



State of Ohio Environmental Protection Agency

Northwest District Office

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

Re: Hancock County Landfill
Response to Comments – 2/7/08
Fall 2007 GW Monitoring Report

May 30, 2008

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

Dear Commissioners:

On April 18, 2008, the Ohio Environmental Protection Agency (Ohio EPA), Northwest District Office, received a document titled "Response to Ohio EPA Comments dated February 7, 2008, regarding the Hancock County Sanitary Landfill Groundwater Monitoring Report, Fall 2007", dated April 17, 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

EVALUATION OF THE OWNER/OPERATOR'S RESPONSES TO CITED VIOLATIONS

1. **Hancock County continues to be in violation of OAC Rule 3745-27-10 (C)(1) which requires that the monitoring program contain procedures which will provide samples which are representative of the ground water of the site. The agency indicated that the owner/operator should provide representative samples of low turbidity in all future sampling events and not utilize data from samples with high turbidity until this data can be shown to be representative of the ground water of the site. Hancock County Sanitary Landfill responded in the current submittal. In order to return to compliance, Hancock County needs to address the excessive turbidity in samples collected from SZ-3B, continue to lower the turbidity in well SZ-1A, and continue to maintain low turbidity readings in other wells.**
 - a. On page 2 of the submittal the owner/operator references the September 5, 2007 meeting between the owner/operator's consultant, Malcolm Pirnie, and Ohio EPA. The owner/operator then states, "As discussed in the meeting, the wells screened in the Sand/Silt Zone are, generally speaking, not able to produce low-turbidity water samples."

In the submittal Hancock County provided copies of the field data sheets for the October 2007 sampling event. These sheets indicate that the sand/silt zone wells (i.e., SZ-1A, SZ-2, SZ-3B, and SZ-4A) displayed a range of sample turbidities, however, half of these wells displayed turbidity values less than 100 NTU (SZ-2 at 43.1 NTU and SZ-4A at 6.34 NTU), one sample was less than 200 NTU (SZ-1A at 162 NTU with the metals bottle at 108 NTU), and one sample greater than 1100 NTU (SZ-3B at >1100 NTU). All of these wells are completed in the same Sand/Silt Zone (SZ well designations). The turbidity data for these wells indicate that decreasing turbidity concentrations are the norm, with well SZ-3B being the exception. Clearly, complete development, and careful purging and sampling can produce generally low turbidity samples. Interestingly, a review of the historical turbidity values for the series of wells in the SZ-3 area, provided by Hancock County, indicate that between October 1998 and September 2004 turbidity readings were below 60 NTU with readings as low as 1.8 NTU. There are no turbidity readings provided for the period May 2005 through January 2006, but from May 2006 to the present, which is the time that SZ-3B was sampled, readings were at least 1100 NTU. Clearly there are problems with well SZ-3B which must be addressed. It might be that this well has suffered some form of damage and needs to be replaced.

- b. At the bottom of page 2 of the submittal the owner/operator states, "Recent drilling activities in the borrow area to the west of the landfill have provided us with sieve and hydrometer analyses of the SZ and SW Zones. Attached are several of the grain-size analysis plots. As can be seen from these, 98.2 to 99.7% of the material passes the 200 sieve, which indicates it is silt and clay. As mentioned above, the 200 mesh sieve is equal to 0.003 inch, which is less than half the size of the 0.007 slot screen used in the wells. Screens with small enough slots to keep out the silt and clay are not manufactured."

Logs for the borings advanced in the borrow area were not provided in the submittal, however, Ohio EPA requested the boring logs and some of the boring logs which correlate with the sieve analysis data were provided by the owner/operator via email on May 12, 2008. Boring logs for wells in the Sand/Silt Zone (SZ Zone) indicate that the SZ wells were completed in what was clearly defined as a distinct sand. The borings advanced in the

borrow area did not identify a distinct sand near the elevation of this defined zone. While a location map of these boring logs was not provided, it is possible that this sand zone has pinched out and is not present in the area of the borrow pit where these borings were advanced. It would be inappropriate to equate the silt and clay observed in the borrow pit borings with the sand observed in the SZ borings.

- c. At the top of page 3 the owner/operator states, "Regarding the use of the data in background, it should be noted that, as discussed in the September 5, 2007 meeting and several responses to comments, these wells are not screened in the uppermost aquifer at the site, so citing a violation because the water is not representative becomes a non-issue. This is because the statistics required to determine background concentrations are only performed on potassium, sodium, ammonia and chloride, whose concentrations are not controlled by the turbidity of the sample like other metals."

The owner/operator should understand that OAC Rule 3745-27-10 (C)(1) requires the use of procedures that produce representative samples. Representative samples should always be collected. In addition, it would be presumptuous to assume that the concentrations of potassium, sodium, ammonia and chloride are not affected by turbidity until a detailed study has been performed.

- d. In the second paragraph on page 3 the owner/operator states, "During the September meeting, Ohio APA personnel said that if we document what we have done with these wells, such as the fact that they have been replaced with the same result (e.g. SZ-1, SZ-3 and SZ-3A have all been replaced), and confirm them [sic] the nature of materials, it should be adequate demonstration that the turbidity in these wells cannot be controlled by well construction or sampling methods, and the turbidities would no longer constitute violations of the rules."

