



January 31, 2024

Mr. Cody Yazzie, Environmental Engineer  
EGLE – Air Quality Division, Kalamazoo District Office  
7953 Adobe Road  
Kalamazoo, Michigan 49009

Dear Mr. Yazzie,

JBS USA Plainwell (JBS) is in receipt of the Michigan Department of Environment, Great Lakes, and Energy’s (EGLE) Air Quality Division (AQD) Violation Notice (VN) dated December 14, 2023, alleging that the following violation of Permit to Install (PTI) No. 111-23 was observed while AQD personnel were on site at the Plainwell facility to witness stack testing conducted by JBS on December 6, 2023:

Process Description	Rule/Permit Condition Violated	Comments
FGBIOGENS	Special Condition VIII.1-4	EUBIOGEN1, EUBIOGEN2, EUBIOGEN3, and EUBIOGEN4 were all installed and operated with rain flaps/caps. These rain flaps/caps were observed obstructing the flow of the exhaust gases from the bio engines. This is a violation of Special condition VIII.1-4.

Based on additional correspondence with various members of EGLE-AQD following receipt of the above-mentioned VN, JBS is providing this letter in response. The VN is provided as **Attachment 1**, and the following summarizes actions that have been taken by JBS since receipt of the alleged violation:

- Conducted dispersion modeling to determine whether emissions at reduced loads, and corresponding exhaust characteristics, would cause ground level concentrations that were significantly different than those impacts predicted at 100% load in the permit application.
- Requested that Caterpillar representatives inspect the construction of the stacks and hinged-flap rain protection devices installed on the four biogas engine stacks at the JBS facility to determine whether any design flaws were present and if the hinged-flap caps were operating correctly.

### **Additional Dispersion Modeling for Reduced Load Scenarios**

Based on the AQD’s observation of the behavior of the installed rain protection (hinged flaps) when the engines were starting up and/or not operating at 100% load, additional dispersion modeling was conducted by JBS to determine the resulting ambient impacts of toxic air contaminants. Specifically, AQD staff noted in the Staff Activity Report for the December 6, 2023 observation, that “the flap lifts based on the draft in the stack (and) Staff did notice that the flap would hang over the stack occasionally”. Additional discussion with AQD staff indicated that the flaps were observed to result in horizontal and/or 45-degree upward discharges that were especially noticeable during start-up of the engines. Therefore, JBS has performed modeling using horizontal release and capped stack configurations and is providing results for the following four additional modeling scenarios:

- 1) Emissions/exhaust at 75% load with a horizontal discharge orientation



- 2) Emissions/exhaust at 75% load with a fixed cap discharge
- 3) Emissions/exhaust at 50% load with a horizontal discharge orientation
- 4) Emissions/exhaust at 50% load with a fixed cap discharge

A brief description of the modeling and the results of the four (4) modeling runs are provided as **Attachment 2**. The compliance demonstration tables provided in **Attachment 2** indicate that all four scenarios will result in ambient impacts of TACs that are lower than the original modeling provided in the 2023 permit application.

### **CATERPILLAR Inspection of Raincap Design and Operation**

While modeling was being conducted, JBS was simultaneously arranging to have technicians from Caterpillar, the biogas engine manufacturer, visit the JBS Plainwell, Michigan facility to inspect the raincaps of the four FGBIOGENS engine stacks. The inspection was to determine if there were any noticeable design flaws or difficulties noted in operation of the hinged-flap caps. The report from Caterpillar is provided in **Attachment 3**. The conclusions of the inspection were that the caps were properly designed and operating as expected and designed.

### **Conclusion**

It is JBS's position that the permit requirement is being met in this case, because the 100% load scenario does force the cap all the way open, allowing unobstructed vertical flow, and in cases where the cap is not fully opening (i.e. "hanging over the stack occasionally") due to lower exhaust corresponding with lower operating loads, modeling indicates that the emissions associated with these lower loads will remain compliant with all TAC screening levels. Although JBS feels it is unnecessary to pursue (unless the AQD informs JBS otherwise), a permit revision to remove the "discharged unobstructed vertically upwards" language from the Stack/Vent Restrictions of PTI No. 111-23 would be justified. JBS would also like to state that preliminary stack test results appear to be in compliance with all emission limitations in PTI No. 111-23 for which testing was being conducted when AQD was present at the JBS facility in Plainwell, Michigan. A full test report will be submitted within the 60 day requirement for the testing, which was concluded on December 13, 2023.

JBS Plainwell is hopeful that this response fully addresses any concerns raised by the AQD Violation Notice and welcomes any further discussion necessary to resolve this issue. Please contact me at 269-685-2508 or Abraham.Anderson@JBSSA.com should you have any further questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Abraham Anderson", written over a horizontal line.

Abraham Anderson, P.E.  
Environmental Manager  
O: 269-685-2508 C: 616-566-3280  
Abraham.Anderson@JBSSA.com

Cc: Jenine Camilleri, EGLE-AQD Enforcement  
Monica Brothers, EGLE-AQD Kalamazoo District  
Brad Myott, Chris Etheridge, Annette Switzer, EGLE-AQD  
Jeremy Fancher, JBS  
Ted Bishop, Tetra Tech



**ATTACHMENT 1**

**Violation Notice**



GRETCHEN WHITMER  
GOVERNOR

STATE OF MICHIGAN  
DEPARTMENT OF  
ENVIRONMENT, GREAT LAKES, AND ENERGY  
KALAMAZOO DISTRICT OFFICE



PHILLIP D. ROOS  
DIRECTOR

December 14, 2023

Abe Anderson  
JBS Plainwell, Inc.  
11 11<sup>th</sup> Street  
Plainwell, Michigan 49080

SRN: B7244, Allegan County

Dear Abe Anderson:

**VIOLATION NOTICE**

On December 6, 2023, the Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), attended the emission stack test conducted at JBS Plainwell located at 11 11<sup>th</sup> Street, Plainwell, Michigan. The purpose of this emission stack test was to determine JBS Plainwell compliance with the requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); the Air Pollution Control Rules; and the conditions of Permit to Install (PTI) number 111-23;

During the stack test, staff observed the following:

Process Description	Rule/Permit Condition Violated	Comments
FGBIOGENS	Special Condition VIII.1-4	EUBIOGEN1, EUBIOGEN2, EUBIOGEN3, and EUBIOGEN4 were all installed and operated with rain flaps/caps. These rain flaps/caps were observed obstructing the flow of the exhaust gases from the bio engines. This is a violation of Special conditions VIII.1-4.

Please initiate actions necessary to correct the cited violations and submit a written response to this Violation Notice by January 4, 2024 (which coincides with 21 calendar days from the date of this letter). The written response should include: the dates the violations occurred; an explanation of the causes and duration of the violations; whether the violations are ongoing; a summary of the actions that have been taken and are proposed to be taken to correct the violations and the dates by which these actions will take place; and what steps are being taken to prevent a reoccurrence.

Abe Anderson  
JBS Plainwell, Inc.  
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Please submit the written response to Cody Yazzie at EGLE, AQD, Kalamazoo District, at 7953 Adobe Road, Kalamazoo, Michigan 49009 or YazzieC@michigan.gov and submit a copy to Jenine Camilleri, Enforcement Unit Supervisor at EGLE, AQD, P.O. Box 30260, Lansing, Michigan 48909-7760.

If JBS Plainwell, Inc. believes the above observations or statements are inaccurate or do not constitute violations of the applicable legal requirements cited, please provide appropriate factual information to explain your position.

Thank you for your attention to resolving the violations cited above and for the cooperation that was extended to me during my inspection of JBS Plainwell, Inc. If you have any questions regarding the violations or the actions necessary to bring this facility into compliance, please contact me at the number listed below.

Sincerely,



Cody Yazzie  
Environmental Engineer  
Air Quality Division  
269-312-2754

cc: Annette Switzer, EGLE  
Christopher Ethridge, EGLE  
Brad Myott, EGLE  
Jenine Camilleri, EGLE  
Monica Brothers, EGLE



## **ATTACHMENT 2**

### **Additional Dispersion Modeling – Description and Results**

Tables H75 F-1 and H75 F-2 (Horizontal discharge at 75% load)

Tables C75 F-1 and C75 F-2 (Capped discharge at 75% load)

Tables H50 F-1 and H50 F-2 (Horizontal discharge at 50% load)

Tables C50 F-1 and C50 F-2 (Capped discharge at 50% load)

Tables F-1 and F-2 (Permit application modeling results at 100% load)



### **Additional Dispersion Modeling for Reduced Load Scenarios**

The requirement to release emissions from the FGBIOGENS stacks with a “vertical discharge” is based on the compliance demonstration that was conducted by JBS in the permit application, dated May 10, 2023, that was submitted to support the AQD approval of PTI No. 111-23. Within the permit application, JBS provided a Rule 225 (air toxics) compliance demonstration using dispersion modeling. As is typically done for a demonstration of this nature, emissions and modeling were provided for a worst-case operating scenario of all four engines operating simultaneously at 100% load. The modeling demonstrated compliance with all toxic air contaminant (TAC) screening levels and the closest pollutant in relation to its screening level was formaldehyde at 48% of the allowed level. For this modeling, it was assumed that the emissions at 100% load would be discharged vertically upwards, unobstructed.

Based on the AQD’s observation of the behavior of the installed rain protection (hinged flaps) when the engines were starting up and/or not operating at 100% load, some additional scenarios have been examined related to this potential situation, to see if results of dispersion modeling for these scenarios would be significantly different than those provided in the permit application. Specifically, AQD staff noted in the Staff Activity Report for the December 6, 2023 observation, that “the flap lifts based on the draft in the stack (and) Staff did notice that the flap would hang over the stack occasionally”. Additional discussion with AQD staff indicated that the flaps were observed to result in horizontal and/or 45-degree upward discharges that were especially noticeable during start-up of the engines. Therefore, JBS has conducted and is providing results for the following four additional modeling scenarios utilizing horizontal discharge orientations and fixed-cap releases:

- 1) Emissions/exhaust at 75% load with a horizontal discharge orientation
- 2) Emissions/exhaust at 75% load with a fixed cap discharge
- 3) Emissions/exhaust at 50% load with a horizontal discharge orientation
- 4) Emissions/exhaust at 50% load with a fixed cap discharge

The engine data for these scenarios are as follows:

Model Scenario	Load	kW Output	Heat Input MMBtu/hr	BHP	Exhaust Flow (acfm)	Exhaust Temp (F)	Discharge Orientation
1	75%	1500	12.71	1579	10479	851	Horizontal
2	75%	1500	12.71	1579	10479	851	Capped
3	50%	1000	8.97	1442	7196	918	Horizontal
4	50%	1000	8.97	1442	7196	918	Capped

Modeled emission rates for the two reduced loads were determined in the same manner as was used for the permit application. Emission rates at both 75% and 50% load were calculated for both biogas firing and natural gas firing utilizing manufacturer specification information as provided in Appendix C of the 2023 permit application, and whichever resulted in a higher emission rate on a per-TAC basis was used in the compliance demonstration. 1 pound/hour modeled emission rates were used for each stack and exhaust parameters were also determined at both 75% and 50% load (above table), to be used as input values for exhaust and temperature for the four (4) models.



The results of the four (4) modeling runs are included in this attachment, following this discussion section. In addition, the results from the permit application Rule 225 compliance demonstration are included at the end of **Attachment 2** to allow comparison to the four additional scenarios.

### **Modeling Results Discussion**

The results for each scenario presented has two tables: "F-1" tables provide the 1 pound/hour impacts for each stack and each averaging time, and "F-2" tables show the emission rates, combined impacts for all 4 stacks, and the compliance status with a % of screening level. The compliance demonstration tables provided in **Attachment 2** indicate that all four scenarios will result in ambient impacts of TACs that are lower than the original modeling provided in the 2023 permit application. The highest impact for any TAC versus its screening level is still formaldehyde (as expected), which shows an impact at 43% of the screening level for Scenario #4, which is the 50% load, fixed-capped stack scenario (see **Attachment 2**, Table C50\_F-2). This is lower than the 100% load scenario, which showed an impact for formaldehyde at 48% of the screening level.

Lakes Environmental AERMODView software was used for the dispersion modeling, utilizing U.S. EPA's AERMOD source code version 23132 and the same 2022 meteorological (MET) year data that was used for the 2023 permit application Rule 225 compliance analysis. Modeling files and emission rate calculations are available upon request by the AQD.



