



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
Groundwater Monitoring Report
Fall 2007

February 7, 2008

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

Dear Commissioners:

On January 7, 2008, the Ohio Environmental Protection Agency (Ohio EPA), Northwest District Office, received a document titled "Groundwater Monitoring Report, Fall 2007", dated January 4, 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. **The owner/operator is in violation of OAC Rule 3745-27-10 (C)(1) which requires that Hancock County provide, "... an accurate representation of ground water quality at the background and downgradient wells". Hancock County needs 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 be utilized in any background data base unless they can be shown to be representative of the ground water of the site.**

A review of the submittal indicates that several of the samples collected displayed excessive turbidity readings. While sampling procedures initiated by the owner/operator during this sampling event have greatly reduced the number of wells with turbid samples, three wells, SW-12 (1007 NTU), SZ-01A (162 NTU) and SZ-03B (>1100 NTU for the sample and resample), displayed excessive turbidity readings. The owner/operator's Table 3-4 also provides this information.

These turbidity readings are excessive and are representative of samples with extreme levels of suspended solids. The analytical results are skewed by the inclusion of these suspended solids and are not representative of the ground water of the site. Because the results are skewed, the utilization of these samples indicates that the procedure is not capable of determining the impact of the facility on the quality of the ground water. Also, the procedures utilized are not resulting in the collection of representative samples. The >1,100 NTU values are at least 220 times the target turbidity levels expressed by the owner/operator in the sampling and analysis plans.

- 2. Hancock County continues to be in violation of OAC Rule 3745-27-10 (E)(3), which requires that the owner/operator submit a ground water 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 provide a ground water assessment plan for well SZ-03B.**

Data indicate that well SZ-03B was sampled on October 25, 2006. In a report of findings for this sampling event dated January 2, 2007, and received by Ohio EPA January 3, 2007 the owner/operator indicated that the sample from SZ-03B exceeded background values for potassium. No demonstration was received or approved in accordance with OAC Rule 3745-27-10 (D)(7)(c) within 210 days from initial sampling. The well was, therefore, in the assessment program.

Also, no ground water assessment plan was received within 135 days from notification to Ohio EPA of the statistically significant increase over background. This date was May 18, 2007.

- 3. Hancock County is in violation of OAC Rule 3745-27-10 (C)(1)(a). For rule citation see comment 3 above. Hancock County needs to follow their plan relative to the collection of field or equipment blanks in all future sampling events or change the plan if the stated procedures are no longer appropriate.**

At the top of page 6-2 in the sampling and analysis plan the owner/operator states, "For each sampling event involving bailed wells, one (1) equipment blank sample for every twenty (20) or fewer environmental samples or one (1) per day, whichever is greater, will be collected by filling a disposable bailer with distilled or deionized water and dispensing it into a set of sample containers." A review of

the fall 2007 ground water report indicates that while wells SW-15, SZ-1A, and SZ-3B were sampled with a bailer, no equipment blanks were collected as required by the plan.

MORE INFORMATION NEEDED TO DETERMINE COMPLIANCE

- 4. Compliance with OAC Rule 3745-27-10 (C)(1)(a), which requires that the owner/operator, "... use the procedures documented in the sampling and analysis plan", cannot be determined at this time. Hancock County needs to explain how not providing all the information on the field sheets meets the requirements of this rule. Alternatively, the owner/operator may add the necessary information to the field sheets, if available, and resubmit them to Ohio EPA and ensure that field data sheets are properly completed in all future sampling events.**

At the bottom of page 4-3 of the sampling and analysis plan the owner/operator states, "A Well Sampling log (Figure 2-1) will be completed for each well during sample collection activities." A review of the submitted Well Sampling Log for each of the wells indicates that the date, weather conditions and temperature spaces at the top of the logs were not completed for each well.

- 5. Compliance with OAC Rule 3745-27-10 (C)(3)(b), which requires that the owner/operator, "...determine, for the uppermost aquifer system and for all significant zones of saturation monitored, the direction of ground water flow ...", cannot be determined at this time. Hancock County needs to accurately redraw the map for the SW zone and provide the new interpretations to Ohio EPA. Alternatively, the owner/operator should clearly explain how the current interpretations accurately represent ground water flow under the site.**

A review of Figure 3, "Silt Zone Potentiometric Surface Map October 22, 2007" indicates several possible problems. While the map consistently shows a general southeast to northwest flow direction for ground water in this zone there are local anomalies in the interpretation which may affect the understanding of the ground water flow in these areas.

On the east side and in the southeast corner of the site, in the area of wells SW-16 and SW-17, the 772' contour is located west of these two wells which display

ground water elevations of 770.94' and 771.01' respectively. This generally would suggest an eastward ground water flow in this area of the site, but the other contours in the area suggest a west to northwest flow. There appears to be a contouring error where the 772' contour should be east of wells SW-16 and SW-17. The map should be corrected.

Well SW-15, with a ground water elevation of 765.44' is located very near the 764' contour and a very long distance from the 766' contour. As drawn, the map shows a steeper ground water gradient in the downgradient direction from SW-15 (0.006 ft/ft) which is generally similar to the gradient in the area between SW-14 and SW-15. However, as drawn, the map shows a very slight gradient in the upgradient direction of SW-15 (0.0007 ft/ft) which is not similar to the gradient determined by other contours between SW-15 and SW-1 (about 0.01 ft/ft to 0.008 ft/ft). There may be a contour error.

In the northwest corner of the site, well SW-8 is located between the 748' and 750' contours. Well SW-8 displays a ground water level of 750.21' and should, therefore, be located outside of the 750' contour rather than between the 748' and 750' contours. There is a contour error.

6. **Compliance with OAC Rule 3745-27-10 (C)(1), which requires that the ground water monitoring program include consistent sampling and analysis procedures that are protective of human health and the environment and provide an accurate representation of ground water quality, cannot be determined at this time. Hancock County needs to explain the discrepancy between the screen volume and the minimum purge volume. If there is an error, Hancock County needs to ensure that calculations are performed properly in all future sampling events.**

On page 3-4 of the sampling and analysis plan the owner/operator states, "As a general rule, the total purge volume should exceed the volume of the well screen plus any observed drawdown during purging." On the field data sheet (Well Sampling Log) for well MW-2 the owner/operator indicates that the screen volume is 6.50 gallons, but the minimum purge volume is 5.63 gallons. Based on the statement in the sampling and analysis plan the minimum purge volume should be at least 6.50 gallons.

RECOMMENDATIONS

7. **Semivolatile organic compound (SVOC) Di-n-butyl phthalate is observed in several well samples at estimated levels. It is recommended that Hancock County review laboratory and field procedures for the presence of cross contamination and also carefully monitor all of the site's monitoring wells.**

A review of the laboratory reports for the ground water samples indicates that Di-n-butyl phthalate is present at concentrations greater than the method detection limit (MDL) and less than the practical quantitation limit (PQL). It was observed in wells SW-15, MW-13, MW-23, SZ-3B, and MW-14. While these detections are not quantifiable, their presence may be the result of a release from the landfill or cross contamination.

STATEMENTS

8. **Semivolatile organic compound (SVOC) bis(2-ethylhexyl)phthalate was observed in the sample collected from SZ-3B at a concentration of 63 µg/L. While this well is already in assessment, it should be noted that this compound should be added to the list of observed constituents in this well.**

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

ec: ~~File: Hancock County, Hancock County Landfill, Ground Water~~

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