



September 15, 2017

Benjamin Witkopp, Environmental Engineer  
Michigan Department of Environmental Quality, Air Quality Division  
Saginaw Bay District Office  
401 Ketchum Street, Suite B  
Bay City, MI 48708

*Sent Via Email Only*

**Re: August 30, 2017 Violation Notice Response**

Dear Mr. Witkopp:

This letter provides a timely response to the August 30, 2017 Violation Notice letter to the Sebewaing Light and Water (SLW) Main Street facility. Michigan Department of Environmental Quality, Air Quality Division (AQD) cited applicability of Michigan Rule R 336.1210, Title V permit program, based on Potential to Emit (PTE) estimates of oxides of nitrogen (NOx) for the SLW Main Street facility greater than 100 tons per year (tpy). The letter also stated that Engine 5 requires a Permit to Install (PTI) pursuant to Michigan Rule R 336.1201. The following provides the SLW response to each of these AQD cited requirements and demonstrates that SLW Main Street is not subject to Title V and Engine 5 is considered exempt from PTI pursuant to Michigan R 336.1282(2)(b)(ii).

**SLW Main Street Facility Title V Applicability**

The SLW Main Street facility has six engines for electrical power generation; five engines are dual fuel (natural gas and No. 2 fuel oil) and one engine is No. 2 fuel oil only. The following Table 1 summarizes the types of engines at the Main Street facility.

**Table 1 SLW Main Street Engine Summary**

Engine Unit No.	Fuel	Size (MW)	Heat Input (MMBtu/hr)
Engine 1	Dual	1.0	11.4
Engine 3	Dual	1.3	14.2
Engine 4	Dual	1.4	15.5
Engine 5	Dual	1.1	12.9
Engine 6	Dual	0.7	7.7
<b>Total for Dual Fuel</b>		<b>5.5</b>	<b>61.6</b>
Engine 2	Fuel Oil	0.9	10.2

For the dual fuel fired engines, the NOx emission factor from AP-42 Table 3.2.2 for natural gas is 4.0 lb/MMBtu and is 3.2 lb/MMBtu for diesel. Applying the natural gas emission factor for NOx to the total heat input for the dual fuel fired engines, because this is the highest emission factor to the heat input,

results in 246.4lb NOx/hr. Similarly for Engine 2, multiplying the diesel emission factor of 3.2 lb/MMBtu times 10.2 MMBtu/hr results in 32.6 lb NOx/hr for a total of 279.0 lb NOx/hr for the SLW Main Street facility.

For calculating the PTE for the facility, the steps outlined in AQD's Potential to Emit Workbook dated September 2015 were followed. As noted on page 2-35, the Environmental Protection Agency (US EPA) issued guidance<sup>1</sup> that if the sole function of the generator is to provide power during periods when the power provider's supply is interrupted, the worst-case operating hours should be 500 hours per year. SLW's current power provider's contract allows operation of the SLW Main Street engines on an emergency basis only. Therefore, the 500 hours operating hours limitation is applicable to each of the engines at the SLW Main Street facility. Multiplying 279.0 lb NOx/hr by 500 hr/year and converting to tons per year results in a PTE of 69.8 tpy of NOx emissions. Therefore, the NOx PTE for the SLW Main Street facility is below the applicable threshold for Title V of 100 tpy of NOx. For emission calculation details, see Attachment A.

Based on these calculations, the SLW Main Street facility is not considered a major source for NOx emissions and would not be subject to the Title V. However, SLW is contemplating changing the status of their power supply in June 2018 such that the facility could provide power during non-emergency periods. With this change, SLW agrees that an "Opt-Out" permit from Title V would be required. Therefore, in preparation for the June 2018 contract, SLW plans to submit an Opt-Out permit application in 2017 for a PTI that will limit criteria and hazardous air pollutants below major source thresholds.

#### **SLW Main Street Engine 5 PTI Applicability**

The dual fuel fired Engine 5 is rated at 1.1 MW and 12.9 MMBtu/hr heat input. The sulfur content of the No. 2 fuel oil is 15 ppm sulfur or 0.0015%. Michigan Rule R 336.1282(2)(b)(ii) allows an emission unit to be considered to be exempt from PTI if it has a rated heat input capacity of less than 20 MMBtu/hr, the sulfur content of the fuel is less than 0.4% by weight, and the purpose of the engine is for electric power generation. Since Engine 5 meets all of these criteria, Engine 5 would be considered exempt from Michigan Rule R 336.1201 PTI requirement providing the emission unit is not excluded from the use of permitting exemptions, pursuant to Michigan Rule R 336.1278. The following demonstrates that Engine 5 is not excluded from use of the exemptions.

