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February 13, 2015

VIA E-MAIL

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Re: Resident Questions – Stack Emissions
Fenimore Landfill Site
Hydrogen Sulfide (H₂S) Odors
Mountain Road, Roxbury Township, NJ
MC Project No. 13000078A

Dear Mr. Bucco:

Maser Consulting P.A. (Maser Consulting) provides this letter report in response to questions posed by Township of Roxbury residents at a recent Council meeting regarding which gases are being emitted from the stacks of the gas treatment system at the Fenimore Landfill. The following are responses from the New Jersey Department of Environmental Protection (NJDEP), and our opinions:

NJDEP Data on Stack Emissions

NJDEP initially responded that carbon dioxide and water vapor are the primary gases coming out of the stack. A continuous emissions monitoring system (CEMS) samples the stack every minute for sulfur dioxide (SO₂), via a dedicated, insulated sampling line that runs from the stack to a heated building. A handheld QRAE MultiRAE Lite analyzer is used (via a sampling port in the heated building) approximately every 4 hours to measure oxygen (O₂), H₂S, carbon monoxide (CO), volatile organic compounds (VOCs) and also SO₂. NJDEP then provided an example of a daily monitoring report for the stack emissions, which included measurements of the following parameters:

- O₂ as a percentage
- SO₂ in parts per million (ppm)
- H₂S in ppm
- CO is ppm
- VOCs in ppm



The NJDEP Stack Discharge Monitoring Report, dated February 4, 2015, indicates that neither VOCs nor H₂S were detected in the Tarmac Scrubber stack effluent. A handheld QRAE MultiRAE Lite analyzer was used approximately every 4 hours, and the results are reported as 0.00 ppm.

SO₂ was reported as 0.00 ppm, except at 20:00 and 23:50 when 1 ppm was detected and reported. The readings are taken at the stack effluent, and not at the property boundary where significant dilution would occur. The value of 1 ppm at the stack effluent is below NJDEP's administrative limit of 40 ppm at the stack effluent, which NJDEP's computer model shows as the target in order to meet EPA's National Ambient Air Quality Standard (NAAQS) for SO₂ of 75 parts per billion (ppb) for 1-hour averaging time at the property line. According to NJDEP, typical SO₂ emissions at the stack are less than 10 ppm, with a pre-programmed alarm sent to the treatment system operator at 15 ppm, and a pre-programmed automatic one-minute shutdown of the treatment system at 40 ppm. OSHA's Permissible Exposure Limit (PEL) for SO₂ is 5 ppm as an 8-hour time-weighted average (TWA).

CO was reported between 8 ppm and 37 ppm, with an EPA NAAQS of 9 ppm for 1-hour averaging time and an OSHA PEL of 50 ppm TWA. However, this reading was measured at the stack effluent and significant dilution will occur by the time stack emissions reach the property boundary.

EPA has not set a NAAQS for CO₂; it is only an indicator of combustion efficiency. OSHA's PEL for CO₂ is 1,000 ppm. CO₂ is measured to identify any issues regarding inefficiency of the combustion process.

NJDEP does not have an obligation to report this stack emissions data to the Environmental Protection Agency (EPA). NJDEP discusses the gas treatment system with EPA frequently, and has neither reported nor been asked by EPA to report this stack emissions data.

I have requested, but not received yet, SO₂ monitoring data from the CEMS. I recommend that NJDEP provide these daily Stack Discharge Monitoring Reports, as well as the SO₂ monitoring data from the CEMS, to the Township of Roxbury on a real-time basis for review and confirmation of treatment system performance.



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I look forward to continuing my assistance to the Township of Roxbury in the pursuit of the protection of the environment and human health with respect to the on-going Fenimore Landfill operation and off-site H₂S odor control.

Thank you for this opportunity and I look forward to continue working with you.

Very truly yours,

MASER CONSULTING P.A.

A handwritten signature in black ink, appearing to read 'R. Zelle', is written over a horizontal line.

Robert L. Zelle, P.G., LSRP
Senior Principal
Director of Environmental Services

RLZ/dfb/dw

Cc: Donald F. Bowman, C.H.M.M., Maser Consulting P.A.
David Keil, Maser Consulting P.A.
William Herr, Maser Consulting P.A.

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