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Via E-Mail

November 13, 2024

Ms. Michelle Luplow Environmental Quality Analyst Michigan Department of Environment, Great Lakes and Energy Air Quality Division Constitution Hall 525 West Allegan Street Lansing, MI 48909

Re: Granger Wood Street Landfill

Dear Ms. Luplow:

I am writing on behalf of Granger Waste Services, Wood Street Landfill ("WSL"), to the October 23, 2024 Violation Notice ("VN") regarding the July 29, 2024 inspection. The VN covers four topics, each of which are addressed below.

Two items in the VN involve the calculation of SO2 emissions. Specifically, it was noted that:

- The SO2 pph is not being calculated according to Appendix A of PTI 177-19B
- The SO2 mass emission calculations are not calculated according to Appendix A of PTI 177-19B.

Response: WSL has been calculating the SO2 pph emissions using a conservative calculation approach based on the <u>maximum</u> average TRS value, and the <u>maximum</u> flow rate of both flares combined. WSL has been calculating the SO2 tons per 12-month rolling period by using the volume of treated gas and the volume of raw landfill gas sent to the flares, and the monthly TRS value for each type of gas. These methods demonstrate compliance with the SO2 pph limit by utilizing worst case scenario conditions, which inherently overestimate the actual amount of emissions.

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After reviewing the VN, WSL has revised the calculations to align with Appendix A for SO2 pph and SO2 tons per 12-month rolling period. Please see Attachment 1 for the SO2 pph calculations for September 2024, calculated according to Appendix A.

In addition, the VN stated that semi-annual raw landfill gas sampling using an EPAapproved method and laboratory analysis has not been conducted since 2020, therefore, there are no semi-annual gas sampling and analysis records for H2S and TRS.

Response: A raw landfill gas sample was obtained for laboratory analysis on September 18, 2024. The hydrogen sulfide to TRS ratio was 0.96 and is consistent with previous lab analysis. Based on the low variability of this ratio, Granger intends to request a modification to the PTI to revise this requirement.

Finally, the VN refers to "waste shredders [that] were operated without a PTI" and that a previous exemption demonstration was deemed insufficient. In fact, the two shredders were each being pilot tested under the exemption in R. 336.1283. The shredders qualify for this exemption because they were tested for very short term periods (2-3 days) and not utilized for repetitive production. The shredders were being evaluated for physical analysis (R. 336.1283(2)(ii)) and for the development of process or process equipment design and operating parameters (R. 336.1283(2)(v)). Both shredders were promptly removed after the conclusion of the testing. WSL is still evaluating the results and has not yet decided whether to purchase either of these shredders (or any other).

The first shredder was tested over a 3-day period in December 2023 and then removed. Attached as Attachment 2 is a January 8, 2024 letter from Dana Oleniacz of Environmental Information Logistics, LLC verifying that emissions from the 3-day pilot test were de minimis (less than 1 ton of PM during the entire study period) and the applicability of the R. 336.1283 exemption.

The second shredder was tested over a 2-day period in July 2024 and then removed. Attached as Attachment 3 is a July 23, 2024 memorandum, which demonstrates that again the emissions from the pilot test were de minimis (less than 0.5 ton of PM during the entire study period) and the applicability of the R 336.1283 exemption.

If WSL elects to conduct a further pilot study, or decides to permanently install a shredder at this location, it will again evaluate the applicability of R. 336.1201 and will apply for a PTI if the project is not covered by any exemption.

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I trust that this letter satisfactorily responds to the VN. Please let me know if you have any further questions or comments.

