TECHNICAL SUPPORT DOCUMENT
For
DRAFT/PROPOSED AIR EMISSION PERMIT NO. 09300001-003

This technical support document (TSD) is intended for all parties interested in the draft permit and to meet the requirements that have been set forth by the federal and state regulations (40 CFR § 70.7(a)(5) and Minn. R. 7007.0850, subp. 1). The purpose of this document is to provide the legal and factual justification for each applicable requirement or policy decision considered in the preliminary determination to issue the draft permit.

1. General Information

1.1 Applicant and Stationary Source Location:

Table 1. Applicant and Source Addresses

Applicant/Address	Stationary Source/Address (SIC Code: 4911)
City of Litchfield 126 North Marshall Litchfield, MN 55355	City of Litchfield 421 W 3rd St. Litchfield, MN 55355 Meeker County
Contact: Bradley DeWolf Phone: 612-756-1032	

1.2 Facility Description

The City of Litchfield (Permittee) owns and operates a municipal peak electric generating plant (facility) composed of two 2,880 brake horsepower (bhp) Fairbanks Morse internal combustion engines permitted to run on natural gas and No. 2 fuel oil (dual fuel mode) or on No. 2 fuel oil (diesel) and five 3,292 bhp Caterpillar internal combustion engines permitted to run on diesel fuel only. The Permittee also operates a natural gas fired boiler that is used for building heat.

1.3 Description of any Changes Allowed with this Permit Issuance

This permit is a reissuance of the facility operating permit (DQ 4102). The reissuance permit also includes a major amendment action (DQ 3067) to eliminate the NO_X emission factor revision trigger and the operational limit of 2000 hours per year on the GP 001 engines and replace it with a 69.8 ton per year limit (12-month rolling sum) and an equation to calculate monthly NO_X emissions in Appendix C of the permit. There is no proposed construction of new units or modifications to existing units.

This action also rolls in reopenings to update the NO_X emission factors for the GP 001 engines based on the most recent performance tests on both No. 2 fuel oil and dual fuel and are found in Table 2. These new factors will be used in the previously mentioned Appendix C equation.

Table 2. GP 001 Emission Factor Changes

Level	Emission Factor Change	Basis	DQ Numbers
GP 001 – No. 2 Fuel Oil	Old Factor: 11 g/bhp-hr New Factor: 13.20 g/bhp-hr	Notice of Verification: dated December 18, 2009	2936
GP 001 – Dual Fuel	Old Factor: 11 g/bhp-hr	Notice of Verification: dated April 19, 2010	3080
	New Factor: 10.29 g/bhp-hr	Notice of Verification: dated April 29, 2010	3091

1.4 Description of All Amendments Issued Since the Issuance of the Last Total Facility Permit

There have been no amendments issued since the issuance of the existing Part 70 operating permit.

1.5 Facility Emissions:

Table 3. Total Facility Potential to Emit Summary

	PM tpy	PM_{10} tpy	$PM_{2.5}$ tpy	SO_2 tpy	NO_X tpy	CO tpy	CO_2e tpy	VOC tpy	Single HAP tpy	All HAPs tpy
Total Facility Limited Potential Emissions	3.22	3.22	3.22	1.30	235	28.3	18600	7.85	1.14	1.68
Total Facility Actual Emissions (2010)**	0.03	0.03	*	0.03	0.44	0.09	*	0.03	*	

*Not reported in 2010 MN emission inventory.

**Total Facility Actual Emissions does not include emissions from EU 010 (Bryan Boiler).

Table 4. Facility Classification

Classification	Major/Affected Source	Synthetic Minor/Area	Minor/Area
PSD		X	
Part 70 Permit Program	X		
Part 63 NESHAP			X

1.6 Changes to Permit

The MPCA has a combined operating and construction permitting program under Minnesota Rules Chapter 7007, and under Minn. R. 7007.0800, the MPCA has authority to include additional requirements in a permit. Under that authority, the following changes to the permit are also made through this permit action:

- updates to reflect current MPCA templates and standard citation formatting;
- completed requirements and the requirements for equipment that has been removed have been deleted;
- updates to EUs 001-007 model number, design capacity, construction dates and start up dates;
- names of GP 001 changed from "Old Engines" to "Fairbanks Morse Engines" and GP 002 from "New Engines" to "Caterpillar Engines" to clarify groups;
- updates to PTE for both GP 001 and GP 002 based on up-to-date information;
- some requirements have been reordered to help with clarity (i.e., similar requirements are grouped);
- 36-month test frequencies established for both GPs 001 and 002;
- GP 001 performance testing deadline moved from February 2, 2013 to August 31, 2013 in order to correspond with GP 002. Further discussion can be found in Section 3.5 of this TSD;
- changes of status for four storage tanks that are now listed as "removed" in the facility description. These tanks are classified as insignificant activities under Minn. R. 7007.1300, subp. 2(E)(3);
- NESHAP requirements have been included for GP001 units; and
- Bryan boiler removed from insignificant activities list and added to permit as EU 010. According to AP-42, natural gas fired boilers are emitters of polycyclic organic matter (POM). Because of this, the unit cannot be listed as insignificant under Minn. R. 7007.1300, subp. 4(C)(2).

2. Regulatory and/or Statutory Basis

New Source Review

The facility has taken limits to be a synthetic minor under New Source Review regulations. No changes are authorized by this permit.

Part 70 Permit Program

The facility is a major source under the Part 70 permit program.

New Source Performance Standards (NSPS)

The engines in GP 002 are subject to NSPS IIII, "Stationary Compression Ignition Internal Combustion Engines" as required by 40 CFR pt. 63, subp. ZZZZ.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The engines in GP 001 and GP 002 are subject to NESHAP ZZZZ, "Stationary Reciprocating Internal Combustion Engines."

Environmental Review & AERA

This permit action does not trigger requirements for environmental review or an air emissions risk analysis.

Minnesota State Rules

Portions of the facility are subject to the following Minnesota Standards of Performance:

- Minn. R. 7011.2300 Standards of Performance for Stationary Internal Combustion Engines
- Minn. R. 7011.0515 Standards of Performance for New Indirect Heating Equipment

Table 5. Regulatory Overview of Facility

Level*	Applicable Regulations	Comments:
GP001	Title I Condition	A 69.8 tpy (12-month rolling sum) NO_X emissions limit was included to ensure total facility NO_X is restricted to less than 235 tpy to avoid classification as a major source under PSD.
	40 CFR pt. 63 subp. ZZZZ	Stationary Reciprocating Internal Combustion Engine NESHAP. Engines in this group are existing, non-emergency, non-black start, compression ignition engines greater than 500 hp that are located at an area source of HAP. There are two emission limitations that the Permittee can chose between and several compliance options for each limit. The Permittee is unable to determine at this time which limit or compliance option will be selected. Therefore, all the options are stated in the permit.
	Minn. R. 7007.0800 subp. 2	Stack height requirements derived from computer dispersion modeling.
	Minn. R. 7011.2300	Standards of Performance for Stationary Internal Combustion Engines
GP002	Title I Condition	An operating hours limit was included to limit total facility NO_X emissions to 235 tpy to avoid classification as a major source under PSD.
	40 CFR pt. 60 subp. IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. Engines in this group are post-2007 model, non-emergency engines, greater than 2,237 KW (3,000 HP), and have a displacement of less than 10 liters per cylinder.

