



**Environmental
Protection Agency**

John R. Kasich, Governor

Mary Taylor, Lt. Governor

Scott J. Nally, Director

March 5, 2012

**RE: CENTRAL WASTE
GROUND WATER
NOTICE OF VIOLATION**

CERTIFIED MAIL 7011 0470 0002 3496 1641

Donald Minihan
Central Waste, Inc.
12003 Oyster Road
Alliance, OH 44601

Dear Mr. Minihan:

The Ohio Environmental Protection Agency (Ohio EPA) has reviewed the following documents:

Statistical Analysis of Ground Water Results, 2011 Second Semiannual Event, dated January 26, 2012 including:

- *2011 Second Semiannual Detection Ground Water Data*
- *2011 Second Semiannual Assessment Ground Water Data*
- *2011 Annual Ground Water System Evaluation*
- *2011 Second Semiannual Assessment Activities Report*

This report was submitted to Ohio EPA on January 27, 2012 on behalf of Central Waste Landfill, Inc., by Eagon & Associates, Inc. Detection and assessment ground water monitoring results, *Assessment Activities Report for the 2011 Second Semiannual Sampling Event, 2011 Annual Ground Water System Evaluation* are contained in the above referenced documents.

DETECTION PROGRAM HISTORY

Revision 6 of the Ground Water Detection Monitoring Plan for Central Waste Landfill, dated August 4, 2011, documents methods and procedures for monitoring both background ground water quality and the quality of ground water passing directly downgradient of the limits of solid waste placement. There are a total of 16 detection and background wells including: Ten wells located in the Middle Mercer UAS, four wells located in the Mine Spoil UAS, and two located in the Glacial Till SZS.

ASSESSMENT PROGRAM HISTORY

Revision 7 of the *Ground Water Quality Assessment Plan* for Central Waste Landfill, dated December 28, 2011, documents the methods and procedures that will be used to evaluate the concentration, rate, and extent of water quality parameters detected above background in downgradient monitoring wells at the facility. Currently, five monitoring wells are in assessment: MW-16D located in the Middle Mercer Shale Upper Aquifer System (UAS) and MW-11SR, MW-12S, MW-28S, and MW30S located in the Mine Spoil UAS.

Well MW-12S and MW-16D entered the assessment program in January 2009 for a statistically significant result for chloride and carbon disulfide, respectively, during the 2008 First Semiannual Event. Note: At the time it went into assessment, MW-16D was originally interpreted to be a downgradient well in the Middle Mercer UAS. MW-16D is currently being interpreted as an upgradient well in the Middle Mercer UAS, and is being used to assess concentration, rate, and extent of migration of waste-derived constituents at well MW-12S. Wells MW-28S and MW-11SR have entered into the assessment program as of June 2009. Well MW-28S entered the assessment program due to ammonia, chloride, and sodium detections above the interwell prediction limit. Well MW-11SR entered the assessment program due to statistically significant results for chloride during background ground water quality sampling. Well MW-30S was installed in July 2009 to assess concentration, rate, and extent at well MW-28S.

On January 19, 2012, Ohio EPA requested additional information in order to determine compliance (Comments #1 through #3) regarding three issues including:

- OAC Rule 3745-27-10(E)(1) and 3745-27-10(E)(6)(a) requiring a ground water quality assessment plan capable of determining concentration, rate, and extent of migration of waste-derived contaminants in ground water. Additional wells are needed to determine vertical extent, rate, and concentration at MW-28S, MW-30SR, and MW-11. The location of MW-30D needs to be moved as close as practicable to MW-28S, and an additional well needs to be installed as close as practicable to MW-11SR. Both wells need to be fully screened in the first water encountered in bedrock or the Middle Mercer UAS, whichever occurs first.
- OAC Rule 3745-27-10(B)(1)(a) requires that upgradient wells represent the quality of background water that has not been affected by past or present operations at the landfill. Considering the proximity of MW-16D to the permitted limits of waste, the Potentiometric Surface Map of the Middle Mercer Shale, the lack of ground water elevation data from the east side of the landfill, and the presence of potentially waste-derived constituents (i.e. benzene and carbon disulfide) at MW-16D, it is unclear whether or not if there is a component of ground water flow at MW-16D that is affected by landfill waste. The owner/operator has not adequately demonstrated that MW-16D is located upgradient of the influence of waste placement.

