

Environmental
Protection Agency

Paul H. Gearty, Governor

Mary Taylor, Lt. Governor

Robert M. Frick, Director

January 27, 2012

RE: CITY OF AVON LAKE LANDFILL
GROUND WATER
NOTICE OF UNRESOLVED VIOLATION

CERTIFIED MAIL 7011 0470 0002 3496 0576

Mr. Thomas E. Lescher
Service Director
City of Avon Lake
750 Avon Belden Rd.
Avon Lake, Ohio 44012

Dear Mr. Lescher:

The Ohio Environmental Protection Agency (Ohio EPA) has reviewed the report entitled "*Filtered Versus Unfiltered Metals Demonstration*," which was prepared by HZW Environmental Consultants, LLC (HZW) and submitted on behalf of Avon Lake Landfill. The document was received on November 7, 2011 and is dated November 4, 2011;

The "*Filtered Versus Unfiltered Metals Demonstration*" was submitted to address a cited violation of Ohio Administrative Code (OAC) 3745-27-10(B)(3) for failing to install, design, develop, and sample monitoring wells MW-1, MW-3, MW-5A, MW-6, MW-7, MW-9, MW-11, and MW-12 in a manner that allows for the collection of ground water samples that are representative of ground water quality in the unit being monitored. The owner/operator was notified of this violation in Ohio EPA's September 2, 2011 Notice of Violation letter. Currently, Avon Lake Landfill remains in violation of OAC 3745-27-10(B)(3).

In the September 2, 2011 letter, Ohio EPA expressed concern that ground water samples from the eight aforementioned monitoring wells have reported turbidity levels for the December 2010 sampling event, ranging from 57 to 560 NTU's, which are significantly higher than the reported levels in the background well MW-4 (9.9 NTUs).

The "*Filtered Versus Unfiltered Metals Demonstration*" included analyzing unfiltered and filtered (0.45 micron filter) ground water samples from monitoring wells MW-1, MW-3, MW-5A, MW-6, MW-7, and MW-9 for Appendix I and II metals. On September 28, 2011, each monitoring well was purged of three well volumes or until dry using a disposable Teflon bailer. On September 29, 2011, each of the six aforementioned monitoring wells was sampled utilizing disposable bailers. Turbidity measurements of unfiltered samples were not made or were not included as part of this demonstration. Also, monitoring wellfield information forms were not included as part of this demonstration.

HZW's conclusions of the "*Filtered Versus Unfiltered Metals Demonstration*" are:

- "Detected concentrations of metals in the filtered samples were less than those concentrations detected in the unfiltered samples."

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- "Filtering of samples appeared to be most effective when analyzing iron, as iron concentrations in the filtered samples were significantly less than those concentrations reported in unfiltered samples."
- "It does not appear that ground water analytical results have been compromised based on the turbidity values reported during the *2010 Annual Sampling Event*, or any other sampling event where turbidity values were reported in excess of 50 Nephelometric Turbidity Units (NTU)."

Upon review of the aforementioned documents, Ohio EPA has the following comments:

1. **The owner/operator has not adequately demonstrated compliance with OAC 3745-27-10(B)(3) for failing to install, design, develop, and sample monitoring wells MW-1, MW-3, MW-5A, MW-6, MW-7, MW-9, MW-11, and MW-12 in a manner that allows for the collection of ground water samples that are representative of ground water quality in the unit being monitored.**

The November 4, 2011 report entitled, "*Filtered Versus Unfiltered Metals Demonstration*" does not adequately demonstrate compliance with OAC 3745-27-10(B)(3).

Turbidity measurements of unfiltered samples and monitoring wellfield information forms were not included as part of this demonstration. Lack of turbidity measurements and monitoring wellfield information forms, does not allow verification that sample collection methods and sample quality is consistent with historical data and the sampling and analyses plan. Also, the lack of turbidity measurements does not allow a quantitative comparison of turbidity to analytical results. In addition, Avon Lake Landfill's demonstration does not include statistical analyses of the data.

During the review, it was noted that turbidity of ground water samples is not being measured in the field, but is being measured in the laboratory. According to the information in Chapter 10 of *Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring (2006)*, due to the unstable nature of the turbidity parameter, laboratory determinations of that parameter will likely not be representative of field conditions and are of little value.

Ohio EPA recommends that a successful demonstration needs to include turbidity measurements, preferably made in the field and not the laboratory, monitoring wellfield information forms, analytical data, and statistical analyses, such as regression analyses or other appropriate statistical analyses of data.

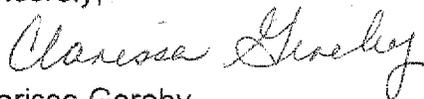
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Ohio EPA also recommends that the owner/operator contemplate redeveloping monitoring wells that may have evidence of "silting-up" (i.e., significant changes in total depth of well measurements).

Please respond within 30 days of the receipt of this letter. If you have any technical questions regarding this review, please do not hesitate to contact Albert Muller, Division of Drinking and Ground Waters, at (330) 963-1211. Please submit all future correspondence to Clarissa Gereby, Ohio EPA, Division of Materials and Waste Management, Northeast District Office, 2110 East Aurora Road, Twinsburg, Ohio 44087.

Nothing in this letter shall be construed to authorize any waiver from any requirements of applicable state solid waste laws or regulations. This authorization shall not be interpreted to release the City or others from responsibility under ORC Chapters 3704, 3714, 3734, or 6111, the Federal Clean Water Act, the Resource Conservation and Recovery Act, the Toxic Substances and Control Act, or the Comprehensive Environmental Response, Compensation and Liability Act, or from other applicable requirements for remedying conditions resulting from any release of contaminants from the facility to the environment.

Sincerely,



Clarissa Gereby
Environmental Specialist
Division of Materials and Waste Management

CG/cl

cc: Fleming Mosely, Lorain City Health Department
Al Muller, DDAGW, NEDO
Suzanne Eden, HzW Environmental Consultants, LLC
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DMWM #4143