	40 CFR pt. 63 subp. ZZZZ	Stationary Reciprocating Internal Combustion Engine NESHAP. Engines in this group satisfy the requirements of NESHAP Subpart ZZZZ by complying with the requirements in NSPS Subpart IIII.
	Minn. R. 7007.0800 subp. 2	Stack height requirements derived from computer dispersion modeling.
	Minn. R. 7011.2300	Standards of Performance for Stationary Internal Combustion Engines
EU 010	Minn. R. 7011.0515	Standards of Performance for New Indirect Heating Equipment

*Where the requirement appears in the permit (e.g., EU, SV, GP, etc.).

3. Technical Information

3.1 Calculations of Potential to Emit

Attachment 1 to this TSD contains a summary of the PTE of the Facility, while Attachment 2 contains detailed spreadsheets and supporting information prepared by the MPCA and the Permittee.
The major amendment, described in Section 1.3, changes the GP 001 NO_X emissions calculation method but it does not change the total facility limited potential to emit.

3.2 Dispersion Modeling

The facility conducted air dispersion modeling for permit No. 09300001-002 to show modeled compliance with the NO_X, SO_2, CO and PM_{10} National Ambient Air Quality Standards (NAAQS) and Minnesota Ambient Air Quality Standards (MAAQS). Operating hour limits and stack heights were assumed when the modeling was conducted, so these have been incorporated as permit requirements in the draft/proposed Part 70 Reissuance permit. In addition, a table of the modeling results is shown below in Table 6.

The parameters listed in Appendix A of the permit describe the operation of the facility at maximum capacity. In other words, the flow rates and temperatures listed in Appendix A represent the minimum parameters at the maximum emission rates. The MPCA does not require any specific compliance demonstration with these parameters because they are worse-case conditions. The purpose of listing the parameters in the permit appendix is to provide a benchmark for determining if and when additional modeling is required.

Dispersion modeling is not required for this permit reissuance or the incorporated major amendment. The previously conducted modeling conservatively assumed that 100% of the 8.8 g/s (69.8 lb/hr) modeled NO_X was converted to NO_2 in the atmosphere and therefore a NO_2 factor of 8.8 g/s (69.8 lb/hr) was modeled. The EPA allows for the use of an 80% NO_X to NO_2 conversion; this results in a modeled NO_X factor of 11.0 g/s (87.3 lb/hr). (Although Section 5.2.4 of Appendix W to 40 CFR pt. 51 states that a

75% conversion factor should be used, a March 1, 2011 memorandum issued by the EPA recommends the use of an 80% conversion factor.) This NO_X factor with 80% NO_X to NO_2 conversion will emit the same amount of NO_2 as the modeled factor will with 100% NO_X to NO_2 conversion. Performance tests conducted on September 22, 2009 and February 2, 2010 on EU 002 established new NO_X emission factors of 10.56 g/s (83.81 lb/hr) for diesel and 8.23 g/s (65.33 lb/hr) for dual fuel, respectively. Using the 80% conversion factor and the tested emission factors, the new worst case NO_2 factor would be (0.8 NO_2/ NO_X)*(10.56 g/s) = 8.45 g/s (67.05 lb/hr). Since the initially modeled NO_2 factor is greater than the new NO_2 factor, the previously modeled impacts would be greater than or equal to the impacts after the amendment. Therefore, no remodeling was required. The GP 001 NO_X emission factor must remain below 11.0 g/s (87.3 lb/hr) to ensure the NO_2 emission is not greater than the modeled factor of 8.8 g/s (69.8 lb/hr).

Table 6. Air Modeling Impacts

Pollutant	Averaging Period Duration	Rank(1)	Highest Modeled Impact [µg/m³]	Background(3) [µg/m³]	Total Predicted Impact(2) [µg/m³]	Standard/ Threshold [µg/m³]	Percent of Standard [%]	Allowable Growth Level	Modeling Tier
SO_2	Annual	Highest	0.9	5.0	5.9	60	9.83	High	1
	24-hour	HSH	6.3	60.0	66.3	365	18.16	High	
	3-hour	HSH	9.7	128.0	137.7	1300	10.59	High	
	1-hour	HSH	11.5	181.0	192.5	1300	14.81	High	
PM_{10}	Annual	Highest	0.6	23.0	23.6	50	47.20	High	1
	24-hour	H6H	0.5	37.0	37.5	150	25.00	High	
NO_2	Annual	Highest	34.6	17.0	51.6	100	51.60	High	3
	24-hour	Highest	277.7	N/A	277.7	282	98.48	Low	
	1-hour	Highest	398.4	N/A	398.4	1130	35.26	High	
CO	8-hour	HSH	54.1	N/A	54.1	10000	0.54	High	1
	1-hour	HSH	122.1	N/A	122.1	40000	0.31	High	

(1) "Highest" is the highest predicted impact in 5 years of data. "HSH" (highest, second high) is the highest of the second highest values in each of the 5 years of data. "H6H" (highest, sixth high) is the sixth highest impact in 5 years of data.

(2) Total Predicted Impact = Highest Modeled Impact + Background, except for NO_X 24-hr and 1-hr averages

(3) Background taken from MPCA Air Dispersion Modeling Guidance (version 2.2)

(4) Highest modeled impact listed includes 7 internal combustion engines and a steam heating boiler for all except the NO_X 24-hour and 1-hour averaging times. The 1-hr and 24-hr NO_X impacts are the episodic thresholds and do not require the steam heating boiler emissions to be included.

3.3 Periodic Monitoring

In accordance with the Clean Air Act, it is the responsibility of the owner or operator of a facility to have sufficient knowledge of the facility to certify that the facility is in compliance with all applicable requirements.

In evaluating the monitoring included in the permit, the MPCA considered the following:

- The likelihood of the facility violating the applicable requirements;
- Whether add-on controls are necessary to meet the emission limits;
- The variability of emissions over time;
- The type of monitoring, process, maintenance, or control equipment data already available for the emission unit;
- The technical and economic feasibility of possible periodic monitoring methods; and
- The kind of monitoring found on similar units elsewhere.

Table 7 summarizes the periodic monitoring requirements for those emission units for which the monitoring required by the applicable requirement is nonexistent or inadequate.

Table 7. Periodic Monitoring

Level*	Requirement (basis)	Additional Monitoring	Discussion
GP001	SO_2 ≤ 0.5 lb/MMBtu (Minn. R. 7011.2300)	Fuel purchase records	Units in this group burn either diesel or dual fuel. Nonroad diesel fuel sulfur content is limited under 40 CFR § 80.510 to 15 ppm; therefore, the likelihood of violating the emission limit is very small. The Permittee can demonstrate that these units will continue to operate such that emissions are well below the emission limit by only burning diesel or dual fuel. Since this is a permit condition, the semi-annual deviations report will document any deviations from this condition. Design based SO_2 PTE for each unit, using AP-42 and 15 ppm sulfur diesel fuel, is 0.00178 lb/MMBtu compared to the rule limit of 0.5 lb/MMBtu.
	Opacity: ≤ 20%, with exceptions (Minn. R. 7011.2300)	None	Units in this group burn either diesel or dual fuel. Nonroad diesel fuel sulfur content is limited under 40 CFR § 80.510 to 15 ppm; therefore, the likelihood of violating the emission limit is very small. The Permittee can demonstrate that these units will continue to operate such that emissions are well below the emission limit by only burning diesel or dual fuel. Since this is a permit

