OhioEPA

State of Ohio Environmental Protection Agency

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

Re: Wales Road Landfill
Ground Water

March 19, 2008

Mr. Ed Ciecka, Administrator
City of Rossford
133 Osborn Street
Rossford, Ohio 43460

Dear Mr. Ciecka:

On January 22, 2008, the Ohio Environmental Protection Agency (Ohio EPA), Northwest District Office (NWDO) received the Statistical Report of Ground Water Quality for the November 2007, sampling event at the City of Rossford - Wales Road Landfill (Facility). The report, dated January 2008, was reviewed to verify compliance with Ohio Administrative Code (OAC) Rule 3745-27-10. Below are Ohio EPA's comments regarding the review.

COMMENTS

Violation(s)

1. **The owner/operator is in violation of OAC Rule 3745-27-10(C)(7)(a) which requires that the statistical method used to evaluate ground water monitoring data be appropriate for the distribution of chemical parameters or waste-derived constituents. To meet the requirement, the City of Rossford must revise the statistical analysis of the November 2007 semiannual data in accordance the discussion below. In addition, if the City of Rossford's analysis confirms the statistically significant increase findings of Ohio EPA, then an Alternate Source Demonstration (ASD) may be submitted in accordance with OAC Rule 3745-27-10(D)(7)(c)(ii). The City of Rossford would then have until June 8, 2008, to either receive director's approval to return to detection monitoring or submit an assessment plan in accordance with the requirements of OAC Rule 3745-27-10(E)(1).**

   A. Sodium at MW-10T: The 16 background data points for sodium at monitoring well MW-10T include no censored data points. The background data are normally distributed. The raw data has a better normal distribution than the natural log transformed data. The City of Rossford ran the control chart on natural log transformed data, failing to meet the requirements of OAC Rule 3745-27-10(C)(7)(a).

Ohio EPA's control chart analysis on the raw data indicates that there has been a statistically significant increase in the sodium concentrations.

B. Sodium at MW-12TR: The 16 background data points for sodium at monitoring well MW-12TR include no censored data points. The background data are normally distributed. The raw data has a better normal distribution than the natural log transformed data. The City of Rossford ran the control chart on natural log transformed data, failing to meet the requirements of OAC Rule 3745-27-10(C)(7)(a). Ohio EPA's control chart analysis on the raw data indicates that there has been a statistically significant increase in sodium concentrations.

C. Sodium at MW-12BR: The 20 background data points for sodium at monitoring well MW-12BR include no censored data points. The City of Rossford re-evaluated a previously removed value for sodium at MW-12BR (43.7 mg/L) and determined it to no longer be a statistical outlier; therefore, it was included in the background dataset for statistical analysis of the November 2007 data. Ohio EPA would like to bring to the City of Rossford's attention that if the background data set had previously consisted of 20 data points and the 43.7 mg/L concentration was added to background, then the current background should consist of 21 background data points. Further, Ohio EPA's disagrees with including the 43.7 mg/L concentration in the background dataset as Ohio EPA's outlier analysis (Rosner's) identified the 43.7 mg/L sodium concentration as continuing to be an outlier. With the 43.7 mg/L concentration in the background dataset the data is neither normally or natural log transformed distributed. With the 43.7 mg/L value removed from background the dataset is both normally distributed and natural log transformed distributed. In either case the raw data has a better normal distribution than the natural log transformed data. The City of Rossford ran the control chart on natural log transformed data, failing to meet the requirements of OAC Rule 3745-27-10(C)(7)(a). Ohio EPA's control chart analysis on the raw data indicates that there has been a statistically significant increase in the sodium concentration.

D. Chloride at MW-12TR: The 16 background data points for chloride at monitoring well MW-12TR include no censored data points. The background data are normally distributed. The raw data has a better normal distribution than the natural log transformed data. The City of Rossford ran the control chart on natural log transformed data, failing to meet the requirements of OAC Rule 3745-27-10(C)(7)(a). Ohio EPA's control chart analysis on the raw data confirmed that there has been no statistically significant increase in the chloride concentration.

E. Potassium at MW-3BR: The 12 background data points for potassium at monitoring well MW-3BR include no censored data points. The background data are normally distributed. The raw data has a better normal distribution than the natural log transformed data.

The City of Rossford ran the control chart on natural log transformed data, failing to meet the requirements of OAC Rule 3745-27-10(C)(7)(a). Ohio EPA's control chart analysis on the raw data confirmed that there has been no statistically significant increase in the potassium concentration.

2. **The owner/operator continues to be in violation of OAC Rule 3745-27-10(E)(6), which requires a determination of rate, extent, and concentration of contaminants. This includes portions of the contaminant plume that exist beyond the facility boundary, unless the owner/operator demonstrates to the director that, despite the owner's/operator's best efforts, the owner/operator was unable to obtain the necessary permission to undertake such action. At a minimum, the owner/operator needs to submit a copy of their written access request and, if a response is provided, a copy of the written statement from the off-site property owner(s) indicating that off-site access is denied.**

   This violation was originally cited in a letter to the owner/operator dated April 17, 2006. To date the owner/operator has not responded.

