



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 (8-7-08)
Spring 2008 GW Monitoring Rpt

November 21, 2008

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

Dear Commissioners:

On September 15, 2008, the Ohio Environmental Protection Agency (Ohio EPA), Northwest District Office, received a document titled "Response to Ohio EPA Comments dated August 7, 2008, regarding the Hancock County Sanitary Landfill Spring 2008 Groundwater Monitoring Report submitted on July 21, 2008", dated September 12, 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.

Responses to Ohio EPA requests for **MORE INFORMATION NEEDED TO DETERMINE COMPLIANCE**, comment numbers 4, 5, 6, 8 through 10 and 12 through 14, have been adequately responded to. By providing sufficient information the owner/operator has averted a violation.

COMMENTS

RESPONSES TO OHIO EPA CITED VIOLATIONS

1. Ohio EPA indicated that the owner/operator continued to be in violation of OAC Rule 3745-27-10 (C)(1). Hancock County needed to ensure that procedures are utilized which provide representative samples of low turbidity in all future sampling events. In addition, analytical data from samples displaying these excessive turbidity readings must not have been utilized in any background data base unless they can be shown to be representative of the ground water of the site. The owner/operator continues to be in violation of this rule. OAC Rule 3745-27-10 (C)(1) requires that procedures be used which will result in the collection of representative samples. It appears that turbid samples are being collected at well SZ-3B because of problems with this well. If this is the case the well should be repaired or replaced as soon as possible.

In the current submittal the owner/operator provided what appears to be a series of points regarding their position. These points appear to relate to two major issues being: the representativeness of samples and the means to produce representative samples; and the need to continue to sample the Sand/Silt Zone wells.

Representative Samples:

Concerning the issue of the formation material being smaller than the screen slot size, properly designed and installed wells do not solely rely on the screen slot size to restrict movement of the fine formation materials into the well. The screen and the filter pack should be properly sized to both the formation and to each other. It is not necessary to size the screen small enough to restrict all clay and silt. This restriction is done by the filter pack and the formation itself following complete development. Well SZ-3B was installed with a ten slot (0.010 inch slots) screen and produces very turbid samples. The well, during bailing, produces very fine sand, silt and a small amount of clay based on microscopic inspection. Historical data indicate that well SZ-3A, which was installed with a 5 slot (0.005 inch slots) screen, produced very low turbidity samples until it was decommissioned due to entry of methane into the well.

Relative to utilizing passive sampling and filtered metals samples Ohio EPA has indicated that passive diffusion bag sampling is currently effective for some volatile organic compounds (VOCs) only. Also, filtered metals samples are banned by both U.S. EPA and Ohio EPA regulations for municipal solid waste facilities.

The owner/operator did use filtered and non-filtered samples relating to their OAC Rule 3745-27-10 (E)(9)(b) demonstration, but the samples collected from well SZ-03B were still not providing representative results. The owner/operator's data indicate that filtering may decrease some concentrations and may increase others depending on the well, the ground water chemistry, the formation chemistry and the individual parameter. It appears that SZ-3B is potentially damaged or needs continued redevelopment and will continue to produce non-representative samples, thereby masking changes in concentrations.

Regarding the County's position relative to "...continuing problems with satisfying the agency's personnel regarding..." well construction and representativeness of samples; the issues are rule related. OAC Rule 3745-27-10 (C)(1) requires that

the owner/operator use methods that will provide samples that are representative of the ground water of the site. Highly turbid samples are not representative of the ground water of the site, resulting in a violation of OAC Rule 3745-27-10 (C)(1). The owner/operator believes that the Sand/Silt Zone wells will never produce samples that are acceptable to Ohio EPA; however, other wells on the site, including well SZ-3A have produced low turbidity samples based on data supplied by Hancock County. This zone can produce representative samples based on historical data. The County indicates that the Sand/Silt Zone wells cannot be sampled without a violation being cited. If turbidity is significantly reduced to produce representative samples there will be no violation relative to turbidity and representativeness of the samples.

While the County indicates that replacement wells have been installed with the same results, historical data indicates that previous wells or replacement wells have been able to produce low turbidity samples in the past and, with proper design, construction, installation and development, should produce representative samples. Wells SZ-02, SZ-03A, SZ-04A, and SW-02 have all produced low turbidity samples.

Continued Sampling of the Sand/Silt Zone:

The suggestion to remove the Sand/Silt Zone wells from the monitoring program is currently not an option based on rule. OAC Rule 3745-27-10 (B)(1) requires that the ground water monitoring system contain wells which yield ground water samples from both the uppermost aquifer system and any significant zones of saturation that exist above the uppermost aquifer system. As defined by the owner/operator and as shown by the geological data, the Sand/Silt Zone is a significant zone of saturation and must be monitored as required by this rule. While removing the Sand/Silt Zone wells from the monitoring program might end discussion, this process will not meet the requirements of the rules. There is no evidence that the Silt Zone wells will effectively monitor the ground water in the Sand/Silt Zone. The owner/operator has not shown an interconnection between the two zones and has not presented data which shows that monitoring the Silt Zone will adequately monitor both zones in compliance with the rules.