Level*	Requirement (basis)	Additional Monitoring	Discussion
			condition, the semi-annual deviations report will document any deviations from this condition.
	Annual NO_X emissions ≤ 69.8 tpy NO_X ≤ 87.3 lb/hr (Title I Condition: to avoid 40 CFR § 52.21 major source threshold; Minn. R. 7007.0800, subp. 2)	12 month rolling sum of monthly NO_X emissions and periodic stack testing	GP 001 NO_X emissions are readily calculated using the equation provided in Appendix C of the permit.
	CO ≤ 23 ppmvd or Reduce CO emissions by 70% (NESHAP Subpart ZZZZ)	None	40 CFR pt. 63, subp. ZZZZ contains adequate monitoring requirements.
GP002	SO_2 ≤ 0.5 lb/MMBtu (Minn. R. 7011.2300)	Fuel purchase records	Units in this group only burn diesel. Nonroad diesel fuel sulfur content is limited under 40 CFR § 80.510 to 15 ppm; therefore, the likelihood of violating the emission limit is very small. The Permittee can demonstrate that these units will continue to operate such that emissions are well below the emission limit by only burning diesel. Since this is a permit condition, the semi-annual deviations report will document any deviations from this condition. Design based SO_2 PTE for each unit, using AP-42, is 0.0018 lb/MMBtu compared to the rule limit of 0.5 lb/MMBtu.
	Opacity: ≤ 20%, with exceptions (NSPS Subpart IIII) (Minn. R. 7011.2300)	None	Units in this group only burn diesel. Nonroad diesel fuel sulfur content is limited under 40 CFR § 80.510 to 15 ppm; therefore, the likelihood of violating the emission limit is very small. The Permittee can demonstrate that these units will continue to operate such that emissions are well below the emission limit by only burning diesel. Since this is a permit condition, the semi-annual deviations report will document any deviations from this condition.
	NO_X ≤ 9.2 g/kW-hr	None	40 CFR pt. 60, subp. IIII contains adequate monitoring

Level*	Requirement (basis)	Additional Monitoring	Discussion
	CO ≤ 11.4 g/kW-hr PM ≤ 0.54 g/kW-hr HC ≤ 1.3 g/kW-hr (NSPS Subpart IIII)		requirements.
	Annual Operating Hours limit of 8000 hours (Title I Condition: to avoid 40 CFR Section 52.21 major source threshold; Minn. R. 7007.0800, subp. 2)	Recordkeeping	Monitoring of GP 002 operating hours is used to verify compliance with the GP 002 operating hours limit.
EU 010	PM ≤ 0.4 lbs/MMBtu (Minn. R. 7011.0515)	Fuel Purchase Records	This unit burns only natural gas; therefore, the likelihood of violating any of the emission limits is very small. The Permittee can demonstrate that this unit will continue to operate such that emissions are well below the emission limits by only burning natural gas. Since this is a permit condition, the semi-annual deviations report will document any deviations from this condition. Design based PTE for this unit, using AP-42, is 0.00713 lb/MMBtu PM compared to the rule limits of 0.4 lb/MMBtu PM.
	Opacity: ≤ 20%, with exceptions (Minn. R. 7011.0515)	None	This unit burns only natural gas; therefore, the likelihood of violating any of the emission limits is very small. The Permittee can demonstrate that this unit will continue to operate such that emissions are well below the emission limits by only burning natural gas. Since this is a permit condition, the semi-annual deviations report will document any deviations from this condition.

*Where the requirement appears in the permit (e.g., EU, SV, GP, etc.).

3.4 Insignificant Activities

There are no listed insignificant activities at this facility.

3.5 Performance Testing

GP 001

GP 001 engines have a requirement to regularly test NO_X emissions to evaluate the NO_X emission factors. The emission factors determined during the most recent performance test are 13.20 g/bhp-hr for diesel and 10.29 g/bhp-hr for dual fuel. Using these emission factors and the previous GP 001 NO_X emission factor for both fuels of 11.0 g/bhp-hr, GP 001 emits at 20.0% of its previous emission factor for diesel and -6.5% of its previous emission factor for dual fuel. Operating in the range between ± 40% but not ± 10% of the previous emission factor dictates a 36-month recurring test schedule. The 36-month test frequency would require the next performance test to be conducted by February 10, 2013. However, the compliance date for GP 001 testing is being extended to August 31, 2013 in order to correspond with the GP 002 testing date.

The rules of 40 CFR pt. 63, subp. ZZZZ require testing to demonstrate compliance with CO limits according to the rules in 40 CFR pt. 63, subp. ZZZZ. The Permittee must perform initial testing within 180 days of May 13, 2013 and perform subsequent testing every 36 months or 8760 hours of operation following the initial performance test, whichever comes first.

GP 002

GP 002 engines have a requirement to regularly test NO_X emissions to evaluate the NO_X emission factor. The emission factor determined during the most recent performance test is 4.36 g/bhp-hr. Using this emission factor and the previous GP 002 NO_X emission factor of 5.70 g/bhp-hr, GP 002 emits at -23.5% of its previous emission factor. Operating in the range between ± 40% but not ± 10% of the previous emission factor dictates a 36-month recurring test schedule. The Permittee will follow the 36-month test frequency with the next performance test to be conducted by August 31, 2013.

3.6 Permit Organization

In general, the permit meets the MPCA Delta Guidance for ordering and grouping of requirements. One area where this permit deviates slightly from Delta guidance is in the use of appendices. While appendices are fully enforceable parts of the permit, in general, any requirement that the MPCA thinks should be electronically tracked (e.g., limits, submittals, etc.), should be in Table A or B of the permit. The main reason is that the appendices are word processing sections and are not part of the electronic tracking system. Violation of the appendices can be enforced, but the computer system will not automatically generate the necessary enforcement notices or documents. Staff must generate these.

3.7 Comments Received

This section will be completed after the reference review periods.

Public Notice Period: <start date> - <end date>
EPA 45-day Review Period: <start date> - <end date>

4. Permit Fee Assessment

This permit action is the reissuance of an individual Part 70; therefore, no application fees apply under Minn. R. 7002.0016, subp. 1 to the changes that are covered by the reissuance application. However, the permit action rolls in one additional permit application for a major amendment to which fees do apply. The major amendment changes the NO_X limit from hours of operation to a ton per year limit using the equation in Appendix C. This change triggers an assessment of 10 additional points to the fee assessment. This action includes the incorporation of one NSPS and one NESHAP. Neither of these standards were triggered by a modification; therefore, there are no fees assessed to them. Attachment 3 to this TSD contains the MPCA's assessment of Application and Additional Points used to determine the permit application fee as required by Minn. R. 7002.0019.

