



State of Ohio Environmental Protection Agency

**Northwest District Office**

347 North Dunbridge Road  
Bowling Green, OH 43402-9398

TELE: (419) 352-8461 FAX: (419) 352-8468  
www.epa.state.oh.us

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

Re: Hancock County Landfill  
Groundwater Quality Assessment  
Plan - February 2008

March 14, 2008

Hancock County Board of Commissioners  
300 South Main Street  
Findlay, Ohio 45840

Dear Commissioners:

On February 26, 2008, the Ohio Environmental Protection Agency (Ohio EPA), Northwest District Office, received a document titled "Groundwater Quality Assessment Plan February 2008", dated February 25, 2008, for the Hancock County Sanitary Landfill (Facility). Ohio EPA reviewed the submittal to determine compliance with Ohio Administrative Code (OAC) Rule 3745-27-10. Below are Ohio EPA's comments regarding this submittal.

**COMMENTS**

**VIOLATIONS**

1. **Hancock County is in violation of OAC Rule 3745-27-10 (E)(3), which requires that the owner/operator submit a ground water quality assessment plan within one hundred and thirty-five days of notifying Ohio EPA of a statistically significant increase over background. The owner/operator needs to ensure that the submittal of any future assessment plans meet the requirements of this rule.**

On February 26, 2008 the owner/operator provided the assessment plan for wells which reported statistically significant increases (SSI) in July 2006, January 2007 and July 2007. A period of 135 days from the last reported SSI (July 2007) would end in about December 2007 which is several months prior to the submittal of the plan. The end of the 135 day period for the earlier SSIs would have ended even earlier.

**MORE INFORMATION NEEDED TO DETERMINE COMPLIANCE**

2. **Compliance with OAC Rule 3745-27-10 (C)(1), which requires that, the ground water monitoring program 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 wells installed in accordance with paragraph (B), (D), (E), or (F); and OAC Rule 3745-27-10 (B)(1), which requires that the ground water monitoring system consist of a sufficient number of wells, installed at appropriate locations and depths, to yield ground water samples from the upper aquifer system and any significant zones of saturation, cannot be determined at this time. The owner/operator should clearly indicate which wells are upgradient and which wells are downgradient.**

On page 1-2, Table 1-1, "Hancock County Landfill Monitoring Well Network" indicates that wells SZ-1A, SZ-2, PZ-6 and PZ-7 are upgradient wells and SW-2, SZ-3B, SZ-4A, and PZ-5 are downgradient wells. On page 1-4 the owner/operator states, "Groundwater monitoring wells SZ-1A and SZ-2, and piezometers PZ-5 and PZ-7 are located hydraulically up-gradient at the landfill." Also on page 2-5 the owner/operator states, "This potentiometric surface map indicates that SZ-1A, SZ-2, SZ-3B, PZ-6 and PZ-7 are upgradient of the landfill." The information on these pages appears to be in conflict in that wells SZ-3B and PZ-5 are said to be both upgradient and downgradient. In addition, Ohio EPA has indicated that historical data show that wells SW-2, SZ-3B, SZ-4A, and PZ-5 are downgradient wells. Well PZ-6 is slightly over 500 feet from the landfill and displays a ground water elevation that is nearly equal to that found in downgradient well SZ-3B, which is in the assessment program. Well PZ-6 may also be a downgradient well. The positions of the wells in the Sand/Silt Zone (SZ wells) relative to gradient should be consistent and should be based on all the data not just the latest interpretation of the data.

- 3. Compliance with OAC Rule 3745-27-10 (C)(1) cannot be determined at this time. For rule citation see comment number 1 above. The owner/operator should clearly indicate which wells are upgradient and which wells are downgradient.**

On page 1-4 the owner/operator states, "Monitoring wells SW-and SW-12 are located hydraulically up-gradient of the landfill." It is unclear what is meant by "SW-." This well number should be clarified.