Rule 278 is used to ensure that the exemption in Michigan Rule R 336.1282(2)(b)(ii) is applicable to Engine 5 emission unit.

Rule 278 states:

*Rule 278. (1) The exemptions specified in R 336.1280 to R 336.1291 do not apply to either of the following:*

- (a) Any activity that is subject to prevention of significant deterioration of air quality regulations or new source review for major sources in nonattainment area regulations.*
- (b) Any activity that results in an increase in actual emissions greater than the significance levels defined in R 336.1119. For the purpose of this rule, "activity" means the concurrent and related*

---

<sup>1</sup> US EPA September 6, 1995 Memorandum, Calculating Potential to Emit (PTE) for Emergency Generators



*installation, construction, reconstruction, relocation, or modification of any process or process equipment.*

- (2) *The exemptions specified in R 336.1280 to R 336.1291 do not apply to the construction of a new major source of hazardous air pollutants or reconstruction of a major source of hazardous air pollutants, as defined in and subject to 40 C.F.R. §63.2 and §63.5(b)(3), national emission standards for hazardous air pollutants, adopted by reference in R 336.1902.*
- (3) *The exemptions specified in R 336.1280 to R 336.1291 do not apply to a construction or modification as defined in and subject to 40 C.F.R. part 61, national emission standards for hazardous air pollutants, adopted by reference in R 336.1902.*
- (4) *The exemptions in R 336.1280 to R 336.1291 apply to the requirement to obtain a permit to install only and do not exempt the source from complying with any other applicable requirement or existing permit limitation.*

Rule 278 does not apply to Engine 5 due to the following criteria:

- Rule 278(1)(a) and (b) – The emissions from the process are mainly NOx emissions. Engine 5 and SLW Main Street facility is not subject to prevention of significant deterioration regulations and Engine 5 will not involve an increase in actual emissions greater than the significance levels as defined in Rule 336.1119 (i.e., 100 tons per year of carbon monoxide; 40 tons per year of NOx, SO2, and VOC; particulate matter (PM) – 25 tons per year; PM10 – 15 tons per year; and PM2.5 – 10 tons per year); therefore, this requirement is met. Table 2 summarizes the PTE of Engine 5 with a heat input of 12.5 MMBtu/hr.

**Table 2 SLW Main Street Engine 5 Criteria Pollutant PTE**

Pollutant	Emission Factor (lb/MMBtu)	PTE (tpy)	SER Threshold (tpy)	Below SER (yes/no)?
NOx	4.0	12.9	40	Yes
CO	0.85	2.8	100	Yes
SO2	0.0015	0.005	40	Yes
VOC	0.12	0.4	40	Yes
PM/PM10/PM2.5	0.01	0.03	25/15/10	Yes
HAPs	NA	0.006	25/10	Yes

Emission factors for NOx, PM/PM10/PM2.5 and VOC used AP-42 Table 3.2-2 for natural gas engines and AP-42 Table 3.4-1 for the SO2 emissions since these are considered the worst-case. See Attachment B for detailed Engine 5 PTE emission calculations.

- Rule 278(2) – Engine 5 has a PTE of less than 1 ton per year of total hazardous air pollutants (HAPs), which is less than the individual and total HAPs threshold of 10 tons per year and 25 tons per year, respectively. Engine 5 does not result in the construction or reconstruction of a major source of HAPs; therefore, this requirement is met.



**Sebewaing Main Street  
Attachment A - PTE Summary**

Description	Throughput				Pollutant	Type	Emission Factor			Max. Uncontrolled Emissions	
	Maximum (Units/hr)	Units	Maximum (Units/yr)	Units			(lb/Unit)	Unit	Note	(lb/yr)	(tons/yr)
Engines - Dual Fuel					NOx	[NOx]	4.00E+00	MMBtu	[2]	1.23E+05	6.16E+01
Engine 1	1.00 MW	11.4	MMBtu	5,685.9	CO	[CO]	8.50E-01	MMBtu	[3]	2.62E+04	1.31E+01
Engine 3	1.25 MW	14.2		7,107.4	SOx	[SO2]	1.52E-02	MMBtu	[3][4]	4.67E+02	2.33E-01
Engine 4	1.36 MW	15.5		7,732.8	PM	[PM10]	1.07E-02	MMBtu	[2][3]	3.29E+02	1.65E-01
Engine 5	1.14 MW	12.9		6,459.2	PM10	[PM10]	1.07E-02	MMBtu	[2][3]	3.29E+02	1.65E-01
Engine 6	0.68 MW	7.7		3,838.0	PM2.5	[PM2.5]	1.07E-02	MMBtu	[2][3]	3.29E+02	1.65E-01
Total	61.6			30,823.2	VOC	[VOC]	1.20E-01	MMBtu	[2]	3.70E+03	1.85E+00

NOTES:

- [1] Assume PTE is based on 500 hours
- [2] Emission Factor from Natural Gas RICE, AP-42 Table 3.2-2.
- [3] Emission Factors from AP-42, Section 3.4, Large Reciprocating Engines, Table 3.4-1 through 3.4-4 for diesel. (10/96)
- [4] Assumed 0.015% sulfur content in fuel.

