Ohio Environmental Protection Agency

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

SEPTEMBER 17, 2017

Robin L. Jones
Waste Management, Inc.
Closed Sites Management Group
1700 North Broad Street
Fairborn, Ohio 45324

Re: Triangle LDF
Director's Authorization
Approval
Municipal Solid Waste Landfills
Ross County
MSWL020003

Re: Triangle LDF
Non-Permit Related Exemption
Approval
Municipal Solid Waste Landfills
Ross County
MSWL020003

RE: Triangle Landfill, Ross County
Selection of Corrective Measures

Dear Ms. Jones:

On April 5, 2017, the Ohio Environmental Protection Agency (Ohio EPA), Southeast District Office (SEDO), received the document titled "Revised Corrective Measures Plan 920 Sand, 890 Sand, Sand/Gravel/Shale, and Shale Triangle Sanitary Landfill" (CMP) for Triangle Landfill (Facility) located in Ross County. The document was prepared by Eagon & Associates, Inc., on behalf of Waste Management, Inc. (Waste Management), pursuant to Ohio Administrative Code (OAC) Rule 3745-27-10(F). This is the sixth revision of Triangle's CMP.

The Facility is a closed municipal solid waste landfill. Waste Management is conducting ground water quality assessment monitoring for 8 contaminants.

Ohio Administrative Code (OAC) Rule 3745-27-10(F) requires the owner or operator of a municipal solid waste landfill to submit a CMP upon determining, through assessment activites performed in accordance with OAC Rule 3745-27-10(E), that waste-derived contaminants have been detected in the ground water. In accordance with OAC Rule 3745-27-10(F)(10), the director shall select from the CMP the corrective measure which best meets the criteria listed in paragraphs (F)(2), (F)(3), and (F)(7) of the rule.

OAC Rule 3745-27-10(F)(2) requires the CMP to evaluate all practicable remediation procedures which are available for remediating any contamination discovered during

assessment monitoring. OAC Rule 3745-27-10(F)(3) requires the CMP to include an evaluation of each proposed remediation procedure.

In accordance with OAC Rule 3745-27-10(F)(7), the CMP shall propose a concentration level for each waste-derived constituent detected in the ground water at a statistically significant level. In accordance with OAC Rule 3745-27-10(F)(7)(a), the proposed concentration levels are required to be protective of human health and safety and the environment. In accordance with OAC Rule 3745-27-10(F)(7)(b)(i), if there is a maximum contaminant level (MCL) promulgated for the constituent, that shall be used as the concentration level. If an MCL has not been established, the background concentration shall be used unless the director establishes an alternate ground water remediation standard in accordance with OAC Rule 3745-27-10(F)(7)(d).

The CMP was reviewed to determine if it meets the requirements listed in OAC Rules 3745-27-10(F)(2), (F)(3), and (F)(7). Upon review, it has been determined that the CMP includes provisions for semiannual sampling in accordance with OAC Rule 3745-27-10(F)(2); all practicable remediation procedures were evaluated for each assessment area in accordance with OAC Rule 3745-27-10(F)(3); and the ground water remediation standards meet the requirements of OAC Rule 3745-27-10(F)(7).

Ground water remediation standards specified in Table 1 were derived from the following:

- The proposed concentration levels for the waste-derived constituents will be equal to the MCL established for the constituent unless the constituent is already present at background concentration higher than the MCL;

- For parameters without an MCL, National Secondary Drinking Water Regulations (NSDWRs) established by the United States Environmental Protection Agency (U.S. EPA), U.S. EPA health advisory level, recommended dietary intake amounts, and maximum permissible concentrations established by the European Union (EU);

- For constituents without an MCL or health-based standard, the PCL will be equal to the background concentration for the constituent.

After each ground water sampling event, Waste Management will evaluate the data and determine if the results trigger the evaluation of additional source controls.

Table 1:

Parameter	Concentration Level (mg/L)	Source of Concentration Level
Ammonia	30	Health Advisory
Calcium	325	Background
Chloride	250	NSDWR

Parameter	Concentration Level (mg/L)	Source of Concentration Level
Iron	20	Background
Potassium	20	Background
Magnesium	161	Background
Sodium	200	EU Drinking Water Standard
Sulfate	250	NSDWR

Waste Management developed well-specific concentration levels for sulfate in corrective measure wells that exceed the NSDWR but have never had a statistical exceedance. Table 2 lists well-specific sulfate concentration levels for those wells that have background concentrations that exceed the NSDWR:

Table 2:

Well	Sulfate Concentration Level (mg/L)	Source of Concentration Level
MW-19A	525.3	Background
MW-16	693.4	Background
MW-19	408.8	Background
MW-2R	800.9	Background

Waste Management has included criteria in the CMP that will trigger a reevaluation of the corrective measure if site conditions worsen. If an increasing trend is identified for any parameter determined to be above background, the semiannual submittal will include a discussion of the parameter and well and the concentration relative to the proposed concentration levels and historical data. If data from at least two consecutive semiannual sampling events indicate an increase in trend, the owner/operator will contact Ohio EPA after submittal of the data to discuss the adequacy of the selected corrective measure and the possible need for further evaluation of groundwater conditions relative to the result in question.