5. Conclusion

Based on the information provided by the City of Litchfield, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 09300001-003 and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Ben Wenkel (permit writer/engineer)
David Crowell (enforcement)
Jim Kolar (stack testing)
Marshall Cole (peer reviewer)

AQ File No. 714; DQs 4102, 3067, 2936, 3080, 3091

Attachments:
1. PTE Summary and Calculation Spreadsheets
2. Additional Points Calculator
3. Facility Description
4. CD-01 Forms

Attachment #1

PTE Summary and Calculation Spreadsheets

FACILITY ID: 09300001
FACILITY NAME: Litchfield city of

Supplement to MPCA form GI-07-R

	GP001				GP002				EU010		
	Unlimited lb/hr	Unlimited (tpy)	Limited (tpy)		Unlimited lb/hr	Unlimited (tpy)	Limited (tpy)		Unlimited lb/hr	Unlimited (tpy)	Limited (tpy)
Acetaldehyde	3.04E-01	1.33E+00	1.48E-01		2.79E-03	2.45E-03	2.23E-03		0.00E+00	0.00E+00	0.00E+00
Acrolein	3.05E-01	1.33E+00	1.48E-01		8.73E-04	7.65E-04	6.99E-04		0.00E+00	0.00E+00	0.00E+00
Benzene	7.60E-02	3.33E-01	3.69E-02		8.60E-02	7.53E-02	6.88E-02		6.59E-06	2.89E-05	2.89E-05
CO	2.29E+01	1.00E+02	1.11E+01		2.01E+01	1.76E+01	1.61E+01		2.64E-01	1.15E+00	1.15E+00
Formaldehyde	2.16E+00	9.47E+00	1.05E+00		8.74E-03	7.66E-03	6.99E-03		2.35E-04	1.03E-03	1.03E-03
Naphthalene	5.09E-03	2.23E-02	1.93E-03		1.44E-02	1.26E-02	1.15E-02		1.91E-06	8.38E-06	8.38E-06
TOTAL HAP	3.11E+00	1.36E+01	1.51E+00		1.75E-01	1.53E-01	1.40E-01		5.92E-03	2.60E-02	2.60E-02
Toluene	3.77E-02	1.65E-01	1.83E-02		3.11E-02	2.73E-02	2.49E-02		1.07E-05	4.67E-05	4.67E-05
Xylene (o,m,p)	1.05E-02	4.60E-02	5.10E-03		2.14E-02	1.87E-02	1.71E-02		0.00E+00	0.00E+00	0.00E+00
NOx	9.22E+01	8.08E+02	6.98E+01		4.14E+01	1.81E+02	1.65E+02		3.14E-01	1.37E+00	1.37E+00
PM10	4.03E+00	1.77E+01	1.96E+00		1.45E+00	1.27E+00	1.16E+00		2.38E-02	1.04E-01	1.04E-01
PM	4.03E+00	1.77E+01	1.96E+00		1.45E+00	1.27E+00	1.16E+00		2.38E-02	1.04E-01	1.04E-01
SO2	2.33E+00	1.02E+01	1.13E+00		2.00E-01	1.75E-01	1.60E-01		1.88E-03	8.24E-03	8.24E-03
VOC	7.60E+00	3.33E+01	3.69E+00		5.10E+00	4.47E+00	4.08E+00		1.73E-02	7.56E-02	7.56E-02
For additional pollutants and basis for emission rates, see Tables A1, A2 and A3											

TABLE A1 - FAIRBANKS MORSE

PARAMETER	VALUE	UNITS	SOURCE
Make	Fairbanks Morse		
Model	38 TDD 8 1/8		
Group ID	GP001		Air Permit 09300001-002
Number of identical units	2		Group 001 contains two identical engines
Emission Unit ID(s)	EU001, EU002		Emission Unit ID's assinged by the MPCA
Fuel(s) Combusted	100% Diesel Fuel or Dual Fuel		Dual fuel is considered operation on Natural gas with up to ~5% diesel fuel introduced to provide compression ig
Maximum diesel fuel flow	139.9	gal/hr-engine	Manufacturer provided fuel consumption rate at maximum load operating on 100% diesel fuel.
Maximum Rating	2880	bhp-engine	Manufacturer provided
Maximum Heat input Diesel	19.6	MMBtu/hr	(fuel flow rate, gal/hr) * (heat content of fuel, MMBtu/gal)
Heat Content of Fuel	0.14	MMBtu/gal	Assumed heating value (HHV) of diesel fuel
Heat Content of Fuel	1020	Btu/scf	Assumed heating value (HHV) of natural gas
Sulfur Content of Diesel	0.0015	% wt	Assumed sulfur content of diesel fuel
Limited Operation	69.8	tpy NOx	Group limit (combined operation)
Annual Capacity Factor (Dual Fuel)	0.11	capacity factor	Calculated fraction of a year (annual capacity factor) based on NOx limit assuming both engines operate simulta
Annual Capacity Factor (Diesel)	0.09	capacity factor	Calculated fraction of a year (annual capacity factor) based on NOx limit assuming both engines operate simulta