500 hours/yr [1]

Description	Throughput				Pollutant	Type	Emission Factor			Max. Uncontrolled Emissions	
	Maximum (Units/hr)	Units	Maximum (Units/yr)	Units			(lb/Unit)	Unit	Note	(lb/yr)	(tons/yr)
Engines - Large Diesel					NOx	[NOx]	3.20E+00	MMBtu	[2]	1.64E+04	8.19E+00
Engine 2	0.90 MW	10.2	MMBtu	5,117.3	CO	[CO]	8.50E-01	MMBtu	[2]	4.35E+03	2.17E+00
Assume 0.0015% S	1.015				SOx	[SO2]	1.52E-02	MMBtu	[2][3]	7.75E+01	3.88E-02
					PM	[PM10]	6.97E-02	MMBtu	[2]	3.57E+02	1.78E-01
					PM10	[PM10]	5.73E-02	MMBtu	[2]	2.93E+02	1.47E-01
					PM2.5	[PM2.5]	4.79E-02	MMBtu	[2]	2.45E+02	1.23E-01
					VOC	[VOC]	9.00E-02	MMBtu	[2]	4.61E+02	2.30E-01
Engines - Large Diesel	71.88	MMBtu	35,940	MMBtu	<b>Engines 1-6 Total HAPs</b>					<b>64.2</b>	<b>0.032</b>
					Acenaphthene	[PAH]	4.68E-06	MMBtu	[2]	1.68E-01	8.41E-05
					Acenaphthylene	[PAH]	9.23E-06	MMBtu	[2]	3.32E-01	1.66E-04
					Acetaldehyde	[HAP]	2.52E-05	MMBtu	[2]	9.06E-01	4.53E-04
					Acrolein	[HAP]	7.88E-06	MMBtu	[2]	2.83E-01	1.42E-04
					Anthracene	[PAH]	1.23E-06	MMBtu	[2]	4.42E-02	2.21E-05
					Benzene	[HAP]	7.76E-04	MMBtu	[2]	2.79E+01	1.39E-02
					Benzo(a)anthracene	[PAH]	6.22E-07	MMBtu	[2]	2.24E-02	1.12E-05
					Benzo(a)pyrene	[PAH]	2.57E-07	MMBtu	[2]	9.24E-03	4.62E-06
					Benzo(b)fluoranthene	[PAH]	1.11E-06	MMBtu	[2]	3.99E-02	1.99E-05
					Benzo(k)fluoranthene	[PAH]	2.18E-07	MMBtu	[2]	7.84E-03	3.92E-06
					Benzo(g,h,i)perylene	[PAH]	5.56E-07	MMBtu	[2]	2.00E-02	9.99E-06
					Chrysene	[PAH]	1.53E-06	MMBtu	[2]	5.50E-02	2.75E-05
					Dibenz(a,h)anthracene	[PAH]	3.46E-07	MMBtu	[2]	1.24E-02	6.22E-06
					Fluoranthene	[PAH]	4.03E-06	MMBtu	[2]	1.45E-01	7.24E-05
					Fluorene	[PAH]	1.28E-05	MMBtu	[2]	4.60E-01	2.30E-04
					Formaldehyde	[HAP]	7.89E-05	MMBtu	[2]	2.84E+00	1.42E-03
					Indeno(1,2,3-cd)pyrene	[PAH]	4.14E-07	MMBtu	[2]	1.49E-02	7.44E-06
					Naphthalene	[HAP]	1.30E-04	MMBtu	[2]	4.67E+00	2.34E-03
					TOTAL PAH		2.12E-04	MMBtu	[2]	7.62E+00	3.81E-03
					Phenanthrene	[PAH]	4.08E-05	MMBtu	[2]	1.47E+00	7.33E-04
					Pyrene	[PAH]	3.71E-06	MMBtu	[2]	1.33E-01	6.67E-05
					Toluene	[HAP]	2.81E-04	MMBtu	[2]	1.01E+01	5.05E-03
					Xylene	[HAP]	1.93E-04	MMBtu	[2]	6.94E+00	3.47E-03

NOTES:

- [1] Assume PTE is based on 500 hours
- [2] Emission Factors from AP-42, Section 3.4, Natural Gas-fired Reciprocating Engines, Table 3.4-3 Speciated Organic Compound Emission Factors for Large Uncontrolled Stationary Diesel Engines and Table 3.4-4
- [3] PAH Emission Factors for Large Uncontrolled Stationary Diesel Engines
- [4] Assumed 0.015% sulfur content in fuel.

