

November 30, 2021



Mr. Daniel Roble
Pennsylvania Department of Environmental Protection
Air Quality Program Specialist
Rachel Carson State Office Building
400 Market Street
Harrisburg, PA 17105

Subject: Westmoreland Sanitary Landfill
Air Quality Plan Approval (65-00767C)
Response to DEP Comments on Air Dispersion Modeling
Rostraver Township, Westmoreland County, Pennsylvania
Civil Design Solutions Project 2021-040

Civil Design Solutions, Inc. (Design Solutions) is pleased to submit this response to the PADEP October 29, 2021 Comments on Air Dispersion Modeling performed in support of the Air Plan Approval Application for the Westmoreland Sanitary Landfill, LLC. – Westmoreland Sanitary Landfill (WSL) facility located in Rostraver Township, Westmoreland County, Pennsylvania. WSL received an email from the PADEP on October 29, 2021 requesting clarifications and revisions to the Air Dispersion Modeling Report included as Attachment 4 to the October 1, 2021 submission to the PADEP.

Previously, WSL received a letter from the PADEP on July 2, 2020 requesting additional information for the Air Plan Approval Application (65-00767C) and a response was provided on August 31, 2020 with follow up information submitted on September 11, 2020 and September 28, 2020 via email. An Additional Information Response letter was submitted on February 4, 2021. Also, a response to the PADEP May 7, 2021 follow up Additional Information Deficiency Response Letter was submitted on October 1, 2021.

This letter has been prepared in a comment-response format where each PADEP request is presented in bold and a written response is provided. Responses and corresponding attachments have been prepared and provided by Civil and Environmental Consultants, Inc. (CEC) as follows.

Section 2.4 Good Engineering Practice (GEP) Stack Height and Building Downwash

- 1. The width and angle of the building included in the BPIPPRM input files appear to be somewhat inconsistent with aerial imagery.**

Response: The width of the building was verified with WSL. The building was shifted slightly west to more closely match the most recent Google Earth imaging.

- 2. The building's base elevation of 297.30 meters entered in the "NOBLE Future.bpi" BPIPPRM input file differs from the building's base elevation of 312.45 meters entered in the "NOBLE.bpi" BPIPPRM input file. The DEP notes, however, that the**

downwash parameters in the AERMOD input files in the “Current” and “Future” folders are the same and reflect BPIPPRM output resulting from a building base elevation of 312.45 meters. Is this correct or should the downwash parameters differ?

The building base elevation was verified with WSL to be 306.02 meters. The base elevation will remain unchanged for both current and future scenarios. The base elevation has been modified in the BPIPPRM file to 306.02 meters, as well as in both the “Future” and “Current” input files.

Section 2.5 Terrain and Receptor Data

- 3. The receptor grid files do not match this subsection’s description of the receptor grid, which was established in the air dispersion modeling protocol. The receptor grid files do not include any receptors along the property boundary, do not include special receptors at residences, and do not include any receptors in “hot spots.”**

Response: Modeling was completed in order to determine locations for on-site monitoring stations; therefore, receptors within the property boundary were retained in the modeling analysis. To provide PADEP data consistent with the modeling protocol and for the sake of expediency, updated modeling files are provided with specified property boundary receptors. Onsite receptors have been removed.

The 30-meter receptor grid utilized in the modeling covers the residential areas located near the site. As for the hot spots, the highest modeled Ra-226 and Ra-228 concentration resulted in a unity rule calculation of 8.66E-05, which means the combined concentrations of Ra-226 and Ra-228 would have to be over 11,000 times greater to exceed the unity rule. Therefore, no “hot spots” were identified. See Table 4 in Section 3.2 of the modeling report for unity rule results for all scenarios.

- 4. AERMAP was executed with the U.S. Geological Survey’s (USGS) 3D Elevation Program (3DEP) data, formerly National Elevation Dataset (NED), with a 1 arc-second (~30 meter) resolution instead of a one-third arc-second (~10 meter) resolution. This is inconsistent with this subsection’s description of the terrain processing and the established air dispersion modeling protocol.**

Response: AERMAP was re-executed utilizing an elevation resolution of one-third arc-second.