POLLUTANT	CAS	CLASSIFICATION	UNLIMITED EMISSIONS OPERATING ON DUAL FUEL (EACH UNIT)				
			value	units	emission factor source	lb/hr	tpy
PM		CRITERIA	0.0007	lb/hp-hr	None listed in AP-42 Table 3.4-1, assume same rate as diesel fuel.	2.02	8.83
PM10		CRITERIA	0.0007	lb/hp-hr	None listed in AP-42 Table 3.4-1, assume same rate as diesel fuel.	2.02	8.83
PM2.5		CRITERIA	0.0007	lb/hp-hr	None listed in AP-42 Table 3.4-1, assume same rate as diesel fuel.	2.02	8.83
SO2		CRITERIA	0.0000	lb/hp-hr	Assume same emission rate as diesel.	0.03	0.15
NOx		CRITERIA	11.32	g/bhp-hr	Performance test, February 2010, average NOx emission rate + 10%.	71.87	314.78
VOC		CRITERIA	0.0013	lb/hp-hr	AP-42 Table 3.4-1.	3.80	16.65
CO		CRITERIA	1.80	g/bhp-hr	Manufacturer estimate	11.43	50.06
Greenhouse Gas (CO2e)		CRITERIA	117.02	lb/MMBtu	40 CFR Part 98, Subpart C	2,292	10,039
CO_2		N/A	116.91	lb/MMBtu	40 CFR Part 98, Subpart C	2,290	10,029
CH_4		N/A	0.0022	lb/MMBtu	40 CFR Part 98, Subpart C	0.043	0.19
N_2O		N/A	0.0002	lb/MMBtu	40 CFR Part 98, Subpart C	0.004	0.02
Hazardous Air Pollutants							
1,1,2,2 Tetrachloroethane	79-34-5	HAP	6.63E-05	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	1.30E-03	5.69E-03
1,1,2-Trichloroethane	79-00-5	HAP	5.27E-05	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	1.03E-03	4.52E-03
1,3-Butadiene	106-99-0	HAP	8.20E-04	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	1.61E-02	7.03E-02
2,2,4-Trimethylpentane	540-84-1	HAP	8.46E-04	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	1.66E-02	7.26E-02
Acetaldehyde	75-07-0	HAP	7.76E-03	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	1.52E-01	6.66E-01
Acrolein	107-02-8	HAP	7.78E-03	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	1.52E-01	6.67E-01
Benzene	71-43-2	HAP	1.94E-03	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	3.80E-02	1.66E-01
Carbon Tetrachloride	56-23-5	HAP	6.07E-05	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	1.19E-03	5.21E-03
Chloroform (trichloromethane)	67-66-3	HAP	4.71E-05	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	9.23E-04	4.04E-03
Ethylbenzene	100-41-4	HAP	1.08E-04	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	2.12E-03	9.26E-03
Ethylene Dibromide	106-93-4	HAP	7.34E-05	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	1.44E-03	6.30E-03
Formaldehyde	50-00-0	HAP	5.52E-02	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	1.08E+00	4.74E+00
Mercury	7439-97-6	HAP	2.55E-07	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	4.99E-06	2.19E-05
Methanol	67-56-1	HAP	2.48E-03	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	4.86E-02	2.13E-01
Methylene Chloride (Dichloromethane)	75-09-2	HAP	1.47E-04	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	2.88E-03	1.26E-02
Naphthalene	91-20-3	HAP	9.63E-05	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	1.89E-03	8.26E-03
n-Hexane	110-54-3	HAP	4.45E-04	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	8.72E-03	3.82E-02
Styrene	100-42-5	HAP	5.48E-05	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	1.07E-03	4.70E-03
Toluene	108-88-3	HAP	9.63E-04	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	1.89E-02	8.26E-02
Vinyl Chloride	75-01-4	HAP	2.47E-05	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	4.84E-04	2.12E-03
Xylene (o,m,p)	1332-20-7	HAP	2.68E-04	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	5.25E-03	2.30E-02
POM	N/A	HAP	1.93E-04	lb/MMBtu	Sum of POM	3.78E-03	1.65E-02
Acenapthene	83-32-9	POM	1.33E-06	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	2.60E-05	1.14E-04
Acenapthylene	203-96-8	POM	3.17E-06	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	6.21E-05	2.72E-04
Anthracene	120-12-7	POM	7.18E-07	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	1.41E-05	6.16E-05
Benz(a)anthracene	56-55-3	POM	3.36E-07	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	6.58E-06	2.88E-05
Benzo(a)pyrene	50-32-8	POM	5.68E-09	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	1.11E-07	4.87E-07
Benzo(b)fluroanthene	205-99-2	POM	8.51E-09	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	1.67E-07	7.30E-07
Benzo(e)pyrene	192-97-2	POM	2.34E-08	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	4.58E-07	2.01E-06
Benzo(g,h,i)perylene	191-24-2	POM	2.48E-08	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	4.86E-07	2.13E-06
Benzo(k)fluoranthene	205-82-3	POM	4.26E-09	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	8.34E-08	3.65E-07
Biphenyl	92-52-4	POM	3.95E-06	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	7.74E-05	3.39E-04
Chrysene	218-01-9	POM	6.72E-07	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	1.32E-05	5.76E-05
Dibenzo(a,h)anthracene	53-70-3	POM	3.46E-07	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	6.78E-06	2.97E-05
Fluoranthene	206-44-0	POM	3.61E-07	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	7.07E-06	3.10E-05
Fluorene	86-73-7	POM	1.69E-06	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	3.31E-05	1.45E-04
Indeno(1,2,3-cd)pyrene	193-39-5	POM	9.93E-09	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	1.94E-07	8.52E-07
PAH	N/A	POM	1.34E-04	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	2.62E-03	1.15E-02
Perylene	198-55-0	POM	4.97E-09	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	9.73E-08	4.26E-07
Phenanthrene	85-01-8	POM	3.53E-06	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	6.91E-05	3.03E-04
Phenol	108-95-2	POM	4.21E-05	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	8.25E-04	3.61E-03
Pyrene	129-00-0	POM	5.84E-07	lb/MMBtu	AP-42 Table 3.2-1 (2-stroke lean burn engines)	1.14E-05	5.01E-05
MAX HAP						1.1	4.7
TOTAL HAP						1.6	6.8

NOTE: Group LIMITED emissions are calculated by multiplying the annual capacity factor by the unlimited emissions for both units.

(GP001, EU001 & EU002) EMISSION ESTIMATES

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neously at 100% load. (NOx annual limit, tpy) / (unlimited emission rate both engines, tpy)

neously at 100% load. (NOx annual limit, tpy) / (unlimited emission rate both engines, tpy)

