OhioEPA

State of Ohio Environmental Protection Agency

Northwest District Office

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

Re: Huron County Landfill
Ground Water
Huron County, Ohio

June 29, 2007

Huron County Commissioners
180 Milan Ave.
Norwalk, Ohio 44857

Dear Commissioners:

The owner/operator is currently required to perform ground water detection monitoring activities at the facility, as well as assessment monitoring activities for MW-2, MW-19 and MW-21. Ohio EPA has reviewed the Groundwater Detection Analysis Report (dated June 2007 and received June 11, 2007) from Malcolm Pirnie, Inc., which documents the April 3-5, 2007 annual sampling event at the facility. This submittal was reviewed to determine compliance with OAC Rule 3745-27-10.

COMMENTS

Violations

1. OAC Rule 3745-27-10(C)(1)(a): As detailed below, the owner/operator is in violation of OAC Rule 3745-27-10(C)(1)(a).

   OAC Rule 3745-27-10(C)(1)(a) requires that **"...The owner or operator is required to use the procedures documented within the sampling and analysis plan."**.

   At the request of Ohio EPA, the owner/operator recently revised the Sampling and Analysis Plan (which is part of the Ground Water Detection Monitoring and Ground Water Quality Assessment plans) to document new procedures for field parameter stabilization. Specifically, regarding these new procedures, the Ground Water Detection Monitoring Plan (GWDMP) and Ground Water Quality Assessment Plan (GWQAP) state **"The stabilization of the monitored water quality parameters will be considered to be complete when they stabilize within the following ranges over three consecutive readings taken within approximately fifteen minutes:**

Conductivity:	**±3%**
pH:	**±0.1 SU**
Temperature:	**±0.5°C**

However, during the April 2007 annual sampling event, these field parameter stabilization criteria were not followed for conductivity at MW-2, MW-8 and MW-11 or for temperature at MW-19 or for pH at AW-19A. Further, supplemental purging (beyond three well volumes) was not performed for these wells. These procedures are necessary to assure the collection of representative ground water samples.

Therefore, the owner/operator is in violation of OAC Rule 3745-27-10(C)(1)(a). To assure compliance with OAC Rule 3745-27-10(C)(1)(a) during future sampling events, the owner/operator needs to follow all purging and sampling procedures specified by the GWDMP and GWQAP.

2. OAC Rule 3745-27-10(E)(5)(b)(ii)(a): As detailed below, the owner/operator is in violation of OAC Rule 3745-27-10(E)(5)(b)(ii)(a).

OAC Rule 3745-27-10(E)(5)(b)(ii)(a) requires that all wells in the ground water quality assessment program be analyzed annually for all constituents in Appendix II of OAC Rule 3745-27-10(E)(5)(b)(ii)(a).

The owner/operator performed this expanded Appendix II sample analysis for the April 2007 sampling event (for the wells in the assessment monitoring program). However, cyanide (which is on the Appendix II list) was not analyzed for the April 2007 sampling of the assessment monitoring wells.

Therefore, the owner/operator is in violation of OAC Rule 3745-27-10(E)(5)(b)(ii)(a). To meet the requirements of OAC Rule 3745-27-10(E)(5)(b)(ii)(a) in the future, all constituents in Appendix II of OAC Rule 3745-27-10 need to be analyzed from the annual sampling events for the assessment monitoring program.

Owner/Operators Response to Previously Cited Violations

3. The February 23, 2007 letter from Ohio EPA (regarding the September 2006 sampling event), cited the owner/operator in violation of OAC Rule 3745-27-10(A)(1). Regarding this citation, the February 23, 2007 letter stated **"OAC Rule 3745-27-10(A)(1) requires that the owner/operator implement a *"...groundwater monitoring program capable of determining the impact of the facility on the ground water quality..."*.**

During the September 2006 semi-annual sampling event, extremely high turbidities were recorded at assessment monitoring wells MW-21, AW-19A and MW-19C. Respective turbidities of 4340 NTU, 7010 NTU and 9200 NTU were recorded for these wells. These turbidities are much higher than typically characteristic of representative ground water samples. Regarding turbidity of ground water samples, the Ground Water Quality Assessment Plan states *"Turbidity will be measured at approximately the time the sample is collected. If turbidity values are elevated, the sampling team may continue purging in an attempt to get the turbidity value below 5 NTUs."*.

...Considering the above, the ground water samples from MW-21, AW-19A and MW-19C from the September 2006 sampling event were clearly not representative of the ground water quality. Representative ground water samples are a necessary part in determining the impact of the facility on the ground water quality.

Therefore, the owner/operator is in violation of OAC Rule 3745-27-10(A)(1)....".

Subsequently, during the April 2007 annual sampling event, high turbidities were recorded at several monitoring wells including AW-19A and MW-8. Respective turbidities of 550 NTU and 700 NTU were recorded for these wells (in the field). These turbidities are considerably lower than the turbidities noted from the September 2006 sampling event, but are still higher than typically characteristic of representative ground water samples. Regarding turbidity of ground water samples, the Ground Water Detection Monitoring and Ground Water Quality Assessment Plans state **"Turbidity will be measured at approximately the time the sample is collected. If turbidity values are elevated, the sampling team may continue purging in an attempt to get the turbidity value below 5 NTUs."**.