ATTACHMENT 2

**TABLE H75\_F-1. AERMOD Model Run Result: Modeled Impacts Per Unit Emission Rate**  
Modeled at 75% Load; Horizontal Release ( ug/m3 ) / ( 1.0 lb/hour )

Source	1 hour	8 hour	24 hour	Annual
Engine Generator #1	4.749	2.508	1.728	0.130
Engine Generator #2	4.737	2.533	1.746	0.133
Engine Generator #3	4.719	2.420	1.719	0.130
Engine Generator #4	4.739	2.350	1.701	0.128

**TABLE H75\_F-2. Rule 225 TAC Compliance Analysis Results AT 75% LOAD and HORIZONTAL**

Compound	CAS	Single Engine Rates			Annual Ave Hourly Rate <sup>1</sup> (lb/hr)	Calculated Combined Impact				ITSL				IRSL Annual (ug/m <sup>3</sup> )	Compliant?					Percent of Screening Level					
		Max Hourly Rate Each Engine (lb/hr)	Max Annual Rate Each Engine (ton/year)	Annual Ave Hourly Rate <sup>1</sup> (lb/hr)		1-hr (ug/m <sup>3</sup> )	8-hr (ug/m <sup>3</sup> )	24-hr (ug/m <sup>3</sup> )	Annual (ug/m <sup>3</sup> )	1 hr (ug/m <sup>3</sup> )	8 hr (ug/m <sup>3</sup> )	24 hr (ug/m <sup>3</sup> )	Annual (ug/m <sup>3</sup> )		ITSL				IRSL	Percent of Screening Level					
															ITSL					IRSL	Percent of Screening Level				
															1 hr	8 hr	24 hr	Ann			Ann	1 hr	8 hr	24 hr	Ann
1,1,1 - Trichloroethane (methyl chloroform)	71-55-6	7.76E-05	1.16E-04	2.66E-05			5.35E-04		--	--	6,000	--	--	--	--	Yes	--	--	--	--	0.00%	--	--		
1,1,2,2 - Tetrachloroethane	79-34-5	2.26E-04	3.39E-04	7.73E-05			4.02E-05		--	--	--	--	0.02	--	--	--	--	Yes	--	--	--	--	0.20%		
1,1,2 - Trichloroethane	79-00-5	5.62E-05	8.43E-05	1.93E-05			3.88E-04	1.00E-05	--	--	160	11	0.063	--	--	Yes	Yes	Yes	--	--	0.00%	0.00%	0.02%		
1,1 - Dichloroethane (ethylidene dichloride)	75-34-3	2.82E-04	4.23E-04	9.65E-05			5.02E-05		--	--	--	500	--	--	--	Yes	--	--	--	--	--	0.00%	--		
1,1 - Dichloroethene (vinylidene chloride)	75-35-4	2.36E-05	3.54E-05	8.09E-06			4.21E-06		--	--	--	200	--	--	--	Yes	--	--	--	--	--	0.00%	--		
1,2,3 - Trimethylbenzene	526-73-8	4.07E-05	6.10E-05	1.39E-05			3.99E-04	7.25E-06	--	1,200	--	185	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--		
1,2,4 - Trimethylbenzene	95-63-6	2.53E-05	3.79E-05	8.66E-06			2.48E-04	4.51E-06	--	1,200	--	185	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--		
1,2 - Dichloroethane (ethylene dichloride)	107-06-2	4.88E-05	7.32E-05	1.67E-05			8.69E-06		--	--	--	--	0.04	--	--	--	--	Yes	--	--	--	--	0.02%		
1,2 - Dichloropropane (propylene dichloride)	78-87-5	4.76E-05	7.14E-05	1.63E-05			8.47E-06		--	--	--	4	0.2	--	--	--	Yes	Yes	--	--	--	0.00%	0.00%		
1,2 - Dichloroethene (1,2 dichloroethylene)	156-60-5	3.34E-04	5.00E-04	1.14E-04			5.94E-05		--	--	--	200	--	--	--	Yes	--	--	--	--	--	0.00%	--		
1,3,5 - Trimethylbenzene	108-67-8	5.98E-05	8.97E-05	2.05E-05			5.86E-04	1.06E-05	--	1,200	--	185	0.03	--	Yes	--	Yes	Yes	--	0.00%	--	0.00%	0.04%		
1,3 - Butadiene	106-99-0	4.72E-04	7.08E-04	1.62E-04			8.41E-05		--	--	--	33	0.2	--	--	--	Yes	Yes	--	--	--	0.00%	0.04%		
1,3 - Dichloropropene	542-75-6	4.67E-05	7.00E-05	1.60E-05			8.32E-06		--	--	--	20	--	--	--	Yes	--	--	--	--	--	0.00%	--		
2 - Methylnaphthalene	91-57-6	5.87E-05	8.81E-05	2.01E-05			1.05E-05		--	--	--	10	--	--	--	Yes	--	--	--	--	--	0.00%	--		
2-Propanol (isopropyl alcohol)	67-63-0	1.84E-03	2.76E-03	6.29E-04			3.27E-04		--	--	--	220	--	--	--	Yes	--	--	--	--	--	0.00%	--		
2,2,4 - Trimethylpentane	540-84-1	4.42E-04	6.63E-04	1.51E-04			4.34E-03		--	3,500	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--		
Acenaphthene	83-32-9	2.21E-06	3.32E-06	7.57E-07			3.94E-07		--	--	--	210	--	--	--	Yes	--	--	--	--	--	0.00%	--		
Acenaphthylene	208-96-8	9.78E-06	1.47E-05	3.35E-06			1.74E-06		--	--	--	35	--	--	--	Yes	--	--	--	--	--	0.00%	--		
Acetaldehyde	75-07-0	1.48E-02	2.22E-02	5.06E-03			2.63E-03		--	--	--	9	0.5	--	--	Yes	Yes	Yes	--	--	--	0.03%	0.53%		
Acetone (2-propanone)	67-64-1	2.48E-04	3.73E-04	8.51E-05			2.44E-03		--	5,900	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--		
Acrolein	107-02-8	9.09E-03	1.36E-02	3.11E-03			1.72E-01	1.62E-03	5	--	--	0.16	--	Yes	--	Yes	--	--	3.44%	--	--	1.01%	--		
Acrylonitrile (Propenenitrile)	107-13-1	2.05E-04	3.07E-04	7.02E-05			3.65E-05		--	--	--	2	0.01	--	--	Yes	Yes	Yes	--	--	--	0.00%	0.37%		
Benzene	71-43-2	7.78E-04	1.17E-03	2.66E-04			5.36E-03	1.39E-04	--	--	30	30	0.1	--	--	Yes	Yes	Yes	--	--	0.02%	0.00%	0.14%		
Benzo(b)fluoranthene (PAH - see last entry)	205-99-2	2.94E-07	4.40E-07	1.01E-07					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Benzo(g,h,i)perylene	191-24-2	7.32E-07	1.10E-06	2.51E-07				1.30E-07	--	--	--	13	--	--	--	Yes	--	--	--	--	--	0.00%	--		
Biphenyl	92-52-4	3.75E-04	5.62E-04	1.28E-04			3.68E-03		--	13	--	--	--	--	Yes	--	--	--	--	0.03%	--	--	--		
Bromodichloromethane	75-27-4	6.21E-04	9.32E-04	2.13E-04				1.11E-04	--	--	--	--	0.06	--	--	--	--	Yes	--	--	--	--	0.18%		
Butane	106-97-8	9.57E-04	1.43E-03	3.28E-04			9.39E-03		--	23,800	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--		
Butyr/Isobutyraldehyde	123-72-8	1.79E-04	2.68E-04	6.12E-05				3.18E-05	--	--	--	7	--	--	--	--	--	--	--	--	--	0.00%	--		
Carbon Disulfide	75-15-0	2.69E-05	4.04E-05	9.23E-06				4.80E-06	--	--	--	700	--	--	--	Yes	--	--	--	--	--	0.00%	--		
Carbon Tetrachloride	56-23-5	6.49E-05	9.73E-05	2.22E-05				1.16E-05	--	--	--	480	0.17	--	--	Yes	Yes	--	--	--	--	0.00%	0.01%		
Carbonyl Sulfide	463-58-1	1.80E-05	2.69E-05	6.15E-06				3.20E-06	--	--	--	9	--	--	--	Yes	--	--	--	--	--	0.00%	--		
Chlorobenzene (monochlorobenzene)	108-90-7	5.38E-05	8.06E-05	1.84E-05			5.27E-04	9.58E-06	--	4,400	--	50	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--		
Chlorodifluoromethane (CFC-22, freon-22)	75-45-6	1.36E-04	2.04E-04	4.66E-05				2.43E-05	--	--	--	50,000	--	--	--	Yes	--	--	--	--	--	0.00%	--		
Chloroethane (ethyl chloride)	75-00-3	9.77E-05	1.47E-04	3.35E-05			6.74E-04		--	--	10,000	--	--	--	Yes	--	--	--	--	--	0.00%	--	--		
Chloroform (trichloromethane)	67-66-3	5.04E-05	7.56E-05	1.73E-05				8.98E-06	--	--	--	--	0.4	--	--	--	--	Yes	--	--	--	--	0.00%		
Chloromethane (methyl chloride)	74-87-3	7.40E-05	1.11E-04	2.53E-05				1.32E-05	--	--	--	90	--	--	--	Yes	--	--	--	--	--	0.00%	--		
chrysene (PAH - see last entry)	218-01-9	1.23E-06	1.84E-06	4.20E-07					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
cyclopentane	287-92-3	4.01E-04	6.02E-04	1.37E-04			3.94E-03		--	17,200	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--		

ATTACHMENT 2

TABLE H75\_F-1. AERMOD Model Run Result: Modeled Impacts Per Unit Emission Rate

Modeled at 75% Load; Horizontal Release ( ug/m3 ) / ( 1.0 lb/hour )

Source	1 hour	8 hour	24 hour	Annual
Engine Generator #1	4.749	2.508	1.728	0.130
Engine Generator #2	4.737	2.533	1.746	0.133
Engine Generator #3	4.719	2.420	1.719	0.130
Engine Generator #4	4.739	2.350	1.701	0.128

TABLE H75\_F-2. Rule 225 TAC Compliance Analysis Results AT 75% LOAD and HORIZONTAL

Compound	CAS	Single Engine Rates			Annual Ave Hourly Rate <sup>1</sup> (lb/hr)	Calculated Combined Impact				ITSL				IRSL (ug/m <sup>3</sup> )	Compliant?					Percent of Screening Level				
		Max Hourly Rate Each Engine (lb/hr)	Max Annual Rate Each Engine (ton/year)	1-hr (ug/m <sup>3</sup> )		8-hr (ug/m <sup>3</sup> )	24-hr (ug/m <sup>3</sup> )	Annual (ug/m <sup>3</sup> )	1 hr (ug/m <sup>3</sup> )	8 hr (ug/m <sup>3</sup> )	24 hr (ug/m <sup>3</sup> )	Annual (ug/m <sup>3</sup> )	ITSL				IRSL	Percent of Screening Level						
													ITSL					IRSL	Percent of Screening Level					
													1 hr		8 hr	24 hr			Ann	Ann	1 hr	8 hr	24 hr	Ann
1,4 Dichlorobenzene (p-dichlorobenzene)	106-46-7	3.79E-05	5.69E-05	1.30E-05					6.76E-06	--	--	--	800	0.25	--	--	--	Yes	Yes	--	--	--	0.00%	0.00%
Dichlorodifluoromethane (CFC-12, freon-12)	75-71-8	2.30E-03	3.45E-03	7.88E-04			2.26E-02		4.10E-04	--	49,500	--	330	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--
Dichloromethane (methylene chloride)	75-09-2	1.47E-03	2.21E-03	5.04E-04		2.79E-02			2.62E-04	14,000	--	--	2,000	60	Yes	--	--	Yes	Yes	0.00%	--	--	0.00%	0.00%
Dimethyl Sulfide (methyl sulfide)	75-18-3	2.96E-04	4.45E-04	1.02E-04					5.28E-05	--	--	--	7	--	--	--	--	Yes	--	--	--	0.00%	--	
Ethanol (ethyl alcohol)	64-17-5	7.65E-04	1.15E-03	2.62E-04		1.45E-02				19,000	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--	--
Ethyl Mercaptan	75-08-1	8.53E-05	1.28E-04	2.92E-05		1.62E-03				13	--	--	--	--	Yes	--	--	--	--	0.01%	--	--	--	--
Ethylbenzene	100-41-4	2.99E-04	4.48E-04	1.02E-04			2.06E-03		5.32E-05	--	--	1,000	--	0.4	--	--	Yes	--	Yes	--	--	0.00%	--	0.01%
Ethylene dibromide (1,2 dibromoethane)	106-93-4	7.83E-05	1.18E-04	2.68E-05					1.40E-05	--	--	--	9	0.002	--	--	--	Yes	Yes	--	--	--	0.00%	0.70%
fluoranthene	206-44-0	1.96E-06	2.94E-06	6.72E-07					3.50E-07	--	--	--	140	--	--	--	--	Yes	--	--	--	0.00%	--	
fluorene	86-73-7	1.00E-05	1.50E-05	3.43E-06					1.79E-06	--	--	--	140	--	--	--	--	Yes	--	--	--	0.00%	--	
Fluorotrichloromethane (CFC-11, freon-11)	75-69-4	1.26E-04	1.90E-04	4.33E-05		2.40E-03			2.25E-05	56,200	--	--	130	--	Yes	--	--	Yes	--	0.00%	--	--	0.00%	--
Hexane	110-54-3	1.96E-03	2.94E-03	6.72E-04					3.50E-04	--	--	--	700	--	--	--	--	Yes	--	--	--	0.00%	--	
Hydrogen Sulfide	7783-06-4	1.56E-03	2.35E-03	5.36E-04			1.08E-02		2.79E-04	--	--	100	10	--	--	--	Yes	Yes	--	--	--	0.01%	0.00%	--
Mercury (total)	7439-97-6	3.57E-08	5.36E-08	1.22E-08			2.46E-07		6.37E-09	--	--	1	0.3	--	--	--	Yes	Yes	--	--	--	0.00%	0.00%	--
methanol	67-56-1	4.42E-03	6.63E-03	1.51E-03		8.37E-02		3.05E-02		28,000	--	--	20,000	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--	--
methylcyclohexane	108-87-2	2.18E-03	3.26E-03	7.45E-04			2.13E-02			--	16,000	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--
Methyl Ethyl Ketone (2-butanone)	78-93-3	3.12E-04	4.68E-04	1.07E-04			2.15E-03			--	--	5,000	--	--	--	--	Yes	--	--	--	--	0.00%	--	--
Methyl Isobutyl Ketone (hexone)	108-10-1	1.14E-04	1.71E-04	3.91E-05			1.12E-03			--	820	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--
Methyl Mercaptan	74-93-1	7.31E-05	1.10E-04	2.50E-05		1.38E-03				10	--	--	--	--	Yes	--	--	--	--	0.01%	--	--	--	--
naphthalene	91-20-3	1.32E-04	1.97E-04	4.51E-05			1.29E-03		2.34E-05	--	520	--	3	0.08	--	Yes	--	Yes	Yes	--	0.00%	--	0.00%	0.03%
n-nonane	111-84-2	1.95E-04	2.92E-04	6.66E-05					3.47E-05	--	--	--	550	--	--	--	Yes	--	--	--	--	--	0.00%	--
Pentane	109-66-0	4.60E-03	6.90E-03	1.57E-03			4.51E-02			--	17,700	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--
phenanthrene	85-01-8	1.84E-05	2.76E-05	6.30E-06					3.28E-06	--	--	--	0.1	--	--	--	Yes	--	--	--	--	--	0.00%	--
phenol	108-95-2	4.24E-05	6.37E-05	1.45E-05			4.16E-04			--	190	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--
Tetrachloroethylene (perchloroethylene, -ethene)	127-18-4	7.49E-04	1.12E-03	2.57E-04			5.17E-03		1.34E-04	--	--	1,400	40	4	--	--	Yes	Yes	Yes	--	--	0.00%	0.00%	0.00%
pyrene	129-00-0	2.40E-06	3.61E-06	8.24E-07					4.28E-07	--	--	--	100	--	--	--	Yes	--	--	--	--	--	0.00%	--
styrene	100-42-5	4.17E-05	6.26E-05	1.43E-05					7.44E-06	--	--	--	1,000	2	--	--	Yes	Yes	--	--	--	0.00%	0.00%	
Toluene (methylbenzene)	108-88-3	2.21E-03	3.31E-03	7.57E-04			1.52E-02			--	--	5,000	--	--	--	Yes	--	--	--	--	--	0.00%	--	--
Trichloroethylene (trichloroethene)	79-01-6	4.49E-04	6.73E-04	1.54E-04			3.09E-03		8.00E-05	--	--	2	--	0.2	--	--	Yes	--	Yes	--	--	0.15%	--	0.04%
Vinyl Chloride (chloroethylene, VCM)	75-01-4	5.56E-04	8.34E-04	1.90E-04					9.90E-05	--	--	--	100	0.11	--	--	Yes	Yes	--	--	--	0.00%	0.09%	
Xylenes (m, o, p)	1330-20-7	7.84E-04	1.18E-03	2.68E-04					1.40E-04	--	--	--	390	--	--	--	Yes	--	--	--	--	--	0.00%	--
Hydrogen Chloride	7647-01-0	7.81E-02	1.17E-01	2.67E-02		1.48E+00			1.39E-02	2,100	--	--	20	--	Yes	--	Yes	--	--	0.07%	--	--	0.07%	--
Formaldehyde	50-00-0	0.15	0.22	0.051			1.03		2.66E-02	--	--	30	--	0.08	--	--	Yes	--	Yes	--	--	3%	--	33%
PAHs as benzo(a)pyrene	50-32-8	4.91E-05	7.36E-05	1.68E-05					2.55E-05	--	--	--	--	0.001	--	--	--	--	Yes	--	--	--	--	3%