Engines - Large Diesel  
500 hours/yr [1]



**Sebewaing Main Street  
Attachment B - Engine 5 PTE Summary**

Description	Throughput				Pollutant	Type	Emission Factor			Max. Uncontrolled Emissions	
	Maximum (Units/hr)	Units	Maximum (Units/yr)	Units			(lb/Unit)	Unit	Note	(lb/yr)	(tons/yr)
Engines - Dual Fuel					NOx	[NOx]	4.00E+00	MMBtu	[2]	2.58E+04	1.29E+01
Engine 5 1.14 MW	12.9	MMBtu	6459.2	MMBtu	CO	[CO]	8.50E-01	MMBtu	[3]	5.49E+03	2.75E+00
					SOx	[SO2]	1.52E-03	MMBtu	[3][4]	9.79E+00	4.89E-03
					PM	[PM10]	1.07E-02	MMBtu	[2][3]	6.90E+01	3.45E-02
					PM10	[PM10]	1.07E-02	MMBtu	[2][3]	6.90E+01	3.45E-02
					PM2.5	[PM2.5]	1.07E-02	MMBtu	[2][3]	6.90E+01	3.45E-02
					VOC	[VOC]	1.20E-01	MMBtu	[2]	7.75E+02	3.88E-01
					Acenaphthene	[PAH]	4.68E-06	MMBtu	[2]	3.02E-02	1.51E-05
					Acenaphthylene	[PAH]	9.23E-06	MMBtu	[2]	5.96E-02	2.98E-05
					Acetaldehyde	[HAP]	2.52E-05	MMBtu	[2]	1.63E-01	8.14E-05
					Acrolein	[HAP]	7.88E-06	MMBtu	[2]	5.09E-02	2.54E-05
					Anthracene	[PAH]	1.23E-06	MMBtu	[2]	7.94E-03	3.97E-06
					Benzene	[HAP]	7.76E-04	MMBtu	[2]	5.01E+00	2.51E-03
					Benz(a)anthracene	[PAH]	6.22E-07	MMBtu	[2]	4.02E-03	2.01E-06
					Benzo(a)pyrene	[PAH]	2.57E-07	MMBtu	[2]	1.66E-03	8.30E-07
					Benzo(b)fluoranthene	[PAH]	1.11E-06	MMBtu	[2]	7.17E-03	3.58E-06
					Benzo(k)fluoranthene	[PAH]	2.18E-07	MMBtu	[2]	1.41E-03	7.04E-07
					Benzo(g,h,i)perylene	[PAH]	5.56E-07	MMBtu	[2]	3.59E-03	1.80E-06
					Chrysene	[PAH]	1.53E-06	MMBtu	[2]	9.88E-03	4.94E-06
					Dibenz(a,h)anthracene	[PAH]	3.46E-07	MMBtu	[2]	2.23E-03	1.12E-06
					Fluoranthene	[PAH]	4.03E-06	MMBtu	[2]	2.60E-02	1.30E-05
					Fluorene	[PAH]	1.28E-05	MMBtu	[2]	8.27E-02	4.13E-05
					Formaldehyde	[HAP]	7.89E-05	MMBtu	[2]	5.10E-01	2.55E-04
					Indeno(1,2,3-cd)pyrene	[PAH]	4.14E-07	MMBtu	[2]	2.67E-03	1.34E-06
					Naphthalene	[HAP]	1.30E-04	MMBtu	[2]	8.40E-01	4.20E-04
					TOTAL PAH		2.12E-04	MMBtu	[2]	1.37E+00	6.85E-04
					Phenanthrene	[PAH]	4.08E-05	MMBtu	[2]	2.64E-01	1.32E-04
					Pyrene	[PAH]	3.71E-06	MMBtu	[2]	2.40E-02	1.20E-05
					Toluene	[HAP]	2.81E-04	MMBtu	[2]	1.82E+00	9.08E-04
					Xylene	[HAP]	1.93E-04	MMBtu	[2]	1.25E+00	6.23E-04
					Largest Individual HAP					5.01E+00	2.51E-03
					Total HAP						5.77E-03

NOTES:

- [1] Assume PTE is based on 500 hours 500 hours/yr [1]
- [2] Emission Factor from Natural Gas RICE, AP-42 Table 3.2-2.
- [3] Emission Factors from AP-42, Section 3.4, Large Reciprocating Engines, Table 3.4-1 through 3.4-4 for diesel. (10/96)
- [4] Assumed 0.015% sulfur content in fuel.