Sincerely,

HONIGMAN LLP

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S. Lee Johnson

c: Annette Switzer, EGLE Chirstopher Ethridge, EGLE Brad Myott, EGLE Jenine Camilleri, EGLE Robert Byrnes, EGLE Serenity Skillman, Granger Steve Blayer, Granger Paul Anderson, Granger

ATTACHMENT 1

Daily Sulfur Data Wood Street Flares

$$SO_2 = \left[(scfm) * \left(60\frac{min}{hr}\right) * (ppmv_{TRS} * 1E - 06) * (MW_{so2}) \div \left[(R * T)\right] = pph$$
$$pph * H = ppd$$

scfm	=	standard cubic feet per minute gas flow, for both flares
ppmv _{TRS}	=	parts per million by volume of Total Reduced Sulfur (TRS) in the gas
		TRS obtained from using weekly Dreagar Tube sampling and site specific H2S:TRS ratio.
MW _{SO2}	=	Molecular Weight of SO2 = 64.066 lb/lb-mol
Н	=	Actual Hours of Operation per day, total for both flares
R	=	Universal Gas Constant = 0.7302 atm-ft ³ /lb-mol-R
т	=	Standard Temperature (absolute) = 519 R

Date	Gas Flow - Both Flares	TRS	SO2	Hours of Operation - Total Both Flares	SO2
	scfm	ppmv _{TRS}	pph	Н	ppd
9/1/2024	135	1	0.0	11.3	0.0
9/2/2024	147	1	0.0	6.2	0.0
9/3/2024	453	1	0.0	6.9	0.0
9/4/2024	1,381	59	0.6	17.9	14.8
9/5/2024	1,119	99	0.6	13.1	14.7
9/6/2024	133	1	0.0	8.5	0.0
9/7/2024	1,302	88	1.2	25.3	29.5
9/8/2024	157	1	0.0	12.4	0.0
9/9/2024	158	1	0.0	6.1	0.0
9/10/2024	702	1	0.0	11.4	0.1
9/11/2024	165	1	0.0	8.3	0.0
9/12/2024	179	1	0.0	8.0	0.0
9/13/2024	223	1	0.0	11.8	0.0
9/14/2024	183	1	0.0	11.8	0.0
9/15/2024	191	1	0.0	8.1	0.0
9/16/2024	231	1	0.0	10.1	0.0
9/17/2024	372	1	0.0	10.3	0.0
9/18/2024	395	1	0.0	10.7	0.0
9/19/2024	344	1	0.0	8.6	0.0
9/20/2024	178	1	0.0	6.7	0.0
9/21/2024	183	1	0.0	8.2	0.0
9/22/2024	195	1	0.0	6.3	0.0
9/23/2024	212	1	0.0	7.5	0.0
9/24/2024	206	1	0.0	7.4	0.0
9/25/2024	301	1	0.0	3.8	0.0
9/26/2024	199	1	0.0	6.6	0.0
9/27/2024	203	1	0.0	6.8	0.0
9/28/2024	259	1	0.0	6.1	0.0
9/29/2024	148	1	0.0	4.2	0.0
9/30/2024	201	1	0.0	4.6	0.0

ATTACHMENT 2

January 8, 2024



Ms. Serenity Skillman, PE Granger Waste Services 16980 Wood Road Lansing, MI 48906

Subject: Verification of the Exemption Status for the Pilot Study of a Waste Shredder at Granger Wood Street Landfill in Lansing, Michigan

Dear Ms. Skillman:

Environmental Information Logistics, LLC (EIL) has completed an analysis of potential emissions resulting from a pilot study of a waste shredder at Granger Wood Street Landfill (Granger) in Lansing, Michigan. The Michigan Department of Environment, Great Lakes and Energy (EGLE), Air Quality Division requires a Permit to Install (PTI) if a new source is installed (R336.1201) except as allowed by rule including specifically listed exemptions; pilot studies at facilities are sources that have such and exemption¹.

Sources that are Exempt from the State of Michigan Permitting System

Although EGLE provides exemptions for obtaining a PTI, projects must also meet specific criteria to qualify (R336.1278):

- 1) the activity must not be subject to PSD or N-NSR,
- 2) the <u>actual</u> emissions must not be significant²,
- 3) the project must not be major for hazardous air pollutants (HAPs), and
- 4) it must not be subject to an existing permit limit or applicable requirement.

Waste Shredder Specifications

The waste shredder pilot study, conducted over three (3) days, includes shredding a variety of materials including, but not limited to yard waste, construction and demolition materials, tires, and municipal solid waste. The shredder has a max capacity of approximately 700 tons per day (2,100 tons total for the study).

