



State of Ohio Environmental Protection Agency

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Ted Strickland, Governor
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September 12, 2008

Mr. David Duritsch, Jr.
City of Middletown
One Donham Plaza
Middletown, Ohio 45042

RE: Middletown Landfill (Closed), Butler County
Notice of Violation-Statistical Report of Ground Water Quality-July 2008

Dear Mr. Duritsch:

On July 3, 2008, the Division of Solid and Infectious Waste Management (DSIWM) received the document titled Statistical Report of Ground Water Quality, Notification of Statistical Significance, and Demonstration of Alternate Source, dated July 2, 2008 for the closed Middletown Sanitary Landfill (Facility). The document was submitted by Hull & Associates, Inc. on behalf of the City of Middletown (City) owner/operator of the Middletown Sanitary Landfill (Facility), located in Butler County.

DSIWM forwarded the document to the Division of Drinking and Ground Waters (DDAGW) for review and comment. Ohio EPA has provided the following comments based on a review of the information submitted:

1. The City stated in the Statistical Report of Ground Water Quality, dated July 2008 that "Sampling and analysis of ground water was completed in accordance with the assessment monitoring program required in OAC 3745-27-10(E)". However, Ohio EPA disagrees with this statement as the City failed to conduct the sampling and analysis in accordance with Appendix II parameters referenced in OAC Rule 3745-27-10(E).

During the May 23, 2008 meeting with HAI, the City and Ohio EPA and subsequent conference call on June 18, 2008 with Karen Okonta representing HAI, Ohio EPA discussed the City's improper reporting of the ground water sampling and analysis for the Facility as detection monitoring data in lieu of assessment monitoring data. Pursuant to the Directors Final Findings and Orders (DFFO's) effective April 22, 2008, the City shall submit sampling and analysis data in accordance with OAC Rule 3745-27-10, effective 2003. The City reported statistically significant increases (SSI) for several inorganic indicator parameters in the following monitoring wells: MW-6R, MW-8, MW-12, MW-13, MW-14R, MW-15, MW-18, and MW-19.

The City has also requested an alternate source demonstration(s) pursuant to OAC Rule 3745-27-10(D)(7)(c) for several statistically elevated constituents observed in the monitoring wells listed above. The report stated that the SSI's were related to natural variation in ground water quality.

According to Ohio EPA records the aforementioned monitoring wells are in the assessment monitoring program. Therefore, the request for an alternate source demonstration for the sampling and analysis of the Facility's ground water assessment data shall be reported in accordance with OAC Rule 3745-27-10(E).

The City's alternate source demonstration(s) request need to be re-submitted in accordance with OAC Rule 3745-27-10(E)(9)(b).

The City's failure to conduct sampling in accordance with the assessment monitoring program is a violation of OAC Rule 3745-27-10(E)(5)(b) which states in part:

"The owner or operator shall sample all monitoring wells in the ground water quality assessment monitoring program, as follows. A monitoring well is considered part of the ground water quality assessment monitoring program if the well is needed or used to meet the provisions of paragraph (E)(6) of this rule:

(i) At least semiannually for the following:

- (a) All parameters in appendix I of this rule or the alternative parameter list approved under paragraph (D)(2), and/or (D)(3) of this rule.**
- (b) All the constituents reported to the director in accordance with paragraph (E)(5)(C) of this rule.**

(ii) At least annually for one of the following.

- (a) All parameters in appendix II of this rule.**
- (b) The remaining appendix II parameters if the director has deleted appendix II parameters in accordance with paragraph (E)(5)(e) of this rule."**

Ohio EPA requests that the City prepare and re-submit the assessment monitoring alternate source demonstration(s) in accordance with OAC Rule 3745-27-10(E)(9)(b).

2. Pursuant to OAC Rule 3745-29-10(E)(9)(b), the owner or operator can submit a demonstration that the statistically significant change resulted from a natural variation in ground water quality.

Until a successful demonstration can be made that all statistically elevated constituents are below background levels for two (2) consecutive sampling events or that all statistically significant constituents can be attributed to natural variation in ground water quality, the affected wells will remain as assessment wells subject to the assessment monitoring requirements in accordance with OAC Rule 3745-27-10(E).