The CMP evaluated the following two alternatives as corrective measures to achieve remedial action objectives:

1. Operation and maintenance of existing engineering controls with long-term monitoring.

2. Additional leachate extraction.

Waste Management has proposed Corrective Measure Alternative 1: Operation and maintenance of existing engineering controls with long-term monitoring. Installation of the engineering controls (i.e. low permeability landfill cap with appropriately graded slopes and landfill liquid removal and gas vent systems) has been completed and, in combination with natural attenuation, the engineering controls have acted to achieve

reductions in source concentrations and volume and improved groundwater quality. Continued operation and maintenance of the engineering controls should result in continued source reduction and improvements in groundwater quality.

A Corrective Measures Monitoring Plan (CMMP), submitted separately and received by Ohio EPA on April 5, 2017, is in compliance with OAC Rule 3745-27-10(F)(2)(e). The CMMP provides the procedures for evaluating the ground water monitoring data collected during the corrective measures and describes the process for determining when the corrective measures need to be reevaluated. It is anticipated that, over time, constituents of concern will decrease or remain similar to current concentrations. Should the concentrations of constituents of concern being addressed by the CMP begin to show an increasing trend, Ohio EPA and Waste Management will discuss additional and/or modified measures that could be implemented to abate continued releases of waste-derived constituents to ground water.

Ohio EPA has reviewed the April 5, 2017 CMP and has determined that the proposed corrective measure meets the requirements of OAC Rule 3745-27-10(F). Therefore, I hereby select the following corrective measure to be implemented at the Facility as described in the CMP: Alternative 1: Operation and maintenance of existing engineering controls with long-term monitoring. Waste Management shall implement the selected corrective measure in accordance with the CMP as received April 5, 2017.

EXEMPTION FROM OAC RULE 3745-27-10(F)(2)(e)(ii)

Waste Management has requested an exemption from the requirements of OAC Rule 3745-27-10(F)(2)(e)(ii) in accordance with OAC Rule 3745-27-03(B). OAC Rule 3745-27-10(F)(2)(e)(ii) requires sampling for the parameters numbered 1-66 of appendix I determined not to have been released to ground water. Waste Management requested to delete 1,2-dibromo-3-chloropropane (DBCP) (parameter number 28) and 1,2-dibromoethane EDB (parameter number 29) from the corrective measures monitoring parameter list for the site.

Sampling results for DBCP and EDB included in the exemption request support the request. Based on the submitted data, the facility has never had a detection of DBCP or EDB and the parameters are not reasonably expected to be in or derived from the waste contained or deposited in the Facility.

Pursuant to ORC Section 3734.02(G) and OAC Rule 3745-27-03(B), the Director may, by order, exempt any person generating, collecting, storing, treating, disposing of, or transporting solid wastes, or processing solid wastes that consist of scrap tires, in such quantities or under such circumstanced that, in the determination of the Director, are unlikely to adversely affect the public health or safety or the environment, from any requirements to obtain a registration certificate or license or comply with other requirements of ORC Chapter 3734.

Ohio EPA has reviewed the exemption request and has determined that granting Waste Management an exemption from the requirements of OAC Rule 3745-27-10(F)(2)(e)(ii) for DBCP and EDB is unlikely to adversely affect public health or safety or the environment. Therefore, pursuant to ORC Section 3734.02(G) and OAC Rule 3745-27-03, Waste Management is hereby granted an exemption from the requirements in OAC Rule 3745-27-10(F)(2)(e)(ii) only as it relates to determining the presence of DBCP or EDB in ground water above background levels. Waste Management shall continue monitoring all the wells in corrective measures monitoring for parameters 1-27 and parameters 30-66 listed in Appendix I in accordance with OAC Rule 3745-27-10, unless otherwise authorized by Ohio EPA. This exemption shall remain in effect throughout the effective period of this authorization unless otherwise revoked.

END OF EXEMPTION

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission pursuant to Ohio Revised Code Section 3745.04. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of $70.00 made payable to "Treasurer, State of Ohio." The Commission, in its discretion, may reduce the fee if by affidavit it is demonstrated that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
30 East Broad Street, 4th Floor
Columbus, Ohio 43215

If you have any questions concerning this letter, please contact Nathan Johnson, Ohio EPA, Southeast District Office at (740) 380-5439.

Sincerely,

Craig W. Butler
Director

CWB/NJ/mr

ec: Robin L. Jones, Waste Management
Joe Laughery, Ohio EPA, DDAGAW
Rich Fox, Ohio EPA, DMWM+