The attached calculations presents the maximum potential total annual particulate material (PM), particulate material with a diameter of 10 micrometers or less (PM10), and particulate material with a diameter of 2.5 micrometers or less (PM2.5). Since there

¹ Michigan Act 451, Rule 336.1283 exempts testing and inspection equipment from the air use permitting system.

 $^{^{2}}$ The criteria for significance is as follows: 100 tons per year (TPY) of carbon monoxide (CO), 40 TPY of nitrogen oxides (NO_x), 40 TPY of volatile organic compounds (VOC), 40 TPY of sulfur dioxide (SO₂), 25 TPY Particulate Matter (PM), 15 TPY PM-10, and 10 TPY PM-2.5.

are no emission factors for the shredding and storage of waste materials, a conservative assumption that this process is similar to the crushing and storage of aggregate was made. Furthermore, the emission rates of "uncontrolled emissions" (i.e. no spray bars) were used. Rates that are not significant would demonstrate that the project is not subject to PSD or N-NSR and consequently exempted from the requirement to obtain a PTI.

Pollutant	Maximum Potential Emission Rate (Tons/study)	Significance Levels (TPY)
РМ	0.89	<25
PM-10	0.42	<15
PM-2.5	0.066	<10

The table below provides a summary of the emission factors, potential to emit calculations and the PSD Significance Levels

Hazardous Air Pollutant Emission Rate

As the pilot study will only shred waste materials, there will be no emissions of hazardous air pollutant emission.

In summary, the proposed project is not subject to an existing permit limit or applicable requirement. Further, it would not be subject to PSD or N-NSR because <u>actual</u> emissions are not significant. Lastly, the project is not major for hazardous air pollutants (HAPs).

Based on the information presented above, the pilot study of the waste shredder is exempt from the State of Michigan air permitting system.

If you have any questions, I can be contacted at 248-421-0499.

Sincerely,

Environmental Information Logistics, LLC

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Dana A. Oleniacz Sr. Project Manager

Granger Wood Street Landfill Calculations PARTICULATE MATTER EMISSION ESTIMATE FROM WASTE SHREDDER

Purpose:		Determine particulate matter emissions from pilot study use of a waste shredder						
Reference:	ence: 1) AP-42, Section 11.19.2 (Crushed stone processing - August 2004)							
		AP-42, Section 13.2.4 (Aggregate Handling an	id Storage Piles - N	lovember 2006	6)			
Assumptions	S:	1) Pilot study to determine if waste shredder is fe	easible at the site.	Process				
		consists of grinding/shredding materials, and	placing them in a s	eries of				
		storage piles. Since there are no emissions fa	actor for the shredo	ling and storag	e			
		of waste materials, it is assumed that it is similar	ilar to the crushing	and storage of				
		aggregate.						
		2) To calculate worst case conditions, it was assumed the shredder did not						
		have spray bars. The "uncontrolled" emission factors for tertiary crushing were used						
		3) For the storage pile equation, it is assumed that the material has a						
		moisture content of 5% and a silt content of 1	0% or less.					
		Pilot Study Yard Waste Throughput Volume:						
		2100 tons/study (3 days)						
		5) Windspeed value of 9.825 mph from the EPA	TANKS model (Ve	ersion 4.09d)				
		for Grand Rapids, MI area (closest major met	ropolitan area).					
Emission Fa	ctors:							
Grinding of m	aterial: Use ur	ncontrolled tertiary crushing emissions factor for Pl	M-10 from Table 11	.19.2-2:				
PM Emissions	s Factor =	0.0054 lbs PM/ton of material through	nput.					
PM10 Emissio	ons Factor =	0.0024 lbs PM-10/ton of material thro	ughput.					
PM2.5 Emissi	ions Factor =	0.0024 lbs PM-2.5/ton of material thr	oughput (assumed	same as PM1	D).			
Handling/Stor	rage of materia	I: Use equation for PM generated by drop operation	on from 13.2.4 (1) (/	AP-42, 11/200	6):			
Emissions Fa	ctor E =							
		k (0.0032) [u/5]^1.3/[M/2]^1.4 lbs PM/ton of mate	rial throughout					
			PM <30 μm	PM <10 μm	PM <2.5 μm			
	Where:	k = particle size multiplier (dimensionless):	0.74	0.35	0.053			
		U = mean wind speed, miles/hour =	8.63	mph				
		M = material moisture content (%) = 5%						
	E PM =	(0.74) * (0.0032) * [8.63/5]^1.3/[50/2]^1.4 =		0.842207	Ib PM/ton			
	E PM-10 =	(0.35) * (0.0032) * [8.63/5]^1.3/[50/2]^1.4 =		0.398341	lb PM-10/ton			
	E PM2.5 =	(0.053) * (0.0032) * [8.63/5]^1.3/[50/2]^1.4 =		0.060320	b PM2.5/ton			
Combine Emi	ssions Factors	to come up with one factor for "Waste Shredder E	missions" for comp	oosting:				
E PM =	0.84760	7 lbs PM/ton of material throughput.						