For AW-19A, this turbidity (550 NTU) is lower than previously seen at AW-19A (this is only the third sampling event for AW-19A), however, this turbidity still exceeds what is typically considered to be characteristic of representative of ground water samples. For MW-8, this turbidity (700 NTU) was much greater than previously noted for MW-8. Prior to this event, the turbidities at MW-8 generally ranged from 1 to 70 NTU, with one spike of 140 NTU. It also appears that this high turbidity for the April 2007 sampling event artificially elevated a few metals constituents for the sample from MW-8.

Considering the above, the ground water samples from AW-1A and MW-8 from the April 2007 sampling event may not have been representative of the ground water quality. Representative ground water samples are a necessary part in determining the impact of the facility on the ground water quality.

To assure compliance with OAC Rule 3745-27-10(A)(1) for future sampling events, the owner/operator needs to collect representative ground water samples from all monitoring wells in the detection monitoring and assessment monitoring programs (see Comment No. 6 below).

More Information Needed to Determine Compliance

4. OAC Rule 3745-27-10(B)(3)(e): Compliance with OAC Rule 3745-27-10(B)(3)(e) cannot be determined at this time.

   OAC Rule 3745-27-10(B)(3)(e) states **"The monitoring wells...shall be operated and maintained to perform to design specifications throughout the life of the monitoring program."**.

The field data sheet for MW-19C indicates that MW-19C may have become grout contaminated. During the April 2007 sampling event, the initial pH reading at MW-19C was 10.46 S.U. and fell to 8.50 S.U. by the time of sampling. Subsequently, during the May 2007 sampling event, the initial pH reading at MW-19C was 11.82 S.U. and fell to 7.84 S.U. by the time of sampling. These high initial pH values of the purge water are a strong indication of grout contamination.

To determine compliance with OAC Rule 3745-27-10(B)(3)(e), the owner/operator needs to investigate the possible grout contamination at MW-19C and subsequently submit a letter report of the findings to Ohio EPA.

5. OAC Rule 3745-27-10(C)(7)(e) As detailed below, more information is needed to determine compliance with OAC Rule 3745-27-10(C)(7)(e).

OAC Rule 3745-27-10(C)(7)(e) requires that **"...Any practical quantitation limit (PQL) used in the statistical method shall 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."** .

For the April 2007 annual sampling event, some constituents analyzed were reported with PQLs which are above levels that are commonly achievable (by analytical laboratories doing business in Ohio). The following table summarizes the PQLs that were used for these constituents in comparison to commonly achievable PQLs.

Constituent	PQL used for April 2007 Sampling Event	Commonly Achievable PQL
Alkalinity	20 mg/L	10 mg/L
TDS	50 mg/L	20 mg/L
Arsenic	5 µg/L	3 µg/L
Iron	100 µg/L	50 µg/L
Vanadium	50 µg/L	20 µg/L
Acrylonitrile	50 µg/L	5 µg/L
2-Butanone	12.5 µg/L	10 µg/L
Methyl Chloride	5 µg/L	1 µg/L
Bromomethane	5 µg/L	1 µg/L
4-Methyl-2-pentanone	12.5 µg/L	10 µg/L
1,2,3-Trichloropropane	5 µg/L	1 µg/L

To allow for an evaluation of compliance with the requirements of OAC Rule 3745-27-10(C)(7)(e), the owner operator needs to do one of the following:

> Lower the laboratory PQLs of the constituents noted above 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 needs to be submitted to Ohio EPA.

Recommendations

No action on the part of the owner/operator is required by rule to address the following recommendations. However, in Ohio EPA's opinion, the recommendations will improve the clarity of the referenced document and/or reduce further misunderstandings between Ohio EPA and the facility owner/operator.

6. As noted in Comment No. 3 above, the owner/operator continues to have difficulties collecting low-turbidity ground water samples at some ground water monitoring wells.

   For the April 2007 sampling event, the four wells with the highest turbidities (field measured) were MW-3, MW-8, MW-12 and AW-19A. These wells had turbidities ranging from 124 to 700 NTU.

   It should be noted that all four of these wells were purged by bailing at rates between 0.4 and 1.4 gpm. Further, these wells were sampled shortly after purging was complete. It is likely that these rapid purging rates are causing the high turbidities for some of the ground water samples.

   The GWDMP documents procedures for low-flow purging and sampling that can be used to purge and sample the monitoring wells at the facility. In general, such procedures tend to greatly reduce turbidity of ground water samples. Therefore, Ohio EPA recommends that the owner/operator implement the low-flow purging procedures which are documented in the GWDMP for ground water purging and sampling at the facility.

Statements

7. The submittal includes potentiometric surface maps for the uppermost aquifer system (UAS) and the significant zone of saturation (SZS) as required.

   However, there are errors on the potentiometric surface map for the UAS. Specifically, the contour lines near MW-10, MW-13 and MW-20 are not correctly located.

8. The submittal includes field data sheets for the purging and sampling of each monitoring well as required.

However, there are several typographical errors on the field data sheets for MW-16, MW-19, MW-19C and MW-20.

If you have any questions please feel free to contact Ken Brock at the Ohio EPA Northwest District Office (419-373-3143). Any written correspondence should be sent to the attention of Tyler Madeker, Division of Solid and Infectious Waste Management, Ohio EPA Northwest District Office, 347 N. Dunbridge Road, Bowling Green, Ohio 43402.

Sincerely,

Tyler Madeker S.I.T.
Division of Solid and Infectious Waste Management

/lb

pc: Peter Welch, Huron County Landfill Manager
Wes Rhiel, Malcolm-Pirnie
File: Huron County, Huron County Landfill, Ground Water

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