UNLIMITED EMISSIONS OPERATING ON DIESEL FUEL (EACH UNIT)					WORST CASE UNLIMITED EMISSIONS (EACH UNIT)		UNLIMITED EMISSIONS (ALL UNITS)		LIMITED EMISSIONS ON DUAL FUEL (ALL UNITS)	LIMITED EMISSIONS ON DIESEL (ALL UNITS)	LIMITED WORST CASE EMISSIONS (ALL UNITS)
value	units	emission factor source	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	tpy	tpy	tpy
0.0007	lb/hp-hr	AP-42 Table 3.4-1. This rate includes condensable PM.	2.02	8.83	2.02	8.83	4.03	17.66	1.96	1.53	1.96
0.0007	lb/hp-hr	AP-42 Table 3.4-1. This rate includes condensable PM.	2.02	8.83	2.02	8.83	4.03	17.66	1.96	1.53	1.96
0.0007	lb/hp-hr	AP-42 Table 3.4-1. This rate includes condensable PM.	2.02	8.83	2.02	8.83	4.03	17.66	1.96	1.53	1.96
0.0000	lb/hp-hr	AP-42 Table 3.4-1. SO2 based on 0.05% wt content.	0.03	0.15	0.03	0.15	0.07	0.31	0.03	0.03	0.03
14.52	g/bhp-hr	Performance test, September 2009, average NOx emission rate + 10%.	92.19	403.80	92.19	403.80	184.39	807.61	69.80	69.80	69.80
0.0006	lb/hp-hr	AP-42 Table 3.4-1.	1.85	8.09	3.80	16.65	7.60	33.30	3.69	1.40	3.69
1.80	g/bhp-hr	Manufacturer estimate	11.43	50.06	11.43	50.06	22.86	100.12	11.10	8.65	11.10
163.63	lb/MMBtu	40 CFR Part 98, Subpart C	3,205	14,037	3,205	14,037	6,410	28,075	2,226	2,426	2,426
163.08	lb/MMBtu	40 CFR Part 98, Subpart C	3,194	13,990	3,194	13,990	6,388	27,980	2,224	2,418	2,418
0.0066	lb/MMBtu	40 CFR Part 98, Subpart C	0.130	0.57	0.130	0.57	0.259	1.13	0.04	0.10	0.10
0.0013	lb/MMBtu	40 CFR Part 98, Subpart C	0.026	0.11	0.026	0.11	0.052	0.23	0.00	0.02	0.02
			0.00E+00	0.00E+00	1.30E-03	5.69E-03	2.60E-03	1.14E-02	1.26E-03	0.00E+00	1.26E-03
			0.00E+00	0.00E+00	1.03E-03	4.52E-03	2.06E-03	9.04E-03	1.00E-03	0.00E+00	1.00E-03
			0.00E+00	0.00E+00	1.61E-02	7.03E-02	3.21E-02	1.41E-01	1.56E-02	0.00E+00	1.56E-02
			0.00E+00	0.00E+00	1.66E-02	7.26E-02	3.31E-02	1.45E-01	1.61E-02	0.00E+00	1.61E-02
2.52E-05	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	4.94E-04	2.16E-03	1.52E-01	6.66E-01	3.04E-01	1.33E+00	1.48E-01	3.74E-04	1.48E-01
7.88E-06	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	1.54E-04	6.76E-04	1.52E-01	6.67E-01	3.05E-01	1.33E+00	1.48E-01	1.17E-04	1.48E-01
7.76E-04	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	1.52E-02	6.66E-02	3.80E-02	1.66E-01	7.60E-02	3.33E-01	3.69E-02	1.15E-02	3.69E-02
			0.00E+00	0.00E+00	1.19E-03	5.21E-03	2.38E-03	1.04E-02	1.15E-03	0.00E+00	1.15E-03
			0.00E+00	0.00E+00	9.23E-04	4.04E-03	1.85E-03	8.08E-03	8.96E-04	0.00E+00	8.96E-04
			0.00E+00	0.00E+00	2.12E-03	9.26E-03	4.23E-03	1.85E-02	2.05E-03	0.00E+00	2.05E-03
			0.00E+00	0.00E+00	1.44E-03	6.30E-03	2.88E-03	1.26E-02	1.40E-03	0.00E+00	1.40E-03
7.89E-05	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	1.55E-03	6.77E-03	1.08E+00	4.74E+00	2.16E+00	9.47E+00	1.05E+00	1.17E-03	1.05E+00
3.00E-06	lb/MMBtu	AP-42 Table 1.3-10	5.88E-05	2.57E-04	5.88E-05	2.57E-04	1.18E-04	5.15E-04	4.85E-06	4.45E-05	4.45E-05
			0.00E+00	0.00E+00	4.86E-02	2.13E-01	9.71E-02	4.26E-01	4.72E-02	0.00E+00	4.72E-02
			0.00E+00	0.00E+00	2.88E-03	1.26E-02	5.76E-03	2.52E-02	2.80E-03	0.00E+00	2.80E-03
1.30E-04	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	2.55E-03	1.12E-02	2.55E-03	1.12E-02	5.09E-03	2.23E-02	1.83E-03	1.93E-03	1.93E-03
			0.00E+00	0.00E+00	8.72E-03	3.82E-02	1.74E-02	7.64E-02	8.46E-03	0.00E+00	8.46E-03
			0.00E+00	0.00E+00	1.07E-03	4.70E-03	2.15E-03	9.40E-03	1.04E-03	0.00E+00	1.04E-03
2.81E-04	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	5.50E-03	2.41E-02	1.89E-02	8.26E-02	3.77E-02	1.65E-01	1.83E-02	4.17E-03	1.83E-02
			0.00E+00	0.00E+00	4.84E-04	2.12E-03	9.68E-04	4.24E-03	4.70E-04	0.00E+00	4.70E-04
1.93E-04	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	3.78E-03	1.66E-02	5.25E-03	2.30E-02	1.05E-02	4.60E-02	5.10E-03	2.86E-03	5.10E-03
8.12E-05	lb/MMBtu	Sum of POM	1.59E-03	6.96E-03	3.78E-03	1.65E-02	7.56E-03	3.31E-02	3.67E-03	1.20E-03	3.67E-03
4.68E-06	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	9.17E-05	4.01E-04	9.17E-05	4.01E-04	1.83E-04	8.03E-04	2.53E-05	6.94E-05	6.94E-05
9.23E-06	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	1.81E-04	7.92E-04	1.81E-04	7.92E-04	3.62E-04	1.58E-03	6.03E-05	1.37E-04	1.37E-04
1.23E-06	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	2.41E-05	1.06E-04	2.41E-05	1.06E-04	4.82E-05	2.11E-04	1.37E-05	1.82E-05	1.82E-05
6.22E-07	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	1.22E-05	5.34E-05	1.22E-05	5.34E-05	2.44E-05	1.07E-04	6.39E-06	9.22E-06	9.22E-06
2.57E-07	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	5.03E-06	2.20E-05	5.03E-06	2.20E-05	1.01E-05	4.41E-05	1.08E-07	3.81E-06	3.81E-06
1.11E-06	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	2.17E-05	9.52E-05	2.17E-05	9.52E-05	4.35E-05	1.90E-04	1.62E-07	1.65E-05	1.65E-05
			0.00E+00	0.00E+00	4.58E-07	2.01E-06	9.17E-07	4.01E-06	4.45E-07	0.00E+00	4.45E-07
5.56E-07	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	1.09E-05	4.77E-05	1.09E-05	4.77E-05	2.18E-05	9.54E-05	4.72E-07	8.24E-06	8.24E-06
2.18E-07	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	4.27E-06	1.87E-05	4.27E-06	1.87E-05	8.54E-06	3.74E-05	8.10E-08	3.23E-06	3.23E-06
			0.00E+00	0.00E+00	7.74E-05	3.39E-04	1.55E-04	6.78E-04	7.51E-05	0.00E+00	7.51E-05
1.53E-06	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	3.00E-05	1.31E-04	3.00E-05	1.31E-04	5.99E-05	2.63E-04	1.28E-05	2.27E-05	2.27E-05
			0.00E+00	0.00E+00	6.78E-06	2.97E-05	1.36E-05	5.94E-05	6.58E-06	0.00E+00	6.58E-06
4.03E-06	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	7.89E-05	3.46E-04	7.89E-05	3.46E-04	1.58E-04	6.91E-04	6.87E-06	5.98E-05	5.98E-05
1.28E-05	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	2.51E-04	1.10E-03	2.51E-04	1.10E-03	5.01E-04	2.20E-03	3.21E-05	1.90E-04	1.90E-04
4.14E-07	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	8.11E-06	3.55E-05	8.11E-06	3.55E-05	1.62E-05	7.10E-05	1.89E-07	6.14E-06	6.14E-06
			0.00E+00	0.00E+00	2.62E-03	1.15E-02	5.25E-03	2.30E-02	2.55E-03	0.00E+00	2.55E-03
			0.00E+00	0.00E+00	9.73E-08	4.26E-07	1.95E-07	8.53E-07	9.45E-08	0.00E+00	9.45E-08
4.08E-05	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	7.99E-04	3.50E-03	7.99E-04	3.50E-03	1.60E-03	7.00E-03	6.71E-05	6.05E-04	6.05E-04
			0.00E+00	0.00E+00	8.25E-04	3.61E-03	1.65E-03	7.22E-03	8.01E-04	0.00E+00	8.01E-04
3.71E-06	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	7.27E-05	3.18E-04	7.27E-05	3.18E-04	1.45E-04	6.37E-04	1.11E-05	5.50E-05	5.50E-05
			0.02	0.1	1.1	4.7	2.2	9.5	1.1	0.0	1.1
			0.03	0.1	1.6	6.8	3.1	13.6	1.5	0.0	1.5

TABLE

PARAMETER	VALUE	UNITS	SOURCE
Make	Caterpillar		
Model	3516		
Group ID	GP002		Air Permit 09300001-002
Number of identical units	5		Group contains five identical engines
Emission Unit ID(s)	EU003-EU007		Emission Unit ID's assinged by the MPCA
Fuel(s) Combusted	100% Diesel Fuel		
Maximum diesel fuel flow	158.3	gal/hr-engine	Manufacturer provided fuel consumption rate at maxi
Maximum Rating	3292	bhp-engine	Manufacturer provided
Maximum Heat input Diesel	22.2	MMBtu/hr	(fuel flow rate, gal/hr) * (heat content of fuel, MMBtu
Heat Content of Fuel	0.14	MMBtu/gal	Assumed heating value (HHV) of diesel fuel
Heat Content of Fuel	N/A	Btu/scf	Assumed heating value (HHV) of natural gas
Sulfur Content of Diesel	0.0015	% wt	Assumed sulfur content of diesel fuel
Limited Operation	8000	hours	Group limit (combined operation)
Annual Capacity Factor (Diesel)	0.18	capacity factor	Calculated fraction of a year (annual capacity factor) b