- OAC 3745-27-10(E)(9) allows the demonstration that a source other than the sanitary landfill facility caused the contamination, or that the statistically significant change resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground water quality. It has been claimed that concentrations of benzene and carbon disulfide in ground water samples from MW-16D are naturally occurring. The owner/operator has not adequately demonstrated that a source of benzene and carbon disulfide other than the landfill caused the contamination, or that statistically significant changes resulted from errors in sampling, analysis, statistical evaluation, or natural variation in ground water quality.

The aforementioned requests for additional information were based on Ohio EPA's review of four rounds of assessment data from the *2009 Second Semiannual Sampling Event* through the *2011 First Semiannual Sampling Event*. The owner/operator has not yet responded to Ohio EPA's January 19, 2012 requests for additional information outlined in Comments #1 through #3.

2011 SECOND SEMIANNUAL DETECTION SAMPLING

Significant zone of saturation (SZS) detection monitoring wells were sampled for OAC 3745-27-10 Appendix I parameters 18, 25, 33, 61, and 63-66, and the UAS detection monitoring wells were sampled for OAC 3745-27-10 Appendix I parameters 1 through 66. Samples were collected on November 14 and 15, 2011.

Statistical analysis of detection monitoring well ground water data in the reviewed report indicates five statistically significant increases:

- Cobalt and sodium at MW-14-S
- Zinc at MW-5SR
- Arsenic at MW-5D
- Barium at MW015DR

No VOCs were detected above the PQL in ground water samples from detection monitoring wells for the *2011 Second Semiannual Sampling Event*. According to information in the report, MW-14S, MW-5SR, MW-5D, and MW-15DR were resampled on January 19, 2012, and the data from this resampling event will be submitted to Ohio EPA under a separate cover.

2011 SECOND SEMIANNUAL ASSESSMENT SAMPLING

Assessment wells MW-11SR, MW-12S, MW-28S, MW-30S, and MW-16D were sampled for Appendix I parameters (1-78) for the *Second Semiannual Event for 2011*. Review of assessment ground water monitoring results for the *2011 Second Semiannual Event* indicate that benzene was detected at 2.1 ug/L in MW-16D. MW-16D is an upgradient well in the bedrock UAS, and is also used as a vertical rate and extent well for assessment well MW-12S. Benzene has not been detected in ground water samples from MW-12S. Benzene has been detected in ground water

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samples from MW-16D during the previous two sampling events at the site. There were no other VOCs or other Appendix I parameters detected at or above the PQL for the assessment wells during the *2011 Second Semiannual Assessment Sampling Event*.

The reviewed report indicates that the benzene detected in ground water from MW-16 is naturally occurring and derived from the Middle Mercer Shale citing the 2001 report by Dale McLane and Jack Leow entitled *Ohio EPA Research Study for the Erie County Landfill Site, the Presence of Naturally Occurring Leachable BTEX in the Ohio Shale, Erie County Ohio*.

Note: The reviewed report does not contain comparisons of concentrations of parameters to background concentrations as required by OAC Rule 3745-27-10(E)(5)(a)(ii) and Revision 7 (p. 6-1) of the *Ground Water Assessment Plan* dated December 28, 2011.

2011 ANNUAL GROUND WATER SYSTEM EVALUATION

Information in the report (pg. 3) indicates that the owner/operator has reviewed ground water elevation data from the *2011 Second Semiannual Sampling Event*, and has concluded that the ground water monitoring network at Central Waste Landfill consists of a sufficient number of appropriately placed monitoring wells to detect significant concentrations of landfill derived parameters downgradient of the limits of solid waste placement. The report includes potentiometric maps of the glacial till/mine spoil deposits (Figure 2) and the Middle Mercer UAS (Figure 3).

According to Rules OAC 3745-27-10(4)(B)(5), if the ground water monitoring system evaluation indicates that the system that paragraph (B) of this rule is no longer satisfied, the owner or operator shall immediately revise the number, location, and/or depth of the monitoring wells to bring the ground water monitoring system into compliance with this requirement and place documentation of the revision into the operating record in accordance with paragraph (B)(3)(d) of this rule.