Section 2.6 Meteorological Data

- 5. The value following the PROFBASE keyword in ME pathway of the AERMOD input files is 335 meters. Subsection 3.5.3 of the “User's Guide for the AMS/EPA Regulatory Model (AERMOD)” (EPA-454/B-21-001, April 2021) states, “[t]he AERMOD model generates a gridded vertical profile of potential temperatures for use in the plume rise**

calculations. Since potential temperature is dependent on the elevation above mean sea level (MSL), the user must define the base elevation for the profile with the PROFBASE keyword ... The base elevation should correspond with the base elevation of the primary meteorological tower.” The base elevation of the Pittsburgh International Airport (KPIT) meteorological tower is 367 meters. See Comment 10 of the DEP’s July 15, 2021, comments on the air dispersion modeling protocol.

Response: The base elevation of the meteorological station was revised to 367 meters, consistent with the base elevation of the Pittsburgh International Airport (KPIT) meteorological tower.

Section 3.1 Modeling Files

- 6. The following electronic files listed in this subsection were not included with the submittal: KPIT_2016-2020_ADJUSTAR.SFC, AERMAP.INP (for the current scenario), and AERMAP.OUT (for the current scenario).**

Response: All of the files listed have been included electronically with this response and a summary is provided below.

Summary of Updated Files

Below is a summary of updated files included electronically with this correspondence.

File Name / Extension	Description	Additional Information
*.ADI	AERMOD input file	All files updated.
*.ADO	AERMOD output file	
*.SFC	KPIT_2016-2020_ADJUSTAR.SFC	
*.BPI	Building input file	Updated with building elevation.
*.PLT	Plot File Description Scenarios Flag Pole Receptors at 0 ft, 3 ft, 6 ft	Plot File Name Designation Current LF; Future LF (Flag 0); (Flag 3); (Flag 6)
*.ROU	Receptor file	Updated with 1/3 arc-second terrain data
*.INP	AERMAP Input	Updated
*.AST	AERMAP Summary (Output / Detail)	Updated
*.XLS(X)	MS Excel Files	Updated unit converted plot files.

Section 3.2 Modeled Concentrations (Update)

Summary of Updated Files

The removal of the on-site receptors resulted in a decrease in the maximum concentrations. A summary comparison of maximum concentrations from the original report to that submitted with this response is as follows.

UPDATED			Submitted with 9/17/2021 Modeling Report		
	Current	Future		Current	Future
	Model Output			Model Output	
	ug/m3			ug/m3	
Flag 0	94.68	95.35	Flag 0	240.07	303.15
Flag 3	100.73	104.68	Flag 3	283.40	303.76
Flag 6	106.27	114.03	Flag 6	315.80	315.80
<i>Ra-226 conversion: model output (ug/m3) x 2.04E-07 10⁻¹² uCi/mL</i>					
	Current	Future		Current	Future
	10 ⁻¹² uCi/mL			10 ⁻¹² uCi/mL	
Flag 0	1.93E-05	1.95E-05	Flag 0	4.90E-05	6.18E-05
Flag 3	2.05E-05	2.14E-05	Flag 3	5.78E-05	6.20E-05
Flag 6	2.17E-05	2.33E-05	Flag 6	6.44E-05	6.44E-05
<i>Ra-228 conversion: model output (ug/m3) x 9.54E-08 10⁻¹² uCi/mL</i>					
	Current	Future		Current	Future
	10 ⁻¹² uCi/mL			10 ⁻¹² uCi/mL	
Flag 0	9.03E-06	9.09E-06	Flag 0	2.29E-05	2.89E-05
Flag 3	9.61E-06	9.98E-06	Flag 3	2.70E-05	2.90E-05
Flag 6	1.01E-05	1.09E-05	Flag 6	3.01E-05	3.01E-05

Daniel Roble
November 30, 2021
Page 5

If you have any additional questions concerning the additional information presented for the Air Plan Approval Application, please do not hesitate to contact Mr. Rich Walton of Westmoreland Sanitary Landfill, at (610) 698-9291 or our office at (412) 299-2700.

Sincerely,
Civil Design Solutions, Inc.

A handwritten signature in black ink, appearing to read 'MEZ', written in a cursive style.

Michael E. Zucatti
Senior Project Manager, Ext. 157

cc: Mr. Rich Walton, Westmoreland Sanitary Landfill – 1 Copy (electronic)
Mr. Brian Stewart, Westmoreland Sanitary Landfill – 1 Copy (electronic)