1 Annual average rate is calculated by taking the maximum annual rate x 2000 lb/ton and dividing by 8760, as allowed by Rule 227(2) of the Michigan air toxics regulations.

ATTACHMENT 2

**TABLE C75\_F-1. AERMOD Model Run Result: Modeled Impacts Per Unit Emission Rate**  
Modeled at 75% Load; Capped Release ( ug/m3 ) / ( 1.0 lb/hour )

Source	1 hour	8 hour	24 hour	Annual
Engine Generator #1	4.970	2.981	2.040	0.146
Engine Generator #2	4.957	3.037	2.076	0.149
Engine Generator #3	4.942	2.690	2.036	0.147
Engine Generator #4	4.961	2.624	2.001	0.143

**TABLE C75\_F-2. Rule 225 TAC Compliance Analysis Results AT 75% LOAD and CAPPED**

Compound	CAS	Single Engine Rates			Annual Ave Hourly Rate <sup>1</sup> (lb/hr)	Calculated Combined Impact				ITSL				IRSL Annual (ug/m <sup>3</sup> )	Compliant?					Percent of Screening Level				
		Max Hourly Rate Each Engine (lb/hr)	Max Annual Rate Each Engine (ton/year)	Annual Ave Hourly Rate <sup>1</sup> (lb/hr)		1-hr (ug/m <sup>3</sup> )	8-hr (ug/m <sup>3</sup> )	24-hr (ug/m <sup>3</sup> )	Annual (ug/m <sup>3</sup> )	1 hr (ug/m <sup>3</sup> )	8 hr (ug/m <sup>3</sup> )	24 hr (ug/m <sup>3</sup> )	Annual (ug/m <sup>3</sup> )		ITSL				IRSL	Percent of Screening Level				
															Compliant?					Percent of Screening Level				
															1 hr	8 hr	24 hr	Ann		Ann	1 hr	8 hr	24 hr	Ann
1,1,1 - Trichloroethane (methyl chloroform)	71-55-6	7.76E-05	1.16E-04	2.66E-05			6.33E-04		--	--	6,000	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	
1,1,2,2 - Tetrachloroethane	79-34-5	2.26E-04	3.39E-04	7.73E-05				4.52E-05	--	--	--	--	0.02	--	--	--	--	Yes	--	--	--	--	0.23%	
1,1,2 - Trichloroethane	79-00-5	5.62E-05	8.43E-05	1.93E-05			4.58E-04	1.13E-05	--	--	160	11	0.063	--	--	Yes	Yes	Yes	--	--	0.00%	0.00%	0.02%	
1,1 - Dichloroethane (ethylidene dichloride)	75-34-3	2.82E-04	4.23E-04	9.65E-05				5.64E-05	--	--	--	500	--	--	--	Yes	--	--	--	--	--	0.00%	--	
1,1 - Dichloroethene (vinylidene chloride)	75-35-4	2.36E-05	3.54E-05	8.09E-06				4.72E-06	--	--	--	200	--	--	--	Yes	--	--	--	--	--	0.00%	--	
1,2,3 - Trimethylbenzene	526-73-8	4.07E-05	6.10E-05	1.39E-05		4.61E-04		8.14E-06	--	1,200	--	185	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--	
1,2,4 - Trimethylbenzene	95-63-6	2.53E-05	3.79E-05	8.66E-06		2.87E-04		5.06E-06	--	1,200	--	185	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--	
1,2 - Dichloroethane (ethylene dichloride)	107-06-2	4.88E-05	7.32E-05	1.67E-05				9.76E-06	--	--	--	--	0.04	--	--	--	--	Yes	--	--	--	--	0.02%	
1,2 - Dichloropropane (propylene dichloride)	78-87-5	4.76E-05	7.14E-05	1.63E-05				9.52E-06	--	--	--	4	0.2	--	--	--	Yes	Yes	--	--	--	0.00%	0.00%	
1,2 - Dichloroethene (1,2 dichloroethylene)	156-60-5	3.34E-04	5.00E-04	1.14E-04				6.67E-05	--	--	--	200	--	--	--	Yes	--	--	--	--	--	0.00%	--	
1,3,5 - Trimethylbenzene	108-67-8	5.98E-05	8.97E-05	2.05E-05		6.77E-04		1.20E-05	--	1,200	--	185	0.03	--	Yes	--	Yes	Yes	--	0.00%	--	0.00%	0.04%	
1,3 - Butadiene	106-99-0	4.72E-04	7.08E-04	1.62E-04				9.45E-05	--	--	--	33	0.2	--	--	--	Yes	Yes	--	--	--	0.00%	0.05%	
1,3 - Dichloropropene	542-75-6	4.67E-05	7.00E-05	1.60E-05				9.34E-06	--	--	--	20	--	--	--	Yes	--	--	--	--	--	0.00%	--	
2 - Methylnaphthalene	91-57-6	5.87E-05	8.81E-05	2.01E-05				1.17E-05	--	--	--	10	--	--	--	Yes	--	--	--	--	--	0.00%	--	
2-Propanol (isopropyl alcohol)	67-63-0	1.84E-03	2.76E-03	6.29E-04				3.68E-04	--	--	--	220	--	--	--	Yes	--	--	--	--	--	0.00%	--	
2,2,4 - Trimethylpentane	540-84-1	4.42E-04	6.63E-04	1.51E-04		5.01E-03			--	3,500	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--	
Acenaphthene	83-32-9	2.21E-06	3.32E-06	7.57E-07				4.42E-07	--	--	--	210	--	--	--	Yes	--	--	--	--	--	0.00%	--	
Acenaphthylene	208-96-8	9.78E-06	1.47E-05	3.35E-06				1.96E-06	--	--	--	35	--	--	--	Yes	--	--	--	--	--	0.00%	--	
Acetaldehyde	75-07-0	1.48E-02	2.22E-02	5.06E-03				2.96E-03	--	--	--	9	0.5	--	--	Yes	Yes	Yes	--	--	--	0.03%	0.59%	
Acetone (2-propanone)	67-64-1	2.48E-04	3.73E-04	8.51E-05		2.81E-03			--	5,900	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--	
Acrolein	107-02-8	9.09E-03	1.36E-02	3.11E-03	1.80E-01			1.82E-03	5	--	--	0.16	--	Yes	--	Yes	--	--	3.60%	--	--	1.14%	--	
Acrylonitrile (Propenenitrile)	107-13-1	2.05E-04	3.07E-04	7.02E-05				4.10E-05	--	--	--	2	0.01	--	--	Yes	Yes	Yes	--	--	--	0.00%	0.41%	
Benzene	71-43-2	7.78E-04	1.17E-03	2.66E-04			6.34E-03	1.56E-04	--	--	30	30	0.1	--	--	Yes	Yes	Yes	--	--	0.02%	0.00%	0.16%	
Benzo(b)fluoranthene (PAH - see last entry)	205-99-2	2.94E-07	4.40E-07	1.01E-07					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Benzo(g,h,i)perylene	191-24-2	7.32E-07	1.10E-06	2.51E-07				1.46E-07	--	--	--	13	--	--	--	Yes	--	--	--	--	--	0.00%	--	
Biphenyl	92-52-4	3.75E-04	5.62E-04	1.28E-04		4.25E-03			--	13	--	--	--	--	Yes	--	--	--	--	0.03%	--	--	--	
Bromodichloromethane	75-27-4	6.21E-04	9.32E-04	2.13E-04				1.24E-04	--	--	--	--	0.06	--	--	--	--	Yes	--	--	--	--	0.21%	
Butane	106-97-8	9.57E-04	1.43E-03	3.28E-04		1.08E-02			--	23,800	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--	
Butyr/Isobutyraldehyde	123-72-8	1.79E-04	2.68E-04	6.12E-05				3.57E-05	--	--	--	7	--	--	--	--	--	--	--	--	--	0.00%	--	
Carbon Disulfide	75-15-0	2.69E-05	4.04E-05	9.23E-06				5.39E-06	--	--	--	700	--	--	--	Yes	--	--	--	--	--	0.00%	--	
Carbon Tetrachloride	56-23-5	6.49E-05	9.73E-05	2.22E-05				1.30E-05	--	--	--	480	0.17	--	--	Yes	Yes	--	--	--	--	0.00%	0.01%	
Carbonyl Sulfide	463-58-1	1.80E-05	2.69E-05	6.15E-06				3.59E-06	--	--	--	9	--	--	--	Yes	--	--	--	--	--	0.00%	--	
Chlorobenzene (monochlorobenzene)	108-90-7	5.38E-05	8.06E-05	1.84E-05		6.09E-04		1.08E-05	--	4,400	--	50	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--	
Chlorodifluoromethane (CFC-22, freon-22)	75-45-6	1.36E-04	2.04E-04	4.66E-05				2.73E-05	--	--	--	50,000	--	--	--	Yes	--	--	--	--	--	0.00%	--	
Chloroethane (ethyl chloride)	75-00-3	9.77E-05	1.47E-04	3.35E-05			7.97E-04		--	--	10,000	--	--	--	Yes	--	--	--	--	--	0.00%	--	--	
Chloroform (trichloromethane)	67-66-3	5.04E-05	7.56E-05	1.73E-05				1.01E-05	--	--	--	--	0.4	--	--	--	--	Yes	--	--	--	--	0.00%	
Chloromethane (methyl chloride)	74-87-3	7.40E-05	1.11E-04	2.53E-05				1.48E-05	--	--	--	90	--	--	--	Yes	--	--	--	--	--	0.00%	--	
chrysene (PAH - see last entry)	218-01-9	1.23E-06	1.84E-06	4.20E-07					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
cyclopentane	287-92-3	4.01E-04	6.02E-04	1.37E-04		4.55E-03			--	17,200	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--	

ATTACHMENT 2

**TABLE C75\_F-1. AERMOD Model Run Result: Modeled Impacts Per Unit Emission Rate**  
Modeled at 75% Load; Capped Release ( ug/m3 ) / ( 1.0 lb/hour )