Note: On October 24, 2011, Ohio EPA requested (Comment #1) additional information to determine compliance with 3745-27-10(B)(1)(b) and (B)(4)(b). Ground water samples collected at MW-14DR may not represent the quality of ground water passing directly downgradient of the limits of waste as required by OAC 3745-27-10(B)(1)(b). The owner/operator has not demonstrated that MW-14DR is located as close as practicable to the limits of solid waste placement as required by OAC 3745-27-10(B)(4)(b). At this writing, the owner/operator has not yet responded to this request for additional information. As previously mentioned, on January 19, 2012, Ohio EPA requested additional information to determine compliance with various OAC 3745-27-10 rules dealing with the adequacy of the Assessment Monitoring Well System. The owner/operator has not responded to the January 19, 2012 request for additional information.

The owner/operator has complied with Rule OAC 3745-27-10(B)(5) by evaluating the ground water monitoring system. However, Ohio EPA disagrees with the owner/operator's conclusion (pg. 3) that "... the ground water monitoring well network at Central Waste Landfill consists of a sufficient number of appropriate placed monitoring wells to detect statistically significant concentrations of the monitored constituents downgradient of the limits of solid waste placement." Ohio EPA's disagreement about this conclusion is based on the number of outstanding unresolved issues regarding the ground water monitoring system outlined above.

2011 SECOND SEMIANNUAL ASSESSMENT ACTIVITIES REPORT

Rule OAC 3745-27-10(E)(12) requires the owner/operator to submit a narrative description of all assessment activities that have occurred since the previous report. A section entitled "Assessment Monitoring" of the reviewed report (pg. 5) constitutes the *Semiannual Assessment Activities Report* for August through December 2011.

As previously mentioned, benzene was detected at 2.1 ug/L in MW-16D, and there were no other VOCs or other Appendix I parameters detected at or above the PQL in ground water samples from assessment wells during the 2011 Second Semiannual Assessment Sampling Event. The following assessment activities were conducted during the period between August and December 2011:

- The 2011 first semiannual report was submitted August 5, 2011.
- The second semiannual sampling event was conducted November 14 through 15, 2011.
- Assessment wells MW-11R, MW-12S, MW-28S, MW-30S, and MW-16D were sampled for Appendix I parameters (I-78) for the second semiannual event of 2011.

Ohio EPA has identified the following violation:

- 1. Compliance with OAC Rules 3745-27-10(E)(5)(a)(ii) cannot be determined at this time. OAC Rule 3745-27-10(E)(5)(a)(ii) requires that comparisons be made between assessment ground water sample results for waste derived constituents and background ground water concentrations of waste derived constituents.**

The reviewed report does not contain comparisons between assessment ground water sample results for waste derived constituents and background ground water concentrations of waste derived constituents. The owner/operator has not adequately demonstrated that such comparisons have been made.

Ohio EPA offers the following recommendation:

1. The reviewed report indicates that the benzene detected in ground water from MW-16 is naturally occurring and derived from the Middle Mercer Shale citing the 2001 report by Dale McClane and Jack Leow entitled *Ohio EPA Research Study for Erie County Landfill Site, Presence of Naturally Occurring Leachable BTEX in the Ohio Shale, Erie County, Ohio*. The cited 2001 report documents the occurrence of petroleum in Devonian-aged members of the marine Ohio Shale and has no direct relevance to the Pennsylvanian-aged non-marine Middle Mercer Shale at Central Landfill in Mahoning County. References to this document should be removed from the report.

Ohio EPA has the following comments:

1. **The owner/operator has complied with Rule OAC 3745-27-10(B)(5) by evaluating the ground water monitoring system. However, Ohio EPA disagrees with the owner/operator's conclusion (pg. 3) that "... the ground water monitoring well network at Central Waste Landfill consists of a sufficient number of appropriate placed monitoring wells to detect statistically significant concentrations of the monitored constituents downgradient of the limits of solid waste placement."**

On October 24, 2011, Ohio EPA requested (Comment #1) additional information to determine compliance with 3745-27-10(B)(1)(b) and (B)(4)(b). Ground water samples collected at MW-14DR may not represent the quality of ground water passing directly downgradient of the limits of waste as required by OAC 3745-27-10(B)(1)(b). The owner/operator has not demonstrated that MW-14DR is located as close as practicable to the limits of solid waste placement as required by OAC 3745-27-10(B)(4)(b). The owner/operator has not yet responded to this request for additional information.