Ohio EPA staff does not possess the authority to waive the owner/operator's responsibility to meet the rules. The statement, as presented by the owner/operator, was not made by Ohio EPA personnel. It is the owner/operator's responsibility to meet the requirements of OAC Rule 3745-27-10 (C)(1) which requires the use of procedures which produce representative samples. In the meeting of September 5, 2007 Ohio EPA encouraged the owner/operator to document activities associated with the installation of these wells in order to provide better

understanding of the problems the owner/operator is having. Ohio EPA did encourage the owner/operator to seek help from drillers and others regarding this issue. Ohio EPA did offer suggestions as to methods to reduce turbidity in well MW-3B including the use of low flow sampling, the use of redevelopment, and the possibility of replacing the well. Ohio EPA did not indicate that documentation of activities removed the requirement of the owner/operator to collect representative samples.

- e. In the last paragraph on page 3 the owner/operator states, "As such, because it is evident that these wells will never produce samples that are acceptable to the Ohio EPA as they are not representative of groundwater quality at the site, because they cannot be sampled without a violation being cited, and because replacement of these wells will produce the same inadequate results, Hancock County requests that the groundwater monitoring wells in the Sand/Silt Zone (SZ-1A, SZ-2, SZ-3B, SZ-4A and SW-2) be removed from the groundwater monitoring system at the Hancock County Sanitary Landfill. We have contended that the Silt Zone is in direct communication with the underlying [sic] Sand/Silt Zone, and it may in fact be part of the same deposit. Groundwater in the Sand/Silt Zone will flow into the Silt Zone (there is a downward gradient from the Sand/Silt Zone to the Silt Zone) and because there are Silt Zone monitoring wells downgradient of the landfill, the groundwater in the Sand/Silt Zone will be monitored downgradient of the landfill."

The owner/operator is reminded that OAC Rule 3745-27-10 (B)(1) requires that the owner/operator's monitoring system consist of a sufficient number of wells, installed at appropriate locations and depths, to yield ground water samples from both the uppermost aquifer system and any significant zones of saturation that exist above the uppermost aquifer system. Samples collected must represent both background and downgradient ground water quality. The Sand/Silt Zone is, and has been defined as a significant zone of saturation and must continue to be monitored as such.

Regarding the interconnection of the Sand/Silt Zone and the Silt Zone, the owner/operator has interpreted this to be the case, but has not shown evidence of this presumed relationship. Even if there is some minor hydraulic connection between the zones, the Sand/Silt Zone will still need to be monitored because the Sand/Silt Zone is a zone of saturation that may act as a preferential pathway of migration away from the limits of solid waste placement.

2. **Hancock County has adequately addressed the violation of OAC Rule 3745-27-10 (E)(3), which requires the submittal of an assessment plan. Ohio EPA indicated that the owner/operator needed to provide a ground water assessment plan for well SZ-3B which was in assessment for ammonia and potassium.** In the response to comments the owner/operator indicated that well SZ-3B is now included in the revised assessment plan dated February 18, 2008. A review of this plan indicates that the owner/operator's statement is correct. The owner/operator is no longer in violation of OAC Rule 3745-27-10 (E)(3) relative to the inclusion of well SZ-3B in the assessment plan.
3. **Hancock County has adequately addressed the violation of OAC Rule 3745-27-10 (C)(1)(a). Ohio EPA indicated that the owner/operator needed to follow their plan relative to the collection of field or equipment blanks. The plan indicated that they would collect equipment blank samples.** In their response to comments the owner/operator indicated that, "Equipment blanks were not collected in response to a recommendation by the Ohio EPA. This recommendation was made during the September 2007 meeting at the NWDO. The revised Sampling and Analysis Plan was submitted to Ohio EPA on February 18, 2008."

Ohio EPA did indicate that if owner/operator indicated that they would resample questionable wells, it was not necessary to collect equipment blanks. Ohio EPA has also indicated that the owner/operator needed to follow their plan until they change the plan procedures. The owner/operator has now changed their plan and is no longer in violation of OAC Rule 3745-27-10 (C)(1)(a).

RESPONSES TO REQUESTS FOR MORE INFORMATION TO DETERMINE COMPLIANCE

4. **Hancock County has submitted revised field data sheets; therefore, a violation of OAC Rule 3745-27-10 (C)(1)(a) has been averted.**
5. **Hancock County has submitted a new potentiometric surface map; therefore, a violation of OAC Rule 3745-27-10 (C)(3)(b) has been averted.**
6. **Hancock County has submitted a revised well sampling log for well MW-2; therefore, a violation of OAC Rule 3745-27-10 (C)(1) has been averted.**

Hancock County Board of Commissioners
May 30, 2008
Page Six

RESPONSES TO RECOMMENDATIONS

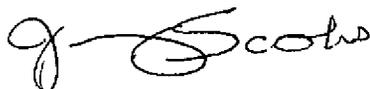
7. **Ohio EPA recommended the owner/operator review laboratory and field procedures for the presence of cross contamination due to an estimated quantity of di-n-butyl phthalate in a number of the site's wells.** The owner/operator indicated that the presence of the di-n-butyl phthalate was due to laboratory contamination.

RESPONSES TO STATEMENTS

8. **Ohio EPA stated that semivolatile organic compound bis(2-ethylhexyl) phthalate was observed in the SZ-3B sample at a concentration of 63 µg/L and noted that the compound should be added to the list for this assessment well.** The owner/operator responded in part, "We will monitor bis(2-ethylhexyl) phthalate during the next sampling event to determine if its presence is real or if this result was an anomaly." The owner/operator is reminded that OAC Rule 3745-27-10 (E)(5)(b)(ii)(a) requires annual sampling and analysis for Appendix II parameters in all assessment wells.

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

/lb

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