Source	1 hour	8 hour	24 hour	Annual
Engine Generator #1	4.970	2.981	2.040	0.146
Engine Generator #2	4.957	3.037	2.076	0.149
Engine Generator #3	4.942	2.690	2.036	0.147
Engine Generator #4	4.961	2.624	2.001	0.143

**TABLE C75\_F-2. Rule 225 TAC Compliance Analysis Results AT 75% LOAD and CAPPED**

Compound	CAS	Single Engine Rates			Annual Ave Hourly Rate <sup>1</sup> (lb/hr)	Calculated Combined Impact				ITSL				IRSL (ug/m <sup>3</sup> )	Compliant?					Percent of Screening Level					
		Max Hourly Rate Each Engine (lb/hr)	Max Annual Rate Each Engine (ton/year)	Annual Rate Each Engine (lb/hr)		1-hr (ug/m <sup>3</sup> )	8-hr (ug/m <sup>3</sup> )	24-hr (ug/m <sup>3</sup> )	Annual (ug/m <sup>3</sup> )	1 hr (ug/m <sup>3</sup> )	8 hr (ug/m <sup>3</sup> )	24 hr (ug/m <sup>3</sup> )	Annual (ug/m <sup>3</sup> )		ITSL				IRSL	Percent of Screening Level					
															ITSL					IRSL	Percent of Screening Level				
															1 hr	8 hr	24 hr	Ann			Ann	1 hr	8 hr	24 hr	Ann
1,4 Dichlorobenzene (p-dichlorobenzene)	106-46-7	3.79E-05	5.69E-05	1.30E-05			7.59E-06	--	--	--	800	0.25	--	--	--	Yes	Yes	--	--	--	0.00%	0.00%			
Dichlorodifluoromethane (CFC-12, freon-12)	75-71-8	2.30E-03	3.45E-03	7.88E-04		2.61E-02	4.60E-04	--	49,500	--	330	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--			
Dichloromethane (methylene chloride)	75-09-2	1.47E-03	2.21E-03	5.04E-04	2.92E-02		2.94E-04	14,000	--	--	2,000	60	Yes	--	--	Yes	Yes	0.00%	--	--	0.00%	0.00%			
Dimethyl Sulfide (methyl sulfide)	75-18-3	2.96E-04	4.45E-04	1.02E-04			5.93E-05	--	--	--	7	--	--	--	--	Yes	--	--	--	--	0.00%	--			
Ethanol (ethyl alcohol)	64-17-5	7.65E-04	1.15E-03	2.62E-04	1.52E-02			19,000	--	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--	--		
Ethyl Mercaptan	75-08-1	8.53E-05	1.28E-04	2.92E-05	1.69E-03			13	--	--	--	--	--	Yes	--	--	--	--	0.01%	--	--	--	--		
Ethylbenzene	100-41-4	2.99E-04	4.48E-04	1.02E-04		2.43E-03	5.98E-05	--	--	1,000	--	0.4	--	--	Yes	--	Yes	--	--	0.00%	--	0.01%			
Ethylene dibromide (1,2 dibromoethane)	106-93-4	7.83E-05	1.18E-04	2.68E-05			1.57E-05	--	--	--	9	0.002	--	--	--	Yes	Yes	--	--	--	0.00%	0.78%			
fluoranthene	206-44-0	1.96E-06	2.94E-06	6.72E-07			3.93E-07	--	--	--	140	--	--	--	--	Yes	--	--	--	--	0.00%	--			
fluorene	86-73-7	1.00E-05	1.50E-05	3.43E-06			2.01E-06	--	--	--	140	--	--	--	--	Yes	--	--	--	--	0.00%	--			
Fluorotrichloromethane (CFC-11, freon-11)	75-69-4	1.26E-04	1.90E-04	4.33E-05	2.51E-03		2.53E-05	56,200	--	--	130	--	--	Yes	--	Yes	--	0.00%	--	--	0.00%	--			
Hexane	110-54-3	1.96E-03	2.94E-03	6.72E-04			3.93E-04	--	--	--	700	--	--	--	--	Yes	--	--	--	--	0.00%	--			
Hydrogen Sulfide	7783-06-4	1.56E-03	2.35E-03	5.36E-04		1.28E-02	3.13E-04	--	--	100	10	--	--	--	Yes	Yes	--	--	--	0.01%	0.00%	--			
Mercury (total)	7439-97-6	3.57E-08	5.36E-08	1.22E-08		2.91E-07	7.15E-09	--	--	1	0.3	--	--	--	--	Yes	Yes	--	--	--	0.00%	0.00%	--		
methanol	67-56-1	4.42E-03	6.63E-03	1.51E-03	8.77E-02		3.60E-02	28,000	--	20,000	--	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--	--		
methylcyclohexane	108-87-2	2.18E-03	3.26E-03	7.45E-04		2.46E-02		--	16,000	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--	--		
Methyl Ethyl Ketone (2-butanone)	78-93-3	3.12E-04	4.68E-04	1.07E-04		2.54E-03		--	--	5,000	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--		
Methyl Isobutyl Ketone (hexone)	108-10-1	1.14E-04	1.71E-04	3.91E-05		1.29E-03		--	820	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--	--		
Methyl Mercaptan	74-93-1	7.31E-05	1.10E-04	2.50E-05	1.45E-03			10	--	--	--	--	--	Yes	--	--	--	0.01%	--	--	--	--	--		
naphthalene	91-20-3	1.32E-04	1.97E-04	4.51E-05		1.49E-03	2.63E-05	--	520	--	3	0.08	--	Yes	--	Yes	Yes	--	0.00%	--	0.00%	0.03%	--		
n-nonane	111-84-2	1.95E-04	2.92E-04	6.66E-05			3.89E-05	--	--	--	550	--	--	--	--	Yes	--	--	--	--	0.00%	--	0.00%		
Pentane	109-66-0	4.60E-03	6.90E-03	1.57E-03		5.21E-02		--	17,700	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--	--		
phenanthrene	85-01-8	1.84E-05	2.76E-05	6.30E-06			3.68E-06	--	--	--	0.1	--	--	--	--	Yes	--	--	--	--	0.00%	--	0.00%		
phenol	108-95-2	4.24E-05	6.37E-05	1.45E-05		4.81E-04		--	190	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--	--		
Tetrachloroethylene (perchloroethylene, -ethene)	127-18-4	7.49E-04	1.12E-03	2.57E-04		6.11E-03	1.50E-04	--	--	1,400	40	4	--	--	Yes	Yes	Yes	--	--	0.00%	0.00%	0.00%	--		
pyrene	129-00-0	2.40E-06	3.61E-06	8.24E-07			4.81E-07	--	--	--	100	--	--	--	--	Yes	--	--	--	--	0.00%	--	--		
styrene	100-42-5	4.17E-05	6.26E-05	1.43E-05			8.35E-06	--	--	--	1,000	2	--	--	--	Yes	Yes	--	--	--	0.00%	0.00%	--		
Toluene (methylbenzene)	108-88-3	2.21E-03	3.31E-03	7.57E-04		1.80E-02		--	--	5,000	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--		
Trichloroethylene (trichloroethene)	79-01-6	4.49E-04	6.73E-04	1.54E-04		3.66E-03	8.98E-05	--	--	2	--	0.2	--	--	Yes	--	Yes	--	--	0.18%	--	0.04%	--		
Vinyl Chloride (chloroethylene, VCM)	75-01-4	5.56E-04	8.34E-04	1.90E-04			1.11E-04	--	--	--	100	0.11	--	--	--	Yes	Yes	--	--	--	0.00%	0.10%	--		
Xylenes (m, o, p)	1330-20-7	7.84E-04	1.18E-03	2.68E-04			1.57E-04	--	--	--	390	--	--	--	--	Yes	--	--	--	--	0.00%	--	--		
Hydrogen Chloride	7647-01-0	7.81E-02	1.17E-01	2.67E-02	1.55E+00		1.56E-02	2,100	--	--	20	--	--	Yes	--	Yes	--	0.07%	--	--	0.08%	--	--		
Formaldehyde	50-00-0	0.15	0.22	0.051		1.22	2.98E-02	--	--	30	--	0.08	--	--	Yes	--	Yes	--	--	4%	--	37%	--		
PAHs as benzo(a)pyrene	50-32-8	4.91E-05	7.36E-05	1.68E-05			2.87E-05	--	--	--	--	0.001	--	--	--	--	Yes	--	--	--	--	--	3%		

<sup>1</sup> Annual average rate is calculated by taking the maximum annual rate x 2000 lb/ton and dividing by 8760, as allowed by Rule 227(2) of the Michigan air toxics regulations.



ATTACHMENT 2

**TABLE H50\_F-1. AERMOD Model Run Result: Modeled Impacts Per Unit Emission Rate**  
Modeled at 50% Load; Horizontal Release ( ug/m3 ) / ( 1.0 lb/hour )

Source	1 hour	8 hour	24 hour	Annual
Engine Generator #1	5.723	3.199	2.226	0.170
Engine Generator #2	5.708	3.264	2.268	0.174
Engine Generator #3	5.910	2.892	2.219	0.171
Engine Generator #4	5.926	2.820	2.177	0.167