- 4. Compliance with OAC Rule 3745-27-10 (C)(1) cannot be determined at this time. For rule citation see comment number 1 above. The owner/operator should clearly indicate which parameters displayed statistically significant increases over background which caused the wells to be placed in the assessment program.**

On page 1-5 the owner/operator states, "The concentration of ammonia (1.3 mg/L) detected in SZ-03B was statistically significant compared to the inter-well statistically limits for ammonia (1.3 mg/L) in the Sand/Silt Zone." There is no mention of any other parameters. On page 1-6 Table 1-2 "Summary of Statistically Significant Parameters" indicates that ammonia and potassium were statistically significant parameters in well SZ-3B. At the top of page 4-1 the owner/operator states, "The assessment monitoring wells are SW-15, MW-13 and MW-14 because of ammonia and SZ-3B because of ammonia and potassium." At the top of page 7-1 the owner/operator states, "The groundwater Quality Assessment Program will satisfy the requirements of paragraphs (E)(2), (E)(3), (E)(4) and determine the rate and extent of migration, and concentrations of potassium in the groundwater at the Hancock County Sanitary Landfill." Based on the plan, it is unclear if ammonia and potassium or if ammonia alone or potassium alone was statistically significant and will be considered in the assessment plan.

5. **Compliance with OAC Rule 3745-27-10 (C)(1) cannot be determined at this time. For rule citation see comment number 1 above. The owner/operator should explain how ammonia was a statistically significant increase in well SZ-3B.**

On page 1-5 the owner/operator states, "The concentration of ammonia (1.3 mg/L) detected in SZ-03B was statistically significant compared to the inter-well statistically limits for ammonia (1.3 mg/L) in the Sand/Silt Zone." This statement by the owner/operator suggests that the reported concentration did not exceed the statistical limit for ammonia. It is possible that the owner/operator rounded the values and the limit was, in deed, exceeded.

6. **Compliance with OAC Rule 3745-27-10 (E)(4)(c)(i) and (ii), which require that the plan include detailed descriptions of the investigatory approach relative to the proposed number, location, depth, installation method, and construction of assessment monitoring wells and the proposed method(s) for gathering additional hydrogeologic information; and OAC Rule 3745-27-10 (E)(4)(g) which requires the plan include provisions for installing additional wells, as necessary, for determining the nature and extent of any release of waste-derived constituents per paragraph (E)(6) of this rule; and OAC Rule 3745-27-10 (E)(4)(h) which requires the plan to include details regarding provisions for installing at least one additional monitoring well at the facility boundary in the direction of the downgradient ground water flow from the affected well and as many additional wells as necessary to meet the provisions of paragraph (E)(6) which requires the determination of full rate, extent and concentration, cannot be determined at this time.**

**The owner/operator needs to provide details regarding the installation of these wells.**

Near the top of page 4-1 the owner/operator states, "The proposed method for gathering additional information is to continue the existing groundwater monitoring program." At the top of page 7-1 the owner/operator states, "The groundwater Quality Assessment Program will satisfy the requirements of paragraphs (E)(2), (E)(3), (E)(4) and determine the rate and extent of migration, and concentrations of potassium in the groundwater at the Hancock County Sanitary Landfill." In the second paragraph on page 7-1 the owner/operator states, "The concentrations and the rate and extent of migration of the waste-derived constituents in the groundwater will be determined and submitted in a report within twenty-four months of implementation of the Groundwater Quality Assessment Program." The owner/operator does not indicate the number or locations of wells which will be used to fulfill the requirements of the above-stated rules. These issues must be addressed in the plan.

7. **Compliance with OAC Rule 3745-27-10 (E)(6), which requires the determination of rate, extent, and concentration, cannot be determined at this time. The owner/operator needs to explain in detail how they intend to determine the rate, extent and concentration of the plume(s) at the site.**

As discussed in comment 5 above, the owner/operator does not provide any information on additional wells. It appears that the owner/operator does not intend to install these wells. Since the rate, extent and concentration of parameters in the plume(s) are typically determined by the installation and sampling of wells in the plumes, it is unclear how they intend to meet the requirements of OAC Rule 3745-27-10 (E)(6).