POLLUTANT	CAS	CLASSIFICATION	UNLIMITED EMISSIONS OPERATING ON DUAL FUEL (EACH UNIT)				
			value	units	emission factor source	lb/hr	tpy
PM		CRITERIA					
PM10		CRITERIA					
PM2.5		CRITERIA					
SO2		CRITERIA					
NOx		CRITERIA					
VOC		CRITERIA					
CO		CRITERIA					
Greenhouse Gas (CO2e)		CRITERIA					
CO_2		N/A					
CH_4		N/A					
N_2O		N/A					
Hazardous Air Pollutants							
1,1,2,2 Tetrachloroethane	79-34-5	HAP					
1,1,2-Trichloroethane	79-00-5	HAP					
1,3-Butadiene	106-99-0	HAP					
2,2,4-Trimethylpentane	540-84-1	HAP					
Acetaldehyde	75-07-0	HAP					
Acrolein	107-02-8	HAP					
Benzene	71-43-2	HAP					
Carbon Tetrachloride	56-23-5	HAP					
Chloroform (trichloromethane)	67-66-3	HAP					
Ethylbenzene	100-41-4	HAP					
Ethylene Dibromide	106-93-4	HAP					
Formaldehyde	50-00-0	HAP					
Mercury	7439-97-6	HAP					
Methanol	67-56-1	HAP					
Methylene Chloride (Dichloromethane)	75-09-2	HAP					
Naphthalene	91-20-3	HAP					
n-Hexane	110-54-3	HAP					
Styrene	100-42-5	HAP					
Toluene	108-88-3	HAP					
Vinyl Chloride	75-01-4	HAP					
Xylene (o,m,p)	1332-20-7	HAP					
POM	N/A	HAP					
Acenapthene	83-32-9	POM					
Acenapthylene	203-96-8	POM					
Anthracene	120-12-7	POM					
Benz(a)anthracene	56-55-3	POM					
Benzo(a)pyrene	50-32-8	POM					
Benzo(b)fluroanthene	205-99-2	POM					
Benzo(e)pyrene	192-97-2	POM					
Benzo(g,h,i)perylene	191-24-2	POM					
Benzo(k)fluoranthene	205-82-3	POM					
Biphenyl	92-52-4	POM					
Chrysene	218-01-9	POM					
Dibenzo(a,h)anthracene	53-70-3	POM					
Fluoranthene	206-44-0	POM					
Fluorene	86-73-7	POM					
Indeno(1,2,3-cd)pyrene	193-39-5	POM					
PAH	N/A	POM					
Perylene	198-55-0	POM					
Phenanthrene	85-01-8	POM					
Phenol	108-95-2	POM					
Pyrene	129-00-0	POM					
MAX HAP							
TOTAL HAP							

NOTE: Group LIMITED emissions are calculated by multiplying the annual capacity factor by the unlimited emissions for all units

A2 - CATERPILLAR (GP002, EU003-007) EMISSION ESTIMATES

imum load operating on 100% diesel fuel.

/gal)

ased on operating hour limit assuming all engines in this group operate simultaniously at 100% load

UNLIMITED EMISSIONS OPERATING ON DIESEL FUEL (EACH UNIT)					WORST CASE UNLIMITED EMISSIONS (EACH UNIT)		UNLIMITED EMISSIONS (ALL UNITS)		LIMITED EMISSIONS ON DUAL FUEL (ALL UNITS)	LIMITED EMISSIONS ON DIESEL (ALL UNITS)	LIMITED WORST CASE EMISSIONS (ALL UNITS)
value	units	emission factor source	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	tpy	tpy	tpy
0.2900	lb/hr	Manufacturer guarantee, not to exceed dated Feb 1, 2007	0.29	1.27	0.29	1.27	1.45	6.35		1.16	1.16
0.2900	lb/hr	Manufacturer guarantee, not to exceed dated Feb 1, 2007	0.29	1.27	0.29	1.27	1.45	6.35		1.16	1.16
0.2900	lb/hr	Manufacturer guarantee, not to exceed dated Feb 1, 2007	0.29	1.27	0.29	1.27	1.45	6.35		1.16	1.16
0.00001	lb/hp-hr	AP-42 Table 3.4-1.	0.04	0.17	0.04	0.17	0.20	0.87		0.16	0.16
41.37	lb/hr	Manufacturer guarantee, not to exceed dated Feb 1, 2007	41.37	181.20	41.37	181.20	206.85	906.00		165.48	165.48
1.0200	lb/hr	Manufacturer guarantee, not to exceed dated Feb 1, 2007	1.02	4.47	1.02	4.47	5.10	22.34		4.08	4.08
4.02	lb/hr	Manufacturer guarantee, not to exceed dated Feb 1, 2007	4.02	17.61	4.02	17.61	20.10	88.04		16.08	16.08
163.63	lb/MMBtu	40 CFR Part 98, Subpart C	3,626	15,884	3,626	15,884	18,132	79,418		14,506	14,506
163.08	lb/MMBtu	40 CFR Part 98, Subpart C	3,614	15,830	3,614	15,830	18,071	79,151		14,457	14,457
0.0066	lb/MMBtu	40 CFR Part 98, Subpart C	0.147	0.64	0.147	0.64	0.733	3.21		0.59	0.59
0.0013	lb/MMBtu	40 CFR Part 98, Subpart C	0.029	0.13	0.029	0.13	0.147	0.64		0.12	0.12
			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
2.52E-05	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	5.58E-04	2.45E-03	5.58E-04	2.45E-03	2.79E-03	1.22E-02		2.23E-03	2.23E-03
7.88E-06	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	1.75E-04	7.65E-04	1.75E-04	7.65E-04	8.73E-04	3.82E-03		6.99E-04	6.99E-04
7.76E-04	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	1.72E-02	7.53E-02	1.72E-02	7.53E-02	8.60E-02	3.77E-01		6.88E-02	6.88E-02
			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
7.89E-05	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	1.75E-03	7.66E-03	1.75E-03	7.66E-03	8.74E-03	3.83E-02		6.99E-03	6.99E-03
3.00E-06	lb/MMBtu	AP-42 Table 1.3-10.	6.65E-05	2.91E-04	6.65E-05	2.91E-04	3.32E-04	1.46E-03		2.66E-04	2.66E-04
			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
1.30E-04	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	2.88E-03	1.26E-02	2.88E-03	1.26E-02	1.44E-02	6.31E-02		1.15E-02	1.15E-02
			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
2.81E-04	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	6.23E-03	2.73E-02	6.23E-03	2.73E-02	3.11E-02	1.36E-01		2.49E-02	2.49E-02
			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
1.93E-04	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	4.28E-03	1.87E-02	4.28E-03	1.87E-02	2.14E-02	9.37E-02		1.71E-02	1.71E-02
8.12E-05	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	1.80E-03	7.88E-03	1.80E-03	7.88E-03	9.00E-03	3.94E-02		7.20E-03	7.20E-03
4.68E-06	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	1.04E-04	4.54E-04	1.04E-04	4.54E-04	5.19E-04	2.27E-03		4.15E-04	4.15E-04
9.23E-06	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	2.05E-04	8.96E-04	2.05E-04	8.96E-04	1.02E-03	4.48E-03		8.18E-04	8.18E-04
1.23E-06	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	2.73E-05	1.19E-04	2.73E-05	1.19E-04	1.36E-04	5.97E-04		1.09E-04	1.09E-04
6.22E-07	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	1.38E-05	6.04E-05	1.38E-05	6.04E-05	6.89E-05	3.02E-04		5.51E-05	5.51E-05
2.57E-07	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	5.70E-06	2.49E-05	5.70E-06	2.49E-05	2.85E-05	1.25E-04		2.28E-05	2.28E-05
1.11E-06	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	2.46E-05	1.08E-04	2.46E-05	1.08E-04	1.23E-04	5.39E-04		9.84E-05	9.84E-05
			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
5.56E-07	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	1.23E-05	5.40E-05	1.23E-05	5.40E-05	6.16E-05	2.70E-04		4.93E-05	4.93E-05
2.18E-07	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	4.83E-06	2.12E-05	4.83E-06	2.12E-05	2.42E-05	1.06E-04		1.93E-05	1.93E-05
			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
1.53E-06	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	3.39E-05	1.49E-04	3.39E-05	1.49E-04	1.70E-04	7.43E-04		1.36E-04	1.36E-04
			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
4.03E-06	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	8.93E-05	3.91E-04	8.93E-05	3.91E-04	4.47E-04	1.96E-03		3.57E-04	3.57E-04
1.28E-05	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	2.84E-04	1.24E-03	2.84E-04	1.24E-03	1.42E-03	6.21E-03		1.13E-03	1.13E-03
4.14E-07	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	9.18E-06	4.02E-05	9.18E-06	4.02E-05	4.59E-05	2.01E-04		3.67E-05	3.67E-05
			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
4.08E-05	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	9.04E-04	3.96E-03	9.04E-04	3.96E-03	4.52E-03	1.98E-02		3.62E-03	3.62E-03
			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
3.71E-06	lb/MMBtu	AP-42 Table 3.4-3, 3.4-4	8.22E-05	3.60E-04	8.22E-05	3.60E-04	4.11E-04	1.80E-03		3.29E-04	3.29E-04
			0.02	0.1	0.0	0.1	0.1	0.4		0.1	0.1
			0.03	0.2	0.0	0.2	0.2	0.8		0.1	0.1