**TABLE H50\_F-2. Rule 225 TAC Compliance Analysis Results AT 50% LOAD and HORIZONTAL**

Compound	CAS	Single Engine Rates			Annual Ave Hourly Rate <sup>1</sup> (lb/hr)	Calculated Combined Impact				ITSL				IRSL (ug/m <sup>3</sup> )	Compliant?					Percent of Screening Level					
		Max Hourly Rate Each Engine (lb/hr)	Max Annual Rate Each Engine (ton/year)	Ave Hourly Rate <sup>1</sup> (lb/hr)		1-hr (ug/m <sup>3</sup> )	8-hr (ug/m <sup>3</sup> )	24-hr (ug/m <sup>3</sup> )	Annual (ug/m <sup>3</sup> )	1 hr (ug/m <sup>3</sup> )	8 hr (ug/m <sup>3</sup> )	24 hr (ug/m <sup>3</sup> )	Annual (ug/m <sup>3</sup> )		ITSL				IRSL	Percent of Screening Level					
															ITSL					IRSL	Percent of Screening Level				
															1 hr	8 hr	24 hr	Ann			Ann	1 hr	8 hr	24 hr	Ann
1,1,1 - Trichloroethane (methyl chloroform)	71-55-6	5.48E-05	8.21E-05	1.88E-05			4.87E-04		--	--	6,000	--	--	--	--	Yes	--	--	--	--	0.00%	--	--		
1,1,2,2 - Tetrachloroethane	79-34-5	1.59E-04	2.39E-04	5.46E-05				3.72E-05	--	--	--	--	0.02	--	--	--	--	Yes	--	--	--	--	0.19%		
1,1,2 - Trichloroethane	79-00-5	4.00E-05	6.01E-05	1.37E-05			3.56E-04	9.36E-06	--	--	160	11	0.063	--	--	Yes	Yes	Yes	--	--	0.00%	0.00%	0.01%		
1,1 - Dichloroethane (ethylidene dichloride)	75-34-3	1.99E-04	2.98E-04	6.81E-05				4.65E-05	--	--	--	500	--	--	--	Yes	--	--	--	--	--	0.00%	--		
1,1 - Dichloroethene (vinylidene chloride)	75-35-4	1.67E-05	2.50E-05	5.71E-06				3.90E-06	--	--	--	200	--	--	--	Yes	--	--	--	--	--	0.00%	--		
1,2,3 - Trimethylbenzene	526-73-8	2.90E-05	4.34E-05	9.92E-06			3.53E-04	6.77E-06	--	1,200	--	185	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--		
1,2,4 - Trimethylbenzene	95-63-6	1.80E-05	2.70E-05	6.17E-06			2.19E-04	4.21E-06	--	1,200	--	185	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--		
1,2 - Dichloroethane (ethylene dichloride)	107-06-2	3.44E-05	5.17E-05	1.18E-05				8.05E-06	--	--	--	--	0.04	--	--	--	--	Yes	--	--	--	--	0.02%		
1,2 - Dichloropropane (propylene dichloride)	78-87-5	3.39E-05	5.08E-05	1.16E-05				7.92E-06	--	--	--	4	0.2	--	--	--	Yes	Yes	--	--	--	0.00%	0.00%		
1,2 - Dichloroethene (1,2 dichloroethylene)	156-60-5	2.35E-04	3.53E-04	8.06E-05				5.50E-05	--	--	--	200	--	--	--	Yes	--	--	--	--	--	0.00%	--		
1,3,5 - Trimethylbenzene	108-67-8	4.26E-05	6.38E-05	1.46E-05			5.18E-04	9.95E-06	--	1,200	--	185	0.03	--	Yes	--	Yes	Yes	--	0.00%	--	0.00%	0.03%		
1,3 - Butadiene	106-99-0	3.36E-04	5.04E-04	1.15E-04				7.86E-05	--	--	--	33	0.2	--	--	--	Yes	Yes	--	--	--	0.00%	0.04%		
1,3 - Dichloropropene	542-75-6	3.32E-05	4.99E-05	1.14E-05				7.77E-06	--	--	--	20	--	--	--	Yes	--	--	--	--	--	0.00%	--		
2 - Methylnaphthalene	91-57-6	4.18E-05	6.27E-05	1.43E-05				9.77E-06	--	--	--	10	--	--	--	Yes	--	--	--	--	--	0.00%	--		
2-Propanol (isopropyl alcohol)	67-63-0	1.30E-03	1.95E-03	4.44E-04				3.03E-04	--	--	--	220	--	--	--	Yes	--	--	--	--	--	0.00%	--		
2,2,4 - Trimethylpentane	540-84-1	3.15E-04	4.72E-04	1.08E-04			3.83E-03		--	3,500	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--		
Acenaphthene	83-32-9	1.57E-06	2.36E-06	5.39E-07				3.68E-07	--	--	--	210	--	--	--	Yes	--	--	--	--	--	0.00%	--		
Acenaphthylene	208-96-8	6.96E-06	1.04E-05	2.38E-06				1.63E-06	--	--	--	35	--	--	--	Yes	--	--	--	--	--	0.00%	--		
Acetaldehyde	75-07-0	1.05E-02	1.58E-02	3.61E-03				2.46E-03	--	--	--	9	0.5	--	--	Yes	Yes	Yes	--	--	--	0.03%	0.49%		
Acetone (2-propanone)	67-64-1	1.75E-04	2.63E-04	6.00E-05			2.13E-03		--	5,900	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--		
Acrolein	107-02-8	6.47E-03	9.71E-03	2.22E-03			1.51E-01	1.51E-03	5	--	--	0.16	--	Yes	--	Yes	--	--	3.01%	--	--	0.95%	--		
Acrylonitrile (Propenenitrile)	107-13-1	1.45E-04	2.17E-04	4.95E-05				3.38E-05	--	--	--	2	0.01	--	--	Yes	Yes	Yes	--	--	--	0.00%	0.34%		
Benzene	71-43-2	5.54E-04	8.31E-04	1.90E-04			4.93E-03	1.30E-04	--	--	30	30	0.1	--	--	Yes	Yes	Yes	--	--	0.02%	0.00%	0.13%		
Benzo(b)fluoranthene (PAH - see last entry)	205-99-2	2.09E-07	3.14E-07	7.16E-08					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Benzo(g,h,i)perylene	191-24-2	5.21E-07	7.82E-07	1.79E-07				1.22E-07	--	--	--	13	--	--	--	Yes	--	--	--	--	--	0.00%	--		
Biphenyl	92-52-4	2.67E-04	4.00E-04	9.14E-05			3.25E-03		--	13	--	--	--	--	Yes	--	--	--	--	0.03%	--	--	--		
Bromodichloromethane	75-27-4	4.38E-04	6.58E-04	1.50E-04				1.03E-04	--	--	--	--	0.06	--	--	--	--	Yes	--	--	--	--	0.17%		
Butane	106-97-8	6.81E-04	1.02E-03	2.33E-04			8.29E-03		--	23,800	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--		
Butyr/Isobutyraldehyde	123-72-8	1.27E-04	1.91E-04	4.36E-05				2.97E-05	--	--	--	7	--	--	--	--	--	--	--	--	--	0.00%	--		
Carbon Disulfide	75-15-0	1.90E-05	2.85E-05	6.51E-06				4.45E-06	--	--	--	700	--	--	--	Yes	--	--	--	--	--	0.00%	--		
Carbon Tetrachloride	56-23-5	4.62E-05	6.93E-05	1.58E-05				1.08E-05	--	--	--	480	0.17	--	--	Yes	Yes	--	--	--	--	0.00%	0.01%		
Carbonyl Sulfide	463-58-1	1.27E-05	1.90E-05	4.34E-06				2.96E-06	--	--	--	9	--	--	--	Yes	--	--	--	--	--	0.00%	--		
Chlorobenzene (monochlorobenzene)	108-90-7	3.83E-05	5.74E-05	1.31E-05			4.66E-04	8.95E-06	--	4,400	--	50	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--		
Chlorodifluoromethane (CFC-22, freon-22)	75-45-6	9.61E-05	1.44E-04	3.29E-05				2.25E-05	--	--	--	50,000	--	--	--	Yes	--	--	--	--	--	0.00%	--		
Chloroethane (ethyl chloride)	75-00-3	6.90E-05	1.03E-04	2.36E-05			6.13E-04		--	--	10,000	--	--	--	Yes	--	--	--	--	--	0.00%	--	--		
Chloroform (trichloromethane)	67-66-3	3.59E-05	5.38E-05	1.23E-05				8.39E-06	--	--	--	--	0.4	--	--	--	--	Yes	--	--	--	--	0.00%		
Chloromethane (methyl chloride)	74-87-3	5.22E-05	7.84E-05	1.79E-05				1.22E-05	--	--	--	90	--	--	--	Yes	--	--	--	--	--	0.00%	--		
chrysene (PAH - see last entry)	218-01-9	8.73E-07	1.31E-06	2.99E-07					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
cyclopentane	287-92-3	2.86E-04	4.29E-04	9.79E-05			3.48E-03		--	17,200	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--		

ATTACHMENT 2

**TABLE H50\_F-1. AERMOD Model Run Result: Modeled Impacts Per Unit Emission Rate**  
Modeled at 50% Load; Horizontal Release ( ug/m3 ) / ( 1.0 lb/hour )

Source	1 hour	8 hour	24 hour	Annual
Engine Generator #1	5.723	3.199	2.226	0.170
Engine Generator #2	5.708	3.264	2.268	0.174
Engine Generator #3	5.910	2.892	2.219	0.171
Engine Generator #4	5.926	2.820	2.177	0.167

**TABLE H50\_F-2. Rule 225 TAC Compliance Analysis Results AT 50% LOAD and HORIZONTAL**

Compound	CAS	Single Engine Rates			Annual Ave Hourly Rate <sup>1</sup> (lb/hr)	Calculated Combined Impact				ITSL				IRSL (ug/m <sup>3</sup> )	Compliant?					Percent of Screening Level					
		Max Hourly Rate Each Engine (lb/hr)	Max Annual Rate Each Engine (ton/year)	Ave Hourly Rate <sup>1</sup> (lb/hr)		1-hr (ug/m <sup>3</sup> )	8-hr (ug/m <sup>3</sup> )	24-hr (ug/m <sup>3</sup> )	Annual (ug/m <sup>3</sup> )	1 hr (ug/m <sup>3</sup> )	8 hr (ug/m <sup>3</sup> )	24 hr (ug/m <sup>3</sup> )	Annual (ug/m <sup>3</sup> )		ITSL				IRSL	Percent of Screening Level					
															ITSL					IRSL	Percent of Screening Level				
															1 hr	8 hr	24 hr	Ann			Ann	1 hr	8 hr	24 hr	Ann
1,4 Dichlorobenzene (p-dichlorobenzene)	106-46-7	2.68E-05	4.02E-05	9.17E-06			6.26E-06	--	--	--	800	0.25	--	--	--	Yes	Yes	--	--	--	0.00%	0.00%			
Dichlorodifluoromethane (CFC-12, freon-12)	75-71-8	1.62E-03	2.43E-03	5.56E-04		1.98E-02	3.79E-04	--	49,500	--	330	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--			
Dichloromethane (methylene chloride)	75-09-2	1.04E-03	1.56E-03	3.56E-04	2.42E-02		2.43E-04	14,000	--	--	2,000	60	Yes	--	--	Yes	Yes	0.00%	--	--	0.00%	0.00%			
Dimethyl Sulfide (methyl sulfide)	75-18-3	2.09E-04	3.14E-04	7.16E-05			4.89E-05	--	--	--	7	--	--	--	--	Yes	--	--	--	--	0.00%	--			
Ethanol (ethyl alcohol)	64-17-5	5.40E-04	8.10E-04	1.85E-04	1.26E-02			19,000	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--	--			
Ethyl Mercaptan	75-08-1	6.02E-05	9.03E-05	2.06E-05	1.40E-03			13	--	--	--	--	Yes	--	--	--	--	0.01%	--	--	--	--			
Ethylbenzene	100-41-4	2.11E-04	3.16E-04	7.22E-05		1.87E-03	4.93E-05	--	--	1,000	--	0.4	--	--	Yes	--	Yes	--	--	0.00%	--	0.01%			
Ethylene dibromide (1,2 dibromoethane)	106-93-4	5.58E-05	8.37E-05	1.91E-05			1.30E-05	--	--	--	9	0.002	--	--	--	Yes	Yes	--	--	--	0.00%	0.65%			
fluoranthene	206-44-0	1.40E-06	2.10E-06	4.79E-07			3.27E-07	--	--	--	140	--	--	--	--	Yes	--	--	--	--	0.00%	--			
fluorene	86-73-7	7.14E-06	1.07E-05	2.45E-06			1.67E-06	--	--	--	140	--	--	--	--	Yes	--	--	--	--	0.00%	--			
Fluorotrichloromethane (CFC-11, freon-11)	75-69-4	8.93E-05	1.34E-04	3.06E-05	2.08E-03		2.09E-05	56,200	--	--	130	--	Yes	--	--	Yes	--	0.00%	--	--	0.00%	--			
Hexane	110-54-3	1.40E-03	2.10E-03	4.79E-04			3.27E-04	--	--	--	700	--	--	--	--	Yes	--	--	--	--	0.00%	--			
Hydrogen Sulfide	7783-06-4	1.10E-03	1.66E-03	3.78E-04		9.81E-03	2.58E-04	--	--	100	10	--	--	--	Yes	Yes	--	--	--	0.01%	0.00%	--			
Mercury (total)	7439-97-6	2.52E-08	3.78E-08	8.64E-09			5.90E-09	--	--	1	0.3	--	--	--	--	Yes	Yes	--	--	--	0.00%	0.00%	--		
methanol	67-56-1	3.15E-03	4.72E-03	1.08E-03	7.32E-02		2.80E-02	28,000	--	20,000	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--	--			
methylcyclohexane	108-87-2	1.55E-03	2.32E-03	5.30E-04		1.89E-02		--	16,000	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--			
Methyl Ethyl Ketone (2-butanone)	78-93-3	2.20E-04	3.30E-04	7.54E-05		1.96E-03		--	--	5,000	--	--	--	--	Yes	--	--	--	--	0.00%	--	--			
Methyl Isobutyl Ketone (hexone)	108-10-1	8.07E-05	1.21E-04	2.76E-05		9.82E-04		--	820	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--			
Methyl Mercaptan	74-93-1	5.16E-05	7.74E-05	1.77E-05	1.20E-03			10	--	--	--	--	Yes	--	--	--	--	0.01%	--	--	--	--			
naphthalene	91-20-3	9.37E-05	1.41E-04	3.21E-05		1.14E-03	2.19E-05	--	520	--	3	0.08	--	Yes	--	Yes	Yes	--	0.00%	--	0.00%	0.03%			
n-nonane	111-84-2	1.39E-04	2.08E-04	4.74E-05			3.24E-05	--	--	--	550	--	--	--	--	Yes	--	--	--	--	0.00%	--			
Pentane	109-66-0	3.27E-03	4.91E-03	1.12E-03		3.99E-02		--	17,700	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--			
phenanthrene	85-01-8	1.31E-05	1.96E-05	4.48E-06			3.06E-06	--	--	--	0.1	--	--	--	--	Yes	--	--	--	--	0.00%	--			
phenol	108-95-2	3.02E-05	4.53E-05	1.03E-05		3.68E-04		--	190	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--			
Tetrachloroethylene (perchloroethylene, -ethene)	127-18-4	5.29E-04	7.93E-04	1.81E-04		4.70E-03	1.24E-04	--	--	1,400	40	4	--	--	Yes	Yes	Yes	--	--	0.00%	0.00%	0.00%			
pyrene	129-00-0	1.71E-06	2.57E-06	5.86E-07			4.00E-07	--	--	--	100	--	--	--	--	Yes	--	--	--	--	0.00%	--			
styrene	100-42-5	2.97E-05	4.46E-05	1.02E-05			6.95E-06	--	--	--	1,000	2	--	--	--	Yes	Yes	--	--	--	0.00%	0.00%			
Toluene (methylbenzene)	108-88-3	1.56E-03	2.34E-03	5.34E-04		1.39E-02		--	--	5,000	--	--	--	--	Yes	--	--	--	--	0.00%	--	--			
Trichloroethylene (trichloroethene)	79-01-6	3.17E-04	4.75E-04	1.08E-04		2.82E-03	7.41E-05	--	--	2	--	0.2	--	--	Yes	--	Yes	--	--	0.14%	--	0.04%			
Vinyl Chloride (chloroethylene, VCM)	75-01-4	3.92E-04	5.88E-04	1.34E-04			9.17E-05	--	--	--	100	0.11	--	--	--	Yes	Yes	--	--	--	0.00%	0.08%			
Xylenes (m, o, p)	1330-20-7	5.53E-04	8.30E-04	1.89E-04			1.29E-04	--	--	--	390	--	--	--	--	Yes	--	--	--	--	0.00%	--			
Hydrogen Chloride	7647-01-0	5.51E-02	8.27E-02	1.89E-02	1.28E+00		1.29E-02	2,100	--	--	20	--	Yes	--	--	Yes	--	0.06%	--	--	0.06%	--			
Formaldehyde	50-00-0	0.129	0.194	0.044		1.15	3.02E-02	--	--	30	--	0.08	--	--	Yes	--	Yes	--	--	4%	--	38%			
PAHs as benzo(a)pyrene	50-32-8	3.50E-05	5.24E-05	1.20E-05			2.39E-05	--	--	--	--	0.001	--	--	--	--	Yes	--	--	--	--	2%			

<sup>1</sup> Annual average rate is calculated by taking the maximum annual rate x 2000 lb/ton and dividing by 8760, as allowed by Rule 227(2) of the Michigan air toxics regulations.