More Information Needed to Determine Compliance

3. **Compliance with OAC Rule 3745-27-10(C)(7)(e), which requires that any Practical Quantitation Limit (PQL) used in a statistical method be the lowest concentration level that can be reliably achieved within the specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility, cannot be determined at this time. To allow for an evaluation of compliance with the requirements of OAC Rule 3745-27-10(C)(7)(e), the owner/operator must do one of the following:**

   - **Lower the laboratory PQLs of the constituents noted in the table below to a level which is deemed as commonly achievable;**

     OR

   - **Demonstrate how the current PQLs represent the lowest concentration level that can be reliably achieved within the specified limits of precision and accuracy during routine laboratory operating conditions.**

   All necessary documentation to determine compliance with OAC Rule 3745-27-10(C)(7)(e) must be submitted to Ohio EPA.

   For the November 2007 semi-annual sampling event, several constituents were analyzed using PQLs which are above levels that are commonly achievable (by laboratories doing business in Ohio).

The following table summarizes the PQLs that were used for these constituents in comparison to commonly achievable PQLs. The explicit form and content of a justification demonstration has not been established allowing for site-specific flexibility. Ohio EPA envisions that any demonstration submitted would include a discussion of the possible factors and influences surrounding the necessity for a PQL above levels that are commonly achievable. Such a demonstration justifying a higher PQL should include, at a minimum, the name of the constituent, facility-specific PQL value proposed, laboratory QA/QC data, and documentation of site-specific ground water quality conditions that prevent the laboratory from having a PQL that is commonly achievable.

Constituent	units	Owner/Operator's November 2007 PQL	Commonly Achievable or "Target PQL"
Arsenic	mg/l	0.005	0.003
Methylene Chloride	ug/l	4.0	2
1,2,3-Trichloropropane	ug/l	4.0	1

4. **Compliance with 3745-27-10(C)(7)(e), which requires that any Practical Quantitation Limit (PQL) used in a statistical method be the lowest concentration level that can be reliably achieved within the specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility, cannot be determined at this time for the parameter zinc at MW-2B (in assessment monitoring), MW-3BR, MW-11BR, and MW-12BR. To allow for an evaluation of compliance with the requirements of OAC Rule 3745-27-10(C)(7)(e), the owner/operator must do one of the following:**

   - **Demonstrate that the PQL value of 0.05 mg/l for zinc used in background for the wells listed above represents the lowest concentration level that can be reliably achieved within the specified limits of precision and accuracy during routine laboratory operating conditions at the time of analysis;**

   - **Re-quantify the PQL values for zinc that do not meet the requirements of 3745-27-10(C)(7)(e) (i.e., 0.05 mg/l) to a level at or below that which is deemed as commonly achievable (0.02 mg/l);**

     OR

   - **Exclude the 0.05 mg/l PQL values for zinc from background for purposes of statistical analysis.**

All necessary documentation to determine compliance with OAC Rule 3745-27-10(C)(7)(e) must be submitted to Ohio EPA.

If the zinc background concentration of 0.05 mg/l is to be re-quantified or excluded, the owner/operator will need to perform statistical analysis for the referenced wells using background data that meet the requirements of OAC Rule 3745-27-10(C)(7)(e).

According to the laboratory summary tables for MW-2B (in assessment monitoring), MW-3BR, MW-11BR, and MW-12BR, the background data for zinc from approximately June 2003 through June 2006 contains PQL values of 0.05 mg/l. Prior to June of 2003, the laboratory used a PQL for zinc of 0.02 mg/l and since November 2006 the PQL value for zinc has been lowered to 0.004 mg/l. Typically as a ground water monitoring program progresses the PQL values will decrease due to upgrades in technology and/or equipment, etc. Therefore, the zinc PQL value of 0.05 mg/l in the statistical background data sets need to be justified as being the lowest reliably achieved within the specified limits of precision and accuracy during routine laboratory operating conditions that were available to the facility during that time period.

5. **Compliance with OAC Rule 3745-27-10(C)(1), which requires that the owner/operator collect representative ground water samples, cannot be determined at this time. The City of Rossford must do one of the following:**

   - **Revise the Ground Water Detection Monitoring Sampling and Analysis Plan to document the new field parameter stabilization criteria as noted below;**

     OR

   - **Demonstrate to Ohio EPA how the current field parameter stabilization criteria in the Ground Water Detection Monitoring Sampling and Analysis Plan meet the requirements of OAC Rule 3745-27-10(C)(1).**

According to the City of Rossford's Ground Water Detection Monitoring Plan (Revised May 2004) page 21 states, "Prior to sample collection, all monitor wells will be purged to remove any stagnant water in the casing and to ensure that a representative groundwater sample is being collected...Hull SOP No. F3008 (Hull document#ROS001.100.0134) included in Appendix B-1 outlines the proper purging procedures and documentation utilized by Hull. Note that in all cases, the monitoring well will be purged until the temperature, conductivity and pH values of the purge water have stabilized, as described in Hull SOP F3008." Hull & Associates (Hull) SOP F3008 states in part, "The temperature, pH, and conductivity will be measured initially, as well as after each well volume is purged. The last two values obtained must be within 10 percent of one another."