8. **Compliance with OAC Rule 3745-27-10 (C)(1) cannot be determined at this time. For rule citation see comment number 1 above. The owner/operator should provide the missing information for blank page 4-2, mark the page in a manner which indicates that it was intentionally left blank, or remove the blank page from the plan.**

A review of page 4-2 in Section 4 "Determination of Rate, Extent and Concentration of Contamination" is left blank, except for the header and footer. It is not known if there is more information required on this page or if the page was intentionally left blank.

9. **Compliance with OAC Rule 3745-27-10 (E)(5)(a)(ii), which requires the sampling, within seventy-five days of commencing the sampling required by OAC Rule 3745-27-10 (E)(5)(a)(i), of all monitoring wells screened within the same geologic units as the affected well and the analyses of the samples for those waste-derived constituents found to be above background levels in the affected monitoring wells, cannot be determined at this time. The owner/operator needs to specify which of the provided data meets this rule or, if some or all of the data do not meet the requirements of this rule, the owner/operator needs to provide that data.**

While the owner/operator provides some analytical data including blank and leachate results for events conducted in 2006 and 2007 it is not clear which of the data applies to the requirements of OAC Rule 3745-27-10 (E)(5)(a)(ii). At a minimum it appears that the Appendix II results for the other Sand/Silt Zone wells are not provided.

10. **Compliance with OAC Rule 3745-27-10 (E)(1), which requires that the owner/operator implement a ground water quality assessment plan upon determining a statistically significant increase over background in accordance with paragraph (D)(7) of this rule, cannot be determined at this time. The owner/operator needs to provide information which indicates when the plan was implemented for each of the wells which displayed statistically significant increases over background.**

Implementation of the ground water monitoring program, which includes the assessment monitoring program is defined in OAC Rule 3745-27-10 (A)(4) as the commencement of sampling of ground water monitoring wells in accordance with paragraph (E). It is unclear if the owner/operator implemented the assessment program in a timely manner in accordance with OAC Rule 3745-27-10 (E)(1).

11. **Compliance with OAC Rule 3745-27-10 (E)(7), which requires that the owner/operator submit a ground water quality assessment report which provides the rate, extent and concentration of the waste-derived constituents, cannot be determined at this time. The owner/operator needs to indicate when this report will be submitted for wells MW-13 and SZ-3B.**

In the second paragraph on page 7-1 the owner/operator states, "For SW-15 and MW-14, if the Director does not approve a demonstration of false positive, the report regarding rate and extent of migration of ammonia will be due in January 2009." The above-stated rule requires that the time frame for submittal of the report be included in the assessment plan. While there is a time frame for wells SW-15 and MW-14 there is no mention of a report due date for wells MW-13 and SZ-3B.

12. **Compliance with OAC Rule 3745-27-10 (E)(4)(d), which requires that the owner/operator provide a ground water quality assessment plan which includes, at a minimum, detailed descriptions of the techniques, procedures, and analytical equipment to be used for ground water sampling during the assessment, cannot be determined at this time. The owner/operator needs to provide this detailed information.**

A review of the submitted assessment plan indicates that a detailed description of the techniques, procedures, and analytical equipment to be used for sampling during assessment is not included in the plan.

13. **Compliance with OAC Rule 3745-27-10 (E)(4)(e), which requires that the owner/operator provide data evaluation procedures including but not limited to planned use of statistical data evaluations, computer models, and previously gathered information, and criteria used to determine if additional assessment activities are warranted, cannot be determined at this time. The owner/operator needs to provide the information required by this rule.**

A review of the submitted plan indicates that there is no mention of these required data evaluation procedures.