ATTACHMENT 2

**TABLE C50\_F-1. AERMOD Model Run Result:** Modeled Impacts Per Unit Emission Rate  
Modeled at 50% Load; Capped Release ( ug/m3 ) / ( 1.0 lb/hour )

Source	1 hour	8 hour	24 hour	Annual
Engine Generator #1	5.994	3.711	2.575	0.193
Engine Generator #2	5.956	3.817	2.644	0.197
Engine Generator #3	6.100	3.393	2.577	0.193
Engine Generator #4	6.116	3.283	2.510	0.189

**TABLE C50\_F-2. Rule 225 TAC Compliance Analysis Results AT 50% LOAD and CAPPED**

Compound	CAS	Single Engine Rates			Annual Ave Hourly Rate <sup>1</sup> (lb/hr)	Calculated Combined Impact				ITSL				IRSL (ug/m <sup>3</sup> )	Compliant?					Percent of Screening Level					
		Max Hourly Rate Each Engine (lb/hr)	Max Annual Rate Each Engine (ton/year)	Ave Hourly Rate <sup>1</sup> (lb/hr)		1-hr (ug/m <sup>3</sup> )	8-hr (ug/m <sup>3</sup> )	24-hr (ug/m <sup>3</sup> )	Annual (ug/m <sup>3</sup> )	1 hr (ug/m <sup>3</sup> )	8 hr (ug/m <sup>3</sup> )	24 hr (ug/m <sup>3</sup> )	Annual (ug/m <sup>3</sup> )		ITSL				IRSL	Percent of Screening Level					
															ITSL					IRSL	Percent of Screening Level				
															1 hr	8 hr	24 hr	Ann			Ann	1 hr	8 hr	24 hr	Ann
1,1,1 - Trichloroethane (methyl chloroform)	71-55-6	5.48E-05	8.21E-05	1.88E-05			5.64E-04		--	--	6,000	--	--	--	--	Yes	--	--	--	--	0.00%	--	--		
1,1,2,2 - Tetrachloroethane	79-34-5	1.59E-04	2.39E-04	5.46E-05				4.21E-05	--	--	--	--	0.02	--	--	--	--	Yes	--	--	--	--	0.21%		
1,1,2 - Trichloroethane	79-00-5	4.00E-05	6.01E-05	1.37E-05			4.13E-04	1.06E-05	--	--	160	11	0.063	--	--	Yes	Yes	Yes	--	--	0.00%	0.00%	0.02%		
1,1 - Dichloroethane (ethylidene dichloride)	75-34-3	1.99E-04	2.98E-04	6.81E-05				5.26E-05	--	--	--	500	--	--	--	Yes	--	--	--	--	--	0.00%	--		
1,1 - Dichloroethene (vinylidene chloride)	75-35-4	1.67E-05	2.50E-05	5.71E-06				4.41E-06	--	--	--	200	--	--	--	Yes	--	--	--	--	--	0.00%	--		
1,2,3 - Trimethylbenzene	526-73-8	2.90E-05	4.34E-05	9.92E-06			4.11E-04	7.66E-06	--	1,200	--	185	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--		
1,2,4 - Trimethylbenzene	95-63-6	1.80E-05	2.70E-05	6.17E-06			2.56E-04	4.76E-06	--	1,200	--	185	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--		
1,2 - Dichloroethane (ethylene dichloride)	107-06-2	3.44E-05	5.17E-05	1.18E-05				9.11E-06	--	--	--	--	0.04	--	--	--	--	Yes	--	--	--	--	0.02%		
1,2 - Dichloropropane (propylene dichloride)	78-87-5	3.39E-05	5.08E-05	1.16E-05				8.96E-06	--	--	--	4	0.2	--	--	--	Yes	Yes	--	--	--	0.00%	0.00%		
1,2 - Dichloroethene (1,2 dichloroethylene)	156-60-5	2.35E-04	3.53E-04	8.06E-05				6.23E-05	--	--	--	200	--	--	--	Yes	--	--	--	--	--	0.00%	--		
1,3,5 - Trimethylbenzene	108-67-8	4.26E-05	6.38E-05	1.46E-05			6.05E-04	1.13E-05	--	1,200	--	185	0.03	--	Yes	--	Yes	Yes	--	0.00%	--	0.00%	0.04%		
1,3 - Butadiene	106-99-0	3.36E-04	5.04E-04	1.15E-04				8.89E-05	--	--	--	33	0.2	--	--	--	Yes	Yes	--	--	--	0.00%	0.04%		
1,3 - Dichloropropene	542-75-6	3.32E-05	4.99E-05	1.14E-05				8.79E-06	--	--	--	20	--	--	--	Yes	--	--	--	--	--	0.00%	--		
2 - Methylanththalene	91-57-6	4.18E-05	6.27E-05	1.43E-05				1.11E-05	--	--	--	10	--	--	--	Yes	--	--	--	--	--	0.00%	--		
2-Propanol (isopropyl alcohol)	67-63-0	1.30E-03	1.95E-03	4.44E-04				3.43E-04	--	--	--	220	--	--	--	Yes	--	--	--	--	--	0.00%	--		
2,2,4 - Trimethylpentane	540-84-1	3.15E-04	4.72E-04	1.08E-04			4.47E-03		--	3,500	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--		
Acenaphthene	83-32-9	1.57E-06	2.36E-06	5.39E-07				4.16E-07	--	--	--	210	--	--	--	Yes	--	--	--	--	--	0.00%	--		
Acenaphthylene	208-96-8	6.96E-06	1.04E-05	2.38E-06				1.84E-06	--	--	--	35	--	--	--	Yes	--	--	--	--	--	0.00%	--		
Acetaldehyde	75-07-0	1.05E-02	1.58E-02	3.61E-03				2.78E-03	--	--	--	9	0.5	--	--	Yes	Yes	Yes	--	--	--	0.03%	0.56%		
Acetone (2-propanone)	67-64-1	1.75E-04	2.63E-04	6.00E-05			2.49E-03		--	5,900	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--		
Acrolein	107-02-8	6.47E-03	9.71E-03	2.22E-03			1.56E-01	1.71E-03	5	--	--	0.16	--	Yes	--	Yes	--	Yes	3.13%	--	--	1.07%	--		
Acrylonitrile (Propenenitrile)	107-13-1	1.45E-04	2.17E-04	4.95E-05				3.83E-05	--	--	--	2	0.01	--	--	Yes	Yes	Yes	--	--	--	0.00%	0.38%		
Benzene	71-43-2	5.54E-04	8.31E-04	1.90E-04			5.71E-03	1.47E-04	--	--	30	30	0.1	--	--	Yes	Yes	Yes	--	--	0.02%	0.00%	0.15%		
Benzo(b)fluoranthene (PAH - see last entry)	205-99-2	2.09E-07	3.14E-07	7.16E-08					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Benzo(g,h,i)perylene	191-24-2	5.21E-07	7.82E-07	1.79E-07				1.38E-07	--	--	--	13	--	--	--	Yes	--	--	--	--	--	0.00%	--		
Biphenyl	92-52-4	2.67E-04	4.00E-04	9.14E-05			3.79E-03		--	13	--	--	--	--	Yes	--	--	--	--	0.03%	--	--	--		
Bromodichloromethane	75-27-4	4.38E-04	6.58E-04	1.50E-04				1.16E-04	--	--	--	--	0.06	--	--	--	Yes	--	--	--	--	--	0.19%		
Butane	106-97-8	6.81E-04	1.02E-03	2.33E-04			9.68E-03		--	23,800	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--		
Butyr/Isobutyraldehyde	123-72-8	1.27E-04	1.91E-04	4.36E-05				3.36E-05	--	--	--	7	--	--	--	--	--	--	--	--	--	0.00%	--		
Carbon Disulfide	75-15-0	1.90E-05	2.85E-05	6.51E-06				5.03E-06	--	--	--	700	--	--	--	Yes	--	--	--	--	--	0.00%	--		
Carbon Tetrachloride	56-23-5	4.62E-05	6.93E-05	1.58E-05				1.22E-05	--	--	--	480	0.17	--	--	Yes	Yes	--	--	--	--	0.00%	0.01%		
Carbonyl Sulfide	463-58-1	1.27E-05	1.90E-05	4.34E-06				3.35E-06	--	--	--	9	--	--	--	Yes	--	--	--	--	--	0.00%	--		
Chlorobenzene (monochlorobenzene)	108-90-7	3.83E-05	5.74E-05	1.31E-05			5.44E-04	1.01E-05	--	4,400	--	50	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--		
Chlorodifluoromethane (CFC-22, freon-22)	75-45-6	9.61E-05	1.44E-04	3.29E-05				2.54E-05	--	--	--	50,000	--	--	--	Yes	--	--	--	--	--	0.00%	--		
Chloroethane (ethyl chloride)	75-00-3	6.90E-05	1.03E-04	2.36E-05			7.11E-04		--	--	10,000	--	--	--	Yes	--	--	--	--	--	0.00%	--	--		
Chloroform (trichloromethane)	67-66-3	3.59E-05	5.38E-05	1.23E-05				9.49E-06	--	--	--	--	0.4	--	--	--	--	Yes	--	--	--	--	0.00%		
Chloromethane (methyl chloride)	74-87-3	5.22E-05	7.84E-05	1.79E-05				1.38E-05	--	--	--	90	--	--	--	Yes	--	--	--	--	--	0.00%	--		
chrysene (PAH - see last entry)	218-01-9	8.73E-07	1.31E-06	2.99E-07					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
cyclopentane	287-92-3	2.86E-04	4.29E-04	9.79E-05			4.06E-03		--	17,200	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--		

ATTACHMENT 2

**TABLE C50\_F-1. AERMOD Model Run Result: Modeled Impacts Per Unit Emission Rate**  
Modeled at 50% Load; Capped Release ( ug/m3 ) / ( 1.0 lb/hour )

Source	1 hour	8 hour	24 hour	Annual
Engine Generator #1	5.994	3.711	2.575	0.193
Engine Generator #2	5.956	3.817	2.644	0.197
Engine Generator #3	6.100	3.393	2.577	0.193
Engine Generator #4	6.116	3.283	2.510	0.189