E PM-10 =	0.400741	lbs PM-10/ton of material throughput.
E PM2.5 =	0.062720	lbs PM-2.5/ton of material throughput.

Annual Potential Emissions Estimate:

PM:	2,100	<u>tons waste</u> x study	0.847607	<u>lbs PM</u> x ton	<u>1</u> 2000	<u>ton</u> = Ibs	0.8900	tons PM year
PM10:	2,100	<u>tons waste</u> x study	0.400741	<u>lbs PM</u> x ton	<u>1</u> 2000	<u>ton</u> = Ibs	0.4208	tons PM10 year
PM2.5:	2,100	<u>tons waste</u> x study	0.062720	<u>lbs PM</u> x ton	<u>1</u> 2000	<u>ton</u> = Ibs	0.0659	tons PM2.5 year

ATTACHMENT 3



Memo

To: File
From: Mimi Tarter/Serenity Skillman
Date: July 23, 2024
Re: Shredder Pilot Study at Granger Wood Street Landfill

Granger plans to perform a pilot study of a Pronar brand MRW 2.1010 track-mounted waste shredder at its Wood Street facility. The study will take place over two days upon its arrival on July 30th, 2024. Granger proposes to shred a variety of materials including yard waste, municipal solid waste (MSW), and construction and demolition materials (C&D). The quantity of materials proposed to be shredded during the demo are as follows:

- Yard Waste: 250 yards
- MSW: 250 400 yards
- C&D Waste: 500 yards

State of Michigan Permitting Requirements

The Michigan Department of Environment, Great Lakes and Energy (EGLE), Air Quality division requires a Permit to Install (PTI) if a new source of potential emissions is installed (R336.1201). However, projects may be exempted from permitting given the following criteria are met (R336.1278):

- 1) the activity must not be subject to PSD or N-NSR,
- 2) the actual emissions must not be significant,
- 3) the project must not be major for hazardous air pollutants (HAPs), and
- 4) it must not be subject to an existing permit limit or applicable requirement.

Waste Shredder Emissions

Assuming a maximum disposal of 1150 yards of material over the duration of the study, the table below summarizes the potential to emit and PSD Significance Levels of three types of particulate materials. PM refers to the maximum total annual particulate material. PM10 and PM2.5 refer to particulate material with a diameter of 10 micrometers or less and 2.5 micrometers or less.

Pollutant	Maximum Potential Emission Rate (Tons/STUDY)	Significance Levels (TPY)
PM	0.4874	<25
PM-10	0.2304	<15
PM-2.5	0.0361	<10

As summarized above, the maximum potential emission rates for each pollutant type are insignificant for the duration of the study. Furthermore, since the study will only shred waste materials there will be no hazardous air pollutants released. The project would also not be subject to an existing permit limit or applicable requirement.

In conclusion, the pilot study of the waste shredder meets EGLE criteria to be exempted from obtaining a Permit to Install (PTI).