially detected in ground water at the landfill, and is likely a misapplication of the control chart method in this case.

To return to compliance with this rule, the owner/operator needs to immediately revise their statistical analysis plan to specify that the PQL will be used as the statistical limit for the VOCs being statistically analyzed on a semiannual basis at Holmes SLF. In particular, the plan needs to state that a detection of a VOC at or above the PQL will be considered a statistically significant increase (SSI) and will automatically require verification resampling to confirm or refute the original

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SSI. This change in statistical methodology should be implemented as soon as possible, but no later than the first semiannual event of 2012.

Please submit a response to this letter by November 25, 2011.

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.

If you have any questions, contact me at (330) 963-1257.

Sincerely,

  
Katharina Snyder  
Division of Materials and Waste Management

KS:cl

cc: Katherine Springer Amey, DDAGW-NEDO  
Jon Croup, Holmes County Health Department  
File: [Sowers/LAND/Holmes/GRO/38]  
DMWM #4102