**TABLE C50\_F-2. Rule 225 TAC Compliance Analysis Results AT 50% LOAD and CAPPED**

Compound	CAS	Single Engine Rates			Annual Ave Hourly Rate <sup>1</sup> (lb/hr)	Calculated Combined Impact				ITSL				IRSL (ug/m <sup>3</sup> )	Compliant?					Percent of Screening Level					
		Max Hourly Rate Each Engine (lb/hr)	Max Annual Rate Each Engine (ton/year)	Ave Hourly Rate <sup>1</sup> (lb/hr)		1-hr (ug/m <sup>3</sup> )	8-hr (ug/m <sup>3</sup> )	24-hr (ug/m <sup>3</sup> )	Annual (ug/m <sup>3</sup> )	1 hr (ug/m <sup>3</sup> )	8 hr (ug/m <sup>3</sup> )	24 hr (ug/m <sup>3</sup> )	Annual (ug/m <sup>3</sup> )		ITSL				IRSL	Percent of Screening Level					
															ITSL					IRSL	Percent of Screening Level				
															1 hr	8 hr	24 hr	Ann			Ann	1 hr	8 hr	24 hr	Ann
1,4 Dichlorobenzene (p-dichlorobenzene)	106-46-7	2.68E-05	4.02E-05	9.17E-06			7.08E-06	--	--	--	800	0.25	--	--	--	Yes	Yes	--	--	--	0.00%	0.00%			
Dichlorodifluoromethane (CFC-12, freon-12)	75-71-8	1.62E-03	2.43E-03	5.56E-04		2.31E-02	4.29E-04	--	49,500	--	330	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--			
Dichloromethane (methylene chloride)	75-09-2	1.04E-03	1.56E-03	3.56E-04	2.51E-02		2.75E-04	14,000	--	--	2,000	60	Yes	--	--	Yes	Yes	0.00%	--	--	0.00%	0.00%			
Dimethyl Sulfide (methyl sulfide)	75-18-3	2.09E-04	3.14E-04	7.16E-05			5.53E-05	--	--	--	7	--	--	--	--	Yes	--	--	--	--	0.00%	--			
Ethanol (ethyl alcohol)	64-17-5	5.40E-04	8.10E-04	1.85E-04	1.30E-02			19,000	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--	--			
Ethyl Mercaptan	75-08-1	6.02E-05	9.03E-05	2.06E-05	1.45E-03			13	--	--	--	--	Yes	--	--	--	--	0.01%	--	--	--	--			
Ethylbenzene	100-41-4	2.11E-04	3.16E-04	7.22E-05		2.17E-03	5.57E-05	--	--	1,000	--	0.4	--	--	Yes	--	Yes	--	--	0.00%	--	0.01%			
Ethylene dibromide (1,2 dibromoethane)	106-93-4	5.58E-05	8.37E-05	1.91E-05			1.48E-05	--	--	--	9	0.002	--	--	--	Yes	Yes	--	--	--	0.00%	0.74%			
fluoranthene	206-44-0	1.40E-06	2.10E-06	4.79E-07			3.70E-07	--	--	--	140	--	--	--	--	Yes	--	--	--	--	0.00%	--			
fluorene	86-73-7	7.14E-06	1.07E-05	2.45E-06			1.89E-06	--	--	--	140	--	--	--	--	Yes	--	--	--	--	0.00%	--			
Fluorotrichloromethane (CFC-11, freon-11)	75-69-4	8.93E-05	1.34E-04	3.06E-05	2.16E-03		2.36E-05	56,200	--	--	130	--	Yes	--	--	Yes	--	0.00%	--	--	0.00%	--			
Hexane	110-54-3	1.40E-03	2.10E-03	4.79E-04			3.70E-04	--	--	--	700	--	--	--	--	Yes	--	--	--	--	0.00%	--			
Hydrogen Sulfide	7783-06-4	1.10E-03	1.66E-03	3.78E-04		1.14E-02	2.92E-04	--	--	100	10	--	--	--	Yes	Yes	--	--	--	0.01%	0.00%	--			
Mercury (total)	7439-97-6	2.52E-08	3.78E-08	8.64E-09			6.67E-09	--	--	1	0.3	--	--	--	--	Yes	Yes	--	--	--	0.00%	0.00%			
methanol	67-56-1	3.15E-03	4.72E-03	1.08E-03	7.61E-02		3.24E-02	28,000	--	20,000	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--	--			
methylcyclohexane	108-87-2	1.55E-03	2.32E-03	5.30E-04		2.20E-02		--	16,000	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--			
Methyl Ethyl Ketone (2-butanone)	78-93-3	2.20E-04	3.30E-04	7.54E-05		2.27E-03		--	--	5,000	--	--	--	--	Yes	--	--	--	--	0.00%	--	--			
Methyl Isobutyl Ketone (hexone)	108-10-1	8.07E-05	1.21E-04	2.76E-05		1.15E-03		--	820	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--			
Methyl Mercaptan	74-93-1	5.16E-05	7.74E-05	1.77E-05	1.25E-03			10	--	--	--	--	Yes	--	--	--	--	0.01%	--	--	--	--			
naphthalene	91-20-3	9.37E-05	1.41E-04	3.21E-05		1.33E-03	2.48E-05	--	520	--	3	0.08	--	Yes	--	Yes	Yes	--	0.00%	--	0.00%	0.03%			
n-nonane	111-84-2	1.39E-04	2.08E-04	4.74E-05			3.66E-05	--	--	--	550	--	--	--	--	Yes	--	--	--	--	0.00%	--			
Pentane	109-66-0	3.27E-03	4.91E-03	1.12E-03		4.65E-02		--	17,700	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--			
phenanthrene	85-01-8	1.31E-05	1.96E-05	4.48E-06			3.46E-06	--	--	--	0.1	--	--	--	--	Yes	--	--	--	--	0.00%	--			
phenol	108-95-2	3.02E-05	4.53E-05	1.03E-05		4.29E-04		--	190	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--			
Tetrachloroethylene (perchloroethylene, -ethene)	127-18-4	5.29E-04	7.93E-04	1.81E-04		5.45E-03	1.40E-04	--	--	1,400	40	4	--	--	Yes	Yes	Yes	--	--	0.00%	0.00%	0.00%			
pyrene	129-00-0	1.71E-06	2.57E-06	5.86E-07			4.53E-07	--	--	--	100	--	--	--	--	Yes	--	--	--	--	0.00%	--			
styrene	100-42-5	2.97E-05	4.46E-05	1.02E-05			7.86E-06	--	--	--	1,000	2	--	--	--	Yes	Yes	--	--	--	0.00%	0.00%			
Toluene (methylbenzene)	108-88-3	1.56E-03	2.34E-03	5.34E-04		1.61E-02		--	--	5,000	--	--	--	--	Yes	--	--	--	--	0.00%	--	--			
Trichloroethylene (trichloroethene)	79-01-6	3.17E-04	4.75E-04	1.08E-04		3.26E-03	8.38E-05	--	--	2	--	0.2	--	--	Yes	--	Yes	--	--	0.16%	--	0.04%			
Vinyl Chloride (chloroethylene, VCM)	75-01-4	3.92E-04	5.88E-04	1.34E-04			1.04E-04	--	--	--	100	0.11	--	--	--	Yes	Yes	--	--	--	0.00%	0.09%			
Xylenes (m, o, p)	1330-20-7	5.53E-04	8.30E-04	1.89E-04			1.46E-04	--	--	--	390	--	--	--	--	Yes	--	--	--	--	0.00%	--			
Hydrogen Chloride	7647-01-0	5.51E-02	8.27E-02	1.89E-02	1.33E+00		1.46E-02	2,100	--	--	20	--	Yes	--	--	Yes	--	0.06%	--	--	0.07%	--			
Formaldehyde	50-00-0	0.129	0.194	0.044		1.33	3.42E-02	--	--	30	--	0.08	--	--	Yes	--	Yes	--	--	4%	--	43%			
PAHs as benzo(a)pyrene	50-32-8	3.50E-05	5.24E-05	1.20E-05			2.70E-05	--	--	--	--	0.001	--	--	--	--	Yes	--	--	--	--	3%			

<sup>1</sup> Annual average rate is calculated by taking the maximum annual rate x 2000 lb/ton and dividing by 8760, as allowed by Rule 227(2) of the Michigan air toxics regulations.



APPENDIX F (excerpt from Permit Application, May 10, 2023)

TABLE F-1. AERMOD Model Run Results Modeled Impacts Per Unit Emission Rate

Source	1 hour	8 hour	24 hour	Annual
Engine Generator #1	4.094	2.126	1.329	0.102
Engine Generator #2	4.056	2.194	1.334	0.105
Engine Generator #3	4.164	2.187	1.332	0.103
Engine Generator #4	4.162	2.132	1.330	0.101

TABLE F-2. Rule 225 TAC Compliance Analysis Results

Compound	CAS	Single Engine Rates		Annual	Calculated Combined Impact				ITSL				IRSL	Compliant?					Percent of Screening Level				
		Max Hourly Rate Each Engine (lb/hr)	Max Annual Rate Each Engine (ton/year)	Ave Hourly Rate <sup>1</sup> Each Engine (lb/hr)	1-hr (µg/m <sup>3</sup> )	8-hr (µg/m <sup>3</sup> )	24-hr (µg/m <sup>3</sup> )	Annual (µg/m <sup>3</sup> )	1 hr (µg/m <sup>3</sup> )	8 hr (µg/m <sup>3</sup> )	24 hr (µg/m <sup>3</sup> )	Annual (µg/m <sup>3</sup> )	Annual (µg/m <sup>3</sup> )	ITSL				IRSL	Percent of Screening Level				
														1 hr	8 hr	24 hr	Ann		Ann	1 hr	8 hr	24 hr	Ann
															1 hr	8 hr	24 hr	Ann	Ann	1 hr	8 hr	24 hr	Ann
1,1,1 - Trichloroethane (methyl chloroform)	71-55-6	1.01E-04	1.51E-04	3.45E-05			5.36E-04		--	--	6,000	--	--	--	--	Yes	--	--	--	--	0.00%	--	--
1,1,2,2 - Tetrachloroethane	79-34-5	2.93E-04	4.39E-04	1.00E-04			4.12E-05		--	--	--	--	0.02	--	--	--	--	Yes	--	--	--	--	0.21%
1,1,2 - Trichloroethane	79-00-5	7.22E-05	1.08E-04	2.47E-05			3.85E-04	1.02E-05	--	--	160	11	0.063	--	--	Yes	Yes	Yes	--	--	0.00%	0.00%	0.02%
1,1 - Dichloroethane (ethylidene dichloride)	75-34-3	3.65E-04	5.48E-04	1.25E-04			5.15E-05		--	--	--	500	--	--	--	Yes	--	--	--	--	--	0.00%	--
1,1 - Dichloroethene (vinylidene chloride)	75-35-4	3.06E-05	4.59E-05	1.05E-05			4.31E-06		--	--	--	200	--	--	--	Yes	--	--	--	--	--	0.00%	--
1,2,3 - Trimethylbenzene	526-73-8	5.22E-05	7.83E-05	1.79E-05		4.51E-04	7.35E-06		--	1,200	--	185	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--
1,2,4 - Trimethylbenzene	95-63-6	3.25E-05	4.87E-05	1.11E-05		2.80E-04	4.57E-06		--	1,200	--	185	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--
1,2 - Dichloroethane (ethylene dichloride)	107-06-2	6.33E-05	1.04E-04	2.38E-05			9.78E-06		--	--	--	--	0.04	--	--	--	--	Yes	--	--	--	--	0.02%
1,2 - Dichloropropane (propylene dichloride)	78-87-5	6.11E-05	9.16E-05	2.09E-05			8.60E-06		--	--	--	4	0.2	--	--	--	Yes	Yes	--	--	--	0.00%	0.00%
1,2 - Dichloroethene (1,2 dichloroethylene)	156-60-5	4.33E-04	6.49E-04	1.48E-04			6.09E-05		--	--	--	200	--	--	--	Yes	--	--	--	--	--	0.00%	--
1,3,5 - Trimethylbenzene	108-67-8	7.67E-05	1.15E-04	2.63E-05		6.63E-04	1.08E-05		--	1,200	--	185	0.03	--	Yes	--	Yes	Yes	--	0.00%	--	0.00%	0.04%
1,3 - Butadiene	106-99-0	6.06E-04	9.09E-04	2.08E-04			8.54E-05		--	--	--	33	0.2	--	--	--	Yes	Yes	--	--	--	0.00%	0.04%
1,3 - Dichloropropene	542-75-6	5.99E-05	8.99E-05	2.05E-05			8.44E-06		--	--	--	20	--	--	--	Yes	--	--	--	--	--	0.00%	--
2 - Methylnaphthalene	91-57-6	7.54E-05	1.13E-04	2.58E-05			1.06E-05		--	--	--	10	--	--	--	Yes	--	--	--	--	--	0.00%	--
2-Propanol (isopropyl alcohol)	67-63-0	2.38E-03	3.57E-03	8.16E-04			3.36E-04		--	--	--	220	--	--	--	Yes	--	--	--	--	--	0.00%	--
2,2,4 - Trimethylpentane	540-84-1	5.68E-04	8.51E-04	1.94E-04		4.90E-03			--	3,500	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--
Acenaphthene	83-32-9	2.84E-06	4.26E-06	9.72E-07			4.00E-07		--	--	--	210	--	--	--	Yes	--	--	--	--	--	0.00%	--
Acenaphthylene	208-96-8	1.26E-05	1.88E-05	4.30E-06			1.77E-06		--	--	--	35	--	--	--	Yes	--	--	--	--	--	0.00%	--
Acetaldehyde	75-07-0	1.90E-02	2.85E-02	6.50E-03			2.67E-03		--	--	--	9	0.5	--	--	Yes	Yes	Yes	--	--	--	0.03%	0.53%
Acetone (2-propanone)	67-64-1	3.22E-04	4.83E-04	1.10E-04		2.78E-03			--	5,900	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--
Acrolein	107-02-8	1.17E-02	1.75E-02	4.00E-03	1.92E-01		1.64E-03	5	--	--	--	0.16	--	Yes	--	Yes	--	--	3.85%	--	--	1.03%	--
Acrylonitrile (Propenenitrile)	107-13-1	2.66E-04	3.99E-04	9.10E-05			3.74E-05		--	--	--	2	0.01	--	--	Yes	Yes	Yes	--	--	--	0.00%	0.37%
Benzene	71-43-2	9.99E-04	1.50E-03	3.42E-04			1.41E-04		--	--	30	30	0.1	--	--	Yes	Yes	Yes	--	--	0.02%	0.00%	0.14%
Benzo(b)fluoranthene (PAH - see last entry)	205-99-2	3.77E-07	5.65E-07	1.29E-07					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	191-24-2	9.40E-07	1.41E-06	3.22E-07			1.32E-07		--	--	--	13	--	--	--	Yes	--	--	--	--	--	0.00%	--
Biphenyl	92-52-4	4.81E-04	7.22E-04	1.65E-04		4.16E-03			--	13	--	--	--	--	Yes	--	--	--	--	0.03%	--	--	--
Bromodichloromethane	75-27-4	8.06E-04	1.21E-03	2.76E-04			1.13E-04		--	--	--	--	0.06	--	--	--	Yes	--	--	--	--	--	0.19%
Butane	106-97-8	1.23E-03	1.84E-03	4.21E-04		1.06E-02			--	23,800	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--
Butyr/Isobutyraldehyde	123-72-8	2.29E-04	3.44E-04	7.85E-05			3.23E-05		--	--	--	7	--	--	--	--	--	--	--	--	--	0.00%	--
Carbon Disulfide	75-15-0	3.49E-05	5.24E-05	1.20E-05			4.92E-06		--	--	--	700	--	--	--	Yes	--	--	--	--	--	0.00%	--
Carbon Tetrachloride	56-23-5	8.33E-05	1.25E-04	2.85E-05			1.17E-05		--	--	--	480	0.17	--	--	Yes	Yes	--	--	--	--	0.00%	0.01%
Carbonyl Sulfide	463-58-1	2.33E-05	3.49E-05	7.98E-06			3.28E-06		--	--	--	9	--	--	--	Yes	--	--	--	--	--	0.00%	--
Chlorobenzene (monochlorobenzene)	108-90-7	6.90E-05	1.04E-04	2.36E-05		5.96E-04	9.72E-06		--	4,400	--	50	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--
Chlorodifluoromethane (CFC-22, freon-22)	75-45-6	1.77E-04	2.65E-04	6.05E-05			2.49E-05		--	--	--	50,000	--	--	--	Yes	--	--	--	--	--	0.00%	--
Chloroethane (ethyl chloride)	75-00-3	1.27E-04	1.90E-04	4.34E-05			6.75E-04		--	--	10,000	--	--	--	Yes	--	--	--	--	--	0.00%	--	--
Chloroform (trichloromethane)	67-66-3	6.47E-05	9.71E-05	2.22E-05			9.11E-06		--	--	--	--	0.4	--	--	--	Yes	--	--	--	--	--	0.00%
Chloromethane (methyl chloride)	74-87-3	9.60E-05	1.44E-04	3.29E-05			1.35E-05		--	--	--	90	--	--	--	Yes	--	--	--	--	--	0.00%	--
chrysene (PAH - see last entry)	218-01-9	1.57E-06	2.36E-06	5.39E-07					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cyclopentane	287-92-3	5.15E-04	7.73E-04	1.76E-04		4.45E-03			--	17,200	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--