VIOLATIONS

- 3. The owner/operator is in violation of OAC Rule 3745-27-10 (C)(1)(a) by not utilizing plan-required procedures. The owner/operator needs to utilize the**

plan-required stabilization criteria in all future sampling events. Ohio EPA indicated that compliance with OAC Rule 3745-27-10 (C)(1) could not be determined. The owner/operator was requested to explain how the requirements of this rule have been met relative to the pH in well MW-14. The pH readings during stabilization during purging were not within the plan required 0.1 standard units. The owner/operator responded that, "This was an error by field staff. Stabilization criteria will be reviewed prior to the next sampling event."

RESPONSES TO OHIO EPA REQUESTS FOR MORE INFORMATION TO DETERMINE COMPLIANCE

7. **Ohio EPA indicated that compliance with OAC Rule 3745-27-10 (C)(1) could not be determined at this time. Relative percent difference (RPD) values produced from the comparison of analytical results for the two samples in the duplicate sets were generally small and support the use of good quality assurance/quality control (QA/QC) procedures. For copper at the SW-2 duplicate sample set (labeled SW-2 and SW-25), however, the RPD was 123%, which is excessive. The owner/operator needed to explain the reasons for this excessive RPD. Neither value in the duplicate set should be used in any background data set constructed for this well.**

The owner/operator responded that they reviewed the laboratory quality control data sheets and field activities and noted no anomalies. They concluded that the excessive RPD for copper was due to "natural variation of copper in the ground water from SW-2."

Since the owner/operator indicated that the samples in the duplicate set were collected on a bottle-for-bottle basis, it is unlikely that there is significant natural variability. While it is not clear what caused the excessive variation it is not known which copper concentration value is correct. Possibly neither is correct. For this reason neither value should be used in any background data set determined for copper at well SW-2.

11. **Ohio EPA indicated that compliance with OAC Rule 3745-27-10 (C)(1) could not be determined. The owner/operator needed to explain how increasing the amount of flow to purge the well dry meets the requirements of this rule. The owner/operator needed to also specify how it will purge the wells in the future in a manner which will result in representative samples. Prior to the increased rate the turbidity readings were "clear, 115, 109.1, clear,**

55.2". It appears that turbidity was decreasing. The sample turbidity, following an increased flow to purge the well dry, was 290 NTU and the sample was cloudy. The owner/operators failed to adequately explain how their purging procedures meet the requirements of OAC Rule 3745-27-10 (C)(1) and therefore need to specify how they will purge wells in the future to meet the requirements of this rule.

The owner/operator responded that, "...it became apparent that the well was being dewatered..." They indicated, "As such, the purge rate was increased in order to make the unavoidable occur more quickly." They also indicated that, "the groundwater sample collected from SZ-4A was representative."

The sample displayed high turbidity and was not representative of the ground water of the site. Historically SZ-4A has produced samples with low turbidity readings. Typically the turbidity values were under 30 NTU between 1999 and 2004 based on owner/operator provided data. It appears that the actions of the samplers resulted in high turbidity samples.

STATEMENTS

- 2. Ohio EPA indicated that compliance with OAC Rule 3745-27-10 (C)(3)(b) could not be determined. Hancock County needed to accurately redraw the map for the SW zone and provide the new interpretations to Ohio EPA. Alternatively, the owner/operator needed to clearly explain how the current interpretations accurately represent ground water flow under the site. The owner/operator has not done this, however, based on conversations with the owner/operator and continued review of the owner/operator's map it appears that even if the map is redrawn and the data is properly honored and the flow direction is changed by about 90 degrees, the monitoring system in the northeast portion of the facility will remain adequate if wells SW-3 and SW-13 are retained as downgradient wells. A violation has been averted.**

Subsequent to the submittal of this response to comments by the owner/operator a meeting was held with Hancock County and their consultant to discuss a variety of issues including errors in contouring on the Silt Zone Potentiometric Surface Map for May 12, 2008 data. Ohio EPA believes that the Silt Zone map for the spring 2008 data does not accurately represent flow direction in the

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northeast portion of the facility as required by OAC Rule 3745-27-10 (C)(3)(b) because the map did not utilize generally accepted rules of contouring requiring the location of contour lines using interpolation of data between known data points. This map is similar to one presented using the October 24, 2006 data, but different from maps using data from October 22, 2007 and May 14, 2007. The contours in the northeast portion of the facility on the October 22, 2007 map are acceptable to Ohio EPA and appear to properly honor the ground water elevation data. Besides being included in the report of the fall 2007 sampling event, the October 22, 2007 map is included in the owner/operator's February 2008 detection monitoring plan. The owner/operator disagrees relative to the errors on the May 12, 2008 map.

The owner/operator, based on the detection monitoring plan, indicates that wells SW-3 and SW-13 are downgradient wells and will be monitored as downgradient wells. It appears that these wells are properly placed relative to the acceptable interpretation of ground water flow in the northeast corner of the landfill. Ohio EPA continues to maintain that May 12, 2008 potentiometric surface map in the northeast area of the site presents errors in contouring.

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

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