14. **Compliance with OAC Rule 3745-27-10 (E)(4)(f), which requires that the owner/operator provide a schedule of implementation which incorporates the requirements specified in paragraph (E)(5), cannot be determined at this time. The owner/operator needs to provide this schedule.**

A review of the submitted plan indicates that while it includes a brief schedule of implementation, this schedule only lists general activities completed prior to receipt of the assessment plan by Ohio EPA. There is no schedule of implementation of future activities as required by OAC Rule 3745-27-10 (E).

## STATEMENTS

15. **While most of the wells indicated by the owner/operator may be over 1,000 feet from the edge of waste placement a review of the provided maps indicates that wells MW-6 and SW-6 are only about 700 feet from waste placement.** On page 1-2 of the submittal the owner/operator states, "Monitoring wells MW-6, MW-7, MW-8, MW-9, MW-10, and MW-11, which were installed in anticipation of a horizontal expansion of the landfill, are not sampled during the semiannual sampling events because of their distance of over 1,000 feet from the limits of waste placement." On page 1-4 of the submittal the owner/operator states, "Monitoring wells SW-6, SW-7, SW-8, SW-9, SW-10, and SW-11 were installed in anticipation of a horizontal expansion of the landfill. Based on their distance of over 1,000 feet from the current limits of waste placement, these wells are used only for groundwater level collection purposes."
16. **It would be appropriate to obtain a copy of the 2003 rules and utilize them rather than the 1994 rules.** On page 6-2 the owner/operator states, "Within seventy-five days of sampling the ground water monitoring wells in accordance with paragraph (E)(4)(a) of this rule, a notice will be placed in the operating record identifying all constituents detected at the Hancock County Sanitary Landfill." This appears to be language similar to OAC Rule 3745-27-10 (E)(4)(c) of the rules effective 1994. These rules were updated in 2003 and OAC Rule 3745-27-10 (E)(4)(c) is now OAC Rule 3745-27-10 (E)(5)(c) and references paragraph (E)(5)(a). It appears that the owner/operator might be using the 1994 rules rather than the 2003 rules.
17. **It would be beneficial to include comment on OAC Rule 3745-27-10 (E)(10), Rule 3745-27-10 (E)(11), and Rule 3745-27-10 (E)(12), in order to remind the owner/operator of compliance with these rules.** The owner/operator is reminded that OAC Rule 3745-27-10 (E)(10) requires a semiannual determination of rate, extent, and concentration; OAC Rule 3745-27-10 (E)(11) requires notification of adjacent landowners; and OAC Rule 3745-27-10 (E)(12) requires a semiannual assessment report under certain situations.
18. **The presence of two Appendix II parameters mercury and tin in the ground water will preclude the utilization of a compliance monitoring plan for well SZ-03B as discussed in OAC Rule 3745-27-10 (E)(8).** On page 7-1 the owner/operator states, "In accordance with Rule 3745-27-10 (E)(8) of the OAC, a corrective measures plan will not be required if the contamination exclusively consists of one or more of Appendix I parameters 63-78, which includes both ammonia and potassium (Appendix I parameter 63 and 66, respectively)."

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Provided in Appendix B is Table C1-5 which includes a list of Ohio EPA Appendix II results. The owner/operator is reminded that for well SZ-03B the October 23, 2007 and December 10, 2007 sampling events indicate the presence of mercury and tin.

If you have any questions, please feel free to contact Randy Skrzyniecki at the Ohio EPA Northwest District Office (419) 373-3149. Any written correspondence should be sent to the attention of Jeremy Scoles, Division of Solid and Infectious Waste Management, Ohio EPA Northwest District Office, 347 North Dunbridge Road, Bowling Green, Ohio 43402.

Sincerely,



Jeremy Scoles, SIT, CHMM  
Environmental Specialist  
Division of Solid and Infectious Waste Management

/csi

pc: Lindsay Summit, Hancock County Health Department  
Wes Rhiel, P.E., Malcolm Pirnie, Inc  
File: Hancock County, Hancock County Landfill, Ground Water

ec: Abdul Smiley, Jack Leow, Randy Skrzyniecki

i.d.: 5-7526