APPENDIX F (excerpt from Permit Application, May 10, 2023)

TABLE F-1. AERMOD Model Run Results Modeled Impacts Per Unit Emission Rate

Source	1 hour	8 hour	24 hour	Annual
Engine Generator #1	4.094	2.126	1.329	0.102
Engine Generator #2	4.056	2.194	1.334	0.105
Engine Generator #3	4.164	2.187	1.332	0.103
Engine Generator #4	4.162	2.132	1.330	0.101

TABLE F-2. Rule 225 TAC Compliance Analysis Results

Compound	CAS	Single Engine Rates			Annual Ave Hourly Rate <sup>1</sup> (lb/hr)	Calculated Combined Impact				ITSL				IRSL Annual (µg/m <sup>3</sup> )	Compliant?					Percent of Screening Level				
		Max Hourly Rate Each Engine (lb/hr)	Max Annual Rate Each Engine (ton/year)	1-hr (µg/m <sup>3</sup> )		8-hr (µg/m <sup>3</sup> )	24-hr (µg/m <sup>3</sup> )	Annual (µg/m <sup>3</sup> )	1 hr (µg/m <sup>3</sup> )	8 hr (µg/m <sup>3</sup> )	24 hr (µg/m <sup>3</sup> )	Annual (µg/m <sup>3</sup> )	ITSL				IRSL	Percent of Screening Level						
													Compliant?					Percent of Screening Level						
													1 hr		8 hr	24 hr		Ann	Ann	1 hr	8 hr	24 hr	Ann	Ann
1,4 Dichlorobenzene (p-dichlorobenzene)	106-46-7	4.92E-05	7.38E-05	1.69E-05	6.93E-06	--	--	--	800	0.25	--	--	--	Yes	Yes	--	--	--	0.00%	0.00%				
Dichlorodifluoromethane (CFC-12, freon-12)	75-71-8	2.98E-03	4.47E-03	1.02E-03	4.20E-04	--	2.58E-02	--	330	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--				
Dichloromethane (methylene chloride)	75-09-2	1.91E-03	2.86E-03	6.54E-04	3.14E-02	14,000	--	--	2,000	60	Yes	--	--	Yes	Yes	0.00%	--	--	0.00%	0.00%				
Dimethyl Sulfide (methyl sulfide)	75-18-3	3.84E-04	5.77E-04	1.32E-04	5.41E-05	--	--	--	7	--	--	--	--	Yes	--	--	--	--	0.00%	--				
Ethanol (ethyl alcohol)	64-17-5	9.92E-04	1.49E-03	3.40E-04	1.63E-02	19,000	--	--	--	--	Yes	--	--	--	--	0.00%	--	--	--	--				
Ethyl Mercaptan	75-08-1	1.11E-04	1.66E-04	3.79E-05	1.82E-03	13	--	--	--	--	Yes	--	--	--	--	0.01%	--	--	--	--				
Ethylbenzene	100-41-4	3.87E-04	5.81E-04	1.33E-04	5.45E-05	--	--	2.06E-03	--	0.4	--	--	Yes	--	Yes	--	--	0.00%	--	0.01%				
Ethylene dibromide (1,2 dibromoethane)	106-93-4	1.01E-04	1.51E-04	3.44E-05	1.42E-05	--	--	--	9	0.002	--	--	--	Yes	Yes	--	--	--	0.00%	0.71%				
fluoranthene	206-44-0	2.52E-06	3.78E-06	8.63E-07	3.55E-07	--	--	--	140	--	--	--	--	Yes	--	--	--	--	0.00%	--				
fluorene	86-73-7	1.29E-05	1.93E-05	4.41E-06	1.81E-06	--	--	--	140	--	--	--	--	Yes	--	--	--	--	0.00%	--				
Fluorotrichloromethane (CFC-11, freon-11)	75-69-4	1.64E-04	2.46E-04	5.62E-05	2.31E-05	2.70E-03	--	--	130	--	Yes	--	--	Yes	--	0.00%	--	--	0.00%	--				
Hexane	110-54-3	2.52E-03	3.78E-03	8.63E-04	3.55E-04	--	--	--	700	--	--	--	--	Yes	--	--	--	--	0.00%	--				
Hydrogen Sulfide	7783-06-4	2.03E-03	3.04E-03	6.95E-04	2.86E-04	--	--	1.08E-02	10	--	--	100	10	--	Yes	Yes	--	--	0.01%	0.00%	--			
Mercury (total)	7439-97-6	4.64E-08	6.95E-08	1.59E-08	6.53E-09	--	--	2.47E-07	0.3	--	--	1	0.3	--	Yes	Yes	--	--	0.00%	0.00%	--			
methanol	67-56-1	5.68E-03	8.51E-03	1.94E-03	9.35E-02	28,000	--	3.02E-02	--	--	Yes	--	Yes	--	--	0.00%	--	0.00%	--	--				
methylcyclohexane	108-87-2	2.79E-03	4.19E-03	9.56E-04	2.41E-02	--	16,000	--	--	--	--	16,000	--	Yes	--	--	--	--	0.00%	--	--			
Methyl Ethyl Ketone (2-butanone)	78-93-3	4.05E-04	6.07E-04	1.39E-04	5.41E-05	--	--	2.15E-03	--	--	--	5,000	--	--	Yes	--	--	--	0.00%	--	--			
Methyl Isobutyl Ketone (hexone)	108-10-1	1.48E-04	2.22E-04	5.08E-05	1.28E-03	--	820	--	--	--	--	820	--	Yes	--	--	--	--	0.00%	--	--			
Methyl Mercaptan	74-93-1	9.48E-05	1.42E-04	3.25E-05	1.56E-03	10	--	--	--	--	Yes	--	--	--	--	0.02%	--	--	--	--				
naphthalene	91-20-3	1.69E-04	2.53E-04	5.78E-05	2.38E-05	--	520	--	3	0.08	--	Yes	--	Yes	Yes	--	0.00%	--	0.00%	0.03%				
n-nonane	111-84-2	2.50E-04	3.75E-04	8.55E-05	3.52E-05	--	--	--	550	--	--	--	--	Yes	--	--	--	--	0.00%	--	--			
Pentane	109-66-0	5.90E-03	8.85E-03	2.02E-03	8.09E-06	--	5.10E-02	--	--	--	--	17,700	--	Yes	--	--	--	--	0.00%	--	--			
phenanthrene	85-01-8	2.36E-05	3.54E-05	8.09E-06	3.32E-06	--	--	--	0.1	--	--	--	0.1	--	Yes	--	--	--	--	0.00%	--			
phenol	108-95-2	5.45E-05	8.17E-05	1.87E-05	4.71E-04	--	190	--	--	--	--	190	--	Yes	--	--	--	--	0.00%	--	--			
Tetrachloroethylene (perchloroethylene, -ethene)	127-18-4	9.72E-04	1.46E-03	3.33E-04	1.37E-04	--	--	5.18E-03	40	4	--	--	1,400	40	Yes	Yes	Yes	--	--	0.00%	0.00%	0.00%		
pyrene	129-00-0	3.09E-06	4.63E-06	1.06E-06	4.35E-07	--	--	--	100	--	--	--	100	--	Yes	--	--	--	--	0.00%	--			
styrene	100-42-5	5.36E-05	8.04E-05	1.83E-05	7.54E-06	--	--	--	1,000	2	--	--	--	Yes	Yes	--	--	--	0.00%	0.00%				
Toluene (methylbenzene)	108-88-3	2.87E-03	4.30E-03	9.81E-04	1.53E-02	--	--	1.53E-02	--	--	--	5,000	--	--	Yes	--	--	--	--	0.00%	--			
Trichloroethylene (trichloroethene)	79-01-6	5.82E-04	8.73E-04	1.99E-04	8.20E-05	--	--	3.10E-03	--	0.2	--	--	2	--	Yes	--	Yes	--	--	0.16%	--	0.04%		
Vinyl Chloride (chloroethylene, VCM)	75-01-4	7.21E-04	1.08E-03	2.47E-04	1.02E-04	--	--	--	100	0.11	--	--	--	--	Yes	Yes	--	--	--	0.00%	0.09%			
Xylenes (m, o, p)	1330-20-7	1.02E-03	1.52E-03	3.48E-04	1.43E-04	--	--	--	390	--	--	--	--	--	Yes	--	--	--	--	0.00%	--			
Hydrogen Chloride	7647-01-0	1.01E-01	1.52E-01	3.47E-02	1.43E-02	1.67E+00	--	--	20	--	Yes	--	--	Yes	--	0.08%	--	--	0.07%	--				
Formaldehyde	50-00-0	0.25	0.41	0.093	3.82E-02	--	--	1.33	--	0.08	--	--	30	--	Yes	--	Yes	--	--	4%	48%			
PAHs as benzo(a)pyrene	50-32-8	6.30E-05	9.45E-05	2.16E-05	2.59E-05	--	--	--	--	0.001	--	--	--	--	Yes	--	--	--	--	--	3%			

<sup>1</sup> Annual average rate is calculated by taking the maximum annual rate x 2000 lb/ton and dividing by 8760, as allowed by Rule 227(2) of the Michigan air toxics regulations.



**ATTACHMENT 3**

**CATERPILLAR Raincap Investigation Report**

**Michigan**



**Rain Cap  
Inspection**

**ENGINE DIVISION  
1-800-833-1789**

CUSTOMER NAME		TEGRE	
GENERATOR SET LOCATION		CONTACT	TELEPHONE NO.
JBS Foods Plainwell		Michael Hewitt	720-252-1513
ENGINE MODEL	SERIAL NO.	SERVICE METER	DATE
CG-170	2216468/2216500/2216507/2216508	800-1500	1/25/24 and 1/29/24



Rain cap on unit 3. All other caps in similar condition.





Unit 3-25% load. All other caps function in similar fashion.





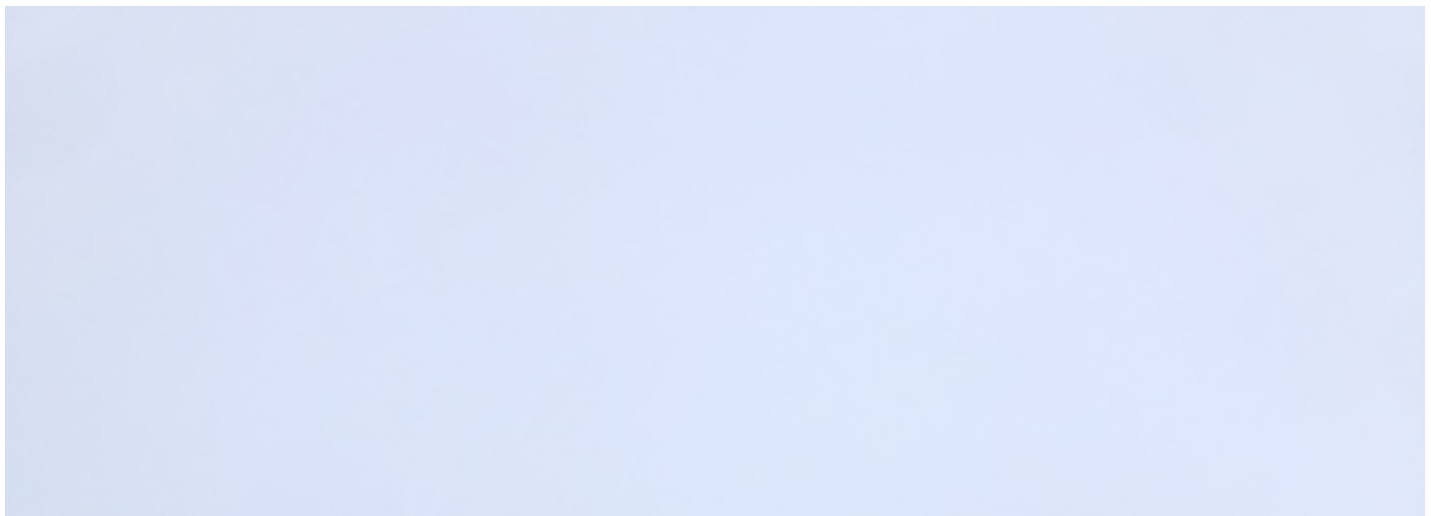


Unit 3-50% load. All other units operate in similar fashion.





Unit 3-75% Load





Unit 4 Cap with Unit 3 in background at 100% load. All caps function in similar fashion per load.

### **Service Report**

Units 3 and 4 rain caps were inspected on 1/25/24 and units 1 and 2 were inspected on 1/29/24. The rain caps were checked for proper function. All rain caps are currently operating as expected/designed. These packages are designed to run at a minimum of 50 percent load during operation. With this control configuration (while running in automatic operation) these engines will reach 50 percent load within 5 minutes of starting.

### **Service Tech**

Kevin Smith and  
Charles Balfourt