3. Ohio EPA is unclear why the City is requesting an alternate source demonstration for a few constituents per well, while other constituents remain statistically significant in the well. For instance, ammonia, arsenic, barium and potassium were noted as statistically significant in MW-6R for the April 2008 sampling event. However, the City concluded that the SSI's for ammonia and potassium are "false positives" as a "result of natural variability in ground water quality". **Whether or not ammonia and potassium can be attributed to "natural variability in ground water quality", arsenic and barium remain statistically significant and sampling of monitoring well MW-6R must continue under the assessment monitoring provisions in accordance with OAC Rule 3745-27-10(E).**
4. Despite the City submitting an alternate source demonstration under OAC Rule 3745-27-10(D)(7)(c) rather than OAC Rule 3745-27-10(E)(9)(b), **Ohio EPA does not believe that sufficient information was presented to support a return to detection monitoring.** In Appendix C-1 of the Statistical Memorandum, the City concluded the following statistically elevated parameters were due to natural variation:

- Ammonia and potassium in MW-6R
- Ammonia in MW-8
- Barium in MW-12
- Ammonia and potassium in MW-15
- Barium and potassium in MW-19

- Barium in MW-13
- Ammonia, chloride, barium and sodium in MW-14R
- Sodium in MW-18

However, Ohio EPA believes the City's justification that the above SSI's were due to natural variation was vague and contained little supporting information. The Statistical Memorandum, Appendix C dated July 2008 states that "...there is no established DWS for potassium. Therefore the statistical significance for this parameter in these monitoring wells are determined to have likely resulted from

naturally occurring variable conditions within the ground water quality beneath the facility and are not considered validated..."

Ohio EPA does not agree with the City's claim that the SSI for potassium is naturally occurring. Potassium levels reported below an established Drinking Water Standard are not evidence alone to support this argument.

Another example would include the City's treatment of barium in monitoring wells MW-12 and MW-19. The report states that, "the presence of barium is due to natural variability in ground water quality since no "deleterious trends were identified" and its presence was "significantly below the Drinking Water standard."

Ohio EPA requires a detailed geochemical analysis of ground water and leachate when evaluating alternate source demonstration requests. Stiff/piper plots of data, comparison of affected data to upgradient wells, detailed trend analysis and other diagnostic tools (such as specialized sampling) are often provided when making these types of requests. Making statement(s) that "no deleterious trends were identified" or that a constituent is below a drinking water standard is not sufficient justification that an SSI can be attributed to natural variability. If the City wants to continue pursuing a demonstration pursuant to OAC Rule 3745-27-10(E)(9)(b), Ohio EPA requests that additional information be submitted to support the claim that SSI's are due to natural variation of ground water quality.

5. The 2008 Statistical Report of Ground Water Quality states that "the use of inter-well procedures also provides justification for the use of intra-well procedures for those monitoring wells requested to return to detection monitoring."

Only until the City can make a successful demonstration as determined by Ohio EPA that the groundwater at the Facility has not been impacted by a release from the landfill or that the SSI's are due to natural variation in ground water quality, would Ohio EPA consider intrawell statistical methods for detection monitoring. Ohio EPA may consider the use of intrawell statistical methods only in assessment and/or corrective measures monitoring program.

Compliance with the requirements outlined in this letter shall not relieve you of your obligation to comply with other legal obligations, including, but not limited to, Chapter 3745 of the Ohio Administrative Code or Chapters 3704, 3714, 3734 or 6111 of the Ohio Revised Code or under the Federal Clean Water Act, Clean Air Act, Comprehensive Environmental Response, Compensation, and Liability Act, or Resource Conservation and Recovery Act remedying conditions resulting from any release of contaminants to the environment.

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If you have any further questions regarding DDAGW's comments, please contact John McGinnis at (937) 285-6449.

Sincerely,



Maria Lammers, RS
Environmental Specialist II
Division of Solid and Infectious Waste Management

cc: Karen Okonta, Hull & Associates, Inc.
Chief of Environmental Services, Butler County Health Department
John McGinnis, Ohio EPA, DDAGW, SWDO

ML/plh