On January 19, 2012, Ohio EPA requested additional information in order to determine compliance (Comments #1 through #3) regarding three issues including:

- OAC Rule 3745-27-10(E)(1) and 3745-27-10(E)(6)(a) requiring a ground water quality assessment plan capable of determining concentration, rate, and extent of migration of waste-derived contaminants in ground water. Additional wells are needed to determine vertical extent, rate, and concentration at MW-28S, MW-30SR, and MW-11. The location of MW-30D needs to be moved as close as practicable to MW-28S, and an additional well needs to be installed as close as practicable to MW-11SR. Both wells need to be fully screened in the first water encountered in bedrock or the Middle Mercer UAS, whichever occurs first.

- OAC Rule 3745-27-10(B)(1)(a) requires that upgradient wells represent the quality of back ground water that has not been affected by past or present operations at the landfill. Considering the proximity of MW-16D to the permitted limits of waste, the Potentiometric Surface Map of the Middle Mercer Shale, the lack of ground water elevation data from the east side of the landfill, and the presence of potentially waste-derived constituents (i.e. benzene and carbon disulfide) at MW-16D, it is unclear whether or not if there is a component of ground water flow at MW-16D that is affected by landfill waste. The owner/operator has not adequately demonstrated that MW-16D is located upgradient of the influence of waste placement.
- OAC 3745-27-10(E)(9) allows the demonstration that a source other than the sanitary landfill facility caused the contamination, or that the statistically significant change resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground water quality. It has been claimed that concentrations of benzene and carbon disulfide in ground water samples from MW-16D are naturally occurring. The owner/operator has not adequately demonstrated that a source of benzene and carbon disulfide other than the landfill caused the contamination, or that statistically significant changes resulted from errors in sampling, analysis, statistical evaluation, or natural variation in ground water quality.

The aforementioned requests for additional information were based on Ohio EPA's review of four rounds of assessment data from the *2009 Second Semiannual Sampling Event* through the *2011 First Semiannual Sampling Event*. At the time of this writing, the owner/operator has not had time to respond and has not responded to Ohio EPA's January 19, 2012 requests for additional information outlined in Comments #1 through #3.

Therefore, Ohio EPA's disagreement about the report's conclusion that the existing monitoring system is adequate is based on the number of outstanding unresolved issues regarding the ground water monitoring system outlined above.

2. Ohio EPA disagrees that data on hydrographs in Appendix B of the report support the interpretation of the hydrogeology of the Mine Spoil UAS and the effect of dewatering of the North Impoundment between May 30, 2009 and November 2, 2009 (pg. 2) that: "The ground water surface still reflects the effects of the dewatering which indicates a relatively poor hydraulic connection between the mine spoil and Boot Lake and the lack of ground water recharge beneath the landfill."

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Hydrograph data from monitoring wells closest to the North Pond indicate that water levels in those wells had recovered by the latest in the Spring of 2010. It is Ohio EPA's opinion that there likely is a hydraulic connection between the mine spoil and Boot Lake. It may have been helpful to have the level of Boot Lake represented on the hydrographs.

Nothing in this letter shall be construed to authorize any waiver from the requirements of any applicable state or federal laws or regulations. This letter shall not be interpreted to release the Entity from responsibility under Chapters 3704, 3714, 3734, or 6111 of the Ohio Revised Code or under the Federal Clean Water or Comprehensive Environmental Response, Compensation, and Liability Acts for remedying conditions resulting from any release of contaminants to the environment.

If you have any questions concerning this letter, please contact me at (330) 963-1257.

Sincerely,



Katharina Snyder
Division of Materials and Waste Management

KS:cl

cc: Al Muller, DDAGW-NEDO
Mary Helen Smith, Mahoning County Health Department
File: [Sowers/LAND/Central/GRO/50]
DMWM #4244