Based on review of current technical literature, Ohio EPA now considers the criteria for stabilization of these field parameters to be ± 0.1 Standard Units (S.U.) for pH, ± 3% for conductivity, and ± 0.5 ° C for temperature.

Also, a parameter should be considered stable when at least three consecutive readings have stabilized.

6. **Compliance with OAC Rule 3745-27-10(C)(1), which requires that the owner/operator collect representative ground water samples, cannot be determined at this time. The City of Rossford should review the discussion below and provide the necessary documentation.**

   A. A review of the field data sheets indicates that wells MW-1T, MW-2T, MW-3T, MW-10T, MW-11T(R), MW-12T(R), MW-1B, MW-3B(R), MW-10B(R), and MW-11B(R) were purged dry. These well were then sampled the next day. As stated above, OAC Rule 3745-27-10(C)(1) requires that the owner/operator collect representative ground water samples. This typically means that samples are collected as soon as enough water is available in the well for the sample to be collected. Waiting 20 to 23 hours to sample a well which may had recharged shortly after going dry may result in samples of "stagnant" water and would not result in representative samples. There is no clean information on the field data sheets provided by the City of Rossford which indicates when these wells recharged with enough water to sample. It can be estimated from well recovery data provided in the Ground Water Detection Monitoring Sampling and Analysis Plan (Revised May 2004) that several of the wells which were purged dry recharged at a rate that would not have required waiting until the next day to sample. The wells should have been sampled as soon as enough water was available. If not, then stagnant ground water may have been collected from the wells which may not be representative of actual ground water conditions.

      The City of Rossford must provide documentation relating to when (e.g., in what time period) the wells recharged sufficiently to collect the ground water samples.

   B. A review of the field data sheets indicates that wells MW-2B and MW-12B(R) did not purge dry and were sampled the next day. OAC Rule 745-27-10(C)(1) requires that the owner/operator collect representative ground water samples. Typically, this means that samples are collected as soon as enough water is available in the well for the sample to be collected. A review of the stabilization data for MW-2B and MW-12B(R) recorded on the field data sheets indicates that the chemistry of the water changed significantly between the end of purging and the time of sampling. For example, the last pH and temperature measurement at MW-2B were 6.86 S.U and 11.0 °C, respectively. When MW-2B was sampled, the water measurement for pH and temperature increased to 7.31 S.U and 11.8 °C, respectively. It appears that waiting approximately 21 hours after purging to collect the ground water sample could have resulted in the samples becoming "stagnant" and not representative. In addition, the differences exceed the new stabilization criteria referenced in Comment 5 above.

The City of Rossford must explain how not meeting the stabilization criteria has produced samples for MW-2B and MW-12B(R) which are representative of ground water of the site.

Statement

7. The City of Rossford states on page 2 of the submittal that, "In general, the direction of groundwater flow in the bedrock uppermost aquifer is in a northeast direction..." Under natural conditions Ohio EPA understands that ground water flow for the region would be towards the northeast. However, Ohio EPA believes that industrial pumping of the uppermost aquifer system by the Pilkington Glass Co. has created a cone of depression that includes the City of Rossford's Closed Wales Road Landfill. The Pilkington facility is located approximately one half mile north of the Wales Road Landfill. Depending on the amount of pumping, the cone of depression can cause a northerly flow direction under the landfill toward the industrial well(s) location. Evidence of this northerly flow direction can be observed from the 557, 553.5 (not shown), and 553.2 (not shown) contour intervals on the City of Rossford's November 13, 2007 potentiometric surface map.

If you have any questions please contact Chad Zajkowski at the Ohio EPA, Northwest District Office, Division of Drinking and Ground Waters, at (419) 373-3097. Any written correspondence should be sent to the attention of Kimberly Burnham, Division of Solid and Infectious Waste Management, Ohio EPA Northwest District Office, 347 N. Dunbridge Road, Bowling Green, Ohio 43402.

Sincerely,

Kimberly K. Burnham, R.S.
Environmental Specialist
Division of Solid and Infectious Waste Management

/llr

pc: Jim Konopinski, Wood County Health Department
William Petruzzi, Hull & Associates, Inc.
Chad Zajkowski, DDAGW, NWDO
File: Wood County, Wales Road Landfill, Ground Water
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