combined.

TABLE A3 - BRYAN BOILER EMISSION ESTIMATES (provided to show unit is insigificant under MN Rule 7007.1300 Subp 4)									
PARAMETER	VALUE	UNITS	SOURCE						
Description	Bryan Boiler								
Maximum Heat Input	3.2	MMBtu/hr	City of Litchfield						
Fuel	Natural Gas								
Heat Content of Fuel	1020	Btu/scf	AP-42 Section 1.4						
Maximum Fuel Use	0.003	MMSCF/hr	(heat input) / (heat content)						
Limited Operation	8760	hours	Actual operation is less						
Limited Annual Fuel Use	27.482	MMSCF/yr	(MMSCF/hr) * (Limited Operation)						
POLLUTANT	CAS	CLASSIFICATION	EMISSION FACTOR		UNLIMITED EMISSIONS		LIMITED EMISSIONS		NOTES
			value	units	lb/hr	tpy	lb/hr	tpy	
PM		CRITERIA	7.60	lb/MMSCF	2.38E-02	1.04E-01	2.38E-02	1.04E-01	C
PM10		CRITERIA	7.60	lb/MMSCF	2.38E-02	1.04E-01	2.38E-02	1.04E-01	C
PM2.5		CRITERIA	7.60	lb/MMSCF	2.38E-02	1.04E-01	2.38E-02	1.04E-01	C
SO2		CRITERIA	0.60	lb/MMSCF	1.88E-03	8.24E-03	1.88E-03	8.24E-03	A, B
NOx		CRITERIA	100.00	lb/MMSCF	3.14E-01	1.37E+00	3.14E-01	1.37E+00	A
VOC		CRITERIA	5.50	lb/MMSCF	1.73E-02	7.56E-02	1.73E-02	7.56E-02	A
CO		CRITERIA	84.00	lb/MMSCF	2.64E-01	1.15E+00	2.64E-01	1.15E+00	A
Greenhouse Gas (CO2e)		CRITERIA	120,279	lb/MMSCF	3.77E+02	1.65E+03	3.77E+02	1.65E+03	G
CO2		N/A	120161	lb/MMSCF	3.77E+02	1.65E+03	3.77E+02	1.65E+03	E
CH4		N/A	2.27E+00	lb/MMSCF	7.11E-03	3.11E-02	7.11E-03	3.11E-02	F
N2O		N/A	2.27E-01	lb/MMSCF	7.11E-04	3.11E-03	7.11E-04	3.11E-03	F
Organics									
Benzene	71-43-2	HAP	2.10E-03	lb/MMSCF	6.59E-06	2.89E-05	6.59E-06	2.89E-05	D
Butane	106-97-8	N/A	2.10E+00	lb/MMSCF	6.59E-03	2.89E-02	6.59E-03	2.89E-02	D
Dichlorobenzene	25321-22-6	HAP	1.20E-03	lb/MMSCF	3.76E-06	1.65E-05	3.76E-06	1.65E-05	D
Ethane	74-84-0	N/A	3.10E+00	lb/MMSCF	9.73E-03	4.26E-02	9.73E-03	4.26E-02	D
Formaldehyde	50-00-0	HAP	7.50E-02	lb/MMSCF	2.35E-04	1.03E-03	2.35E-04	1.03E-03	D
Hexane	110-54-3	HAP	1.80E+00	lb/MMSCF	5.65E-03	2.47E-02	5.65E-03	2.47E-02	D
Naphthalene	91-20-3	HAP	6.10E-04	lb/MMSCF	1.91E-06	8.38E-06	1.91E-06	8.38E-06	D
Pentane	109-66-0	N/A	2.60E+00	lb/MMSCF	8.16E-03	3.57E-02	8.16E-03	3.57E-02	D
Propane	74-98-6	N/A	1.60E+00	lb/MMSCF	5.02E-03	2.20E-02	5.02E-03	2.20E-02	D
Toluene	108-88-3	HAP	3.40E-03	lb/MMSCF	1.07E-05	4.67E-05	1.07E-05	4.67E-05	D
Acenapthene	83-32-9	POM	1.80E-06	lb/MMSCF	5.65E-09	2.47E-08	5.65E-09	2.47E-08	D
Acenaphthylene	203-96-8	POM	1.80E-06	lb/MMSCF	5.65E-09	2.47E-08	5.65E-09	2.47E-08	D
Anthracene	120-12-7	POM	2.40E-06	lb/MMSCF	7.53E-09	3.30E-08	7.53E-09	3.30E-08	D
Benz(a)anthracene	56-55-3	POM	1.80E-06	lb/MMSCF	5.65E-09	2.47E-08	5.65E-09	2.47E-08	D
Benzo(a)pyrene	50-32-8	POM	1.20E-06	lb/MMSCF	3.76E-09	1.65E-08	3.76E-09	1.65E-08	D
Benzo(b)fluoranthene	205-99-2	POM	1.80E-06	lb/MMSCF	5.65E-09	2.47E-08	5.65E-09	2.47E-08	D
Benzo(g,h,i)perylene	191-24-2	POM	1.20E-06	lb/MMSCF	3.76E-09	1.65E-08	3.76E-09	1.65E-08	D
Benzo(k)fluoranthene	205-82-3	POM	1.80E-06	lb/MMSCF	5.65E-09	2.47E-08	5.65E-09	2.47E-08	D
Chrysene	218-01-9	POM	1.80E-06	lb/MMSCF	5.65E-09	2.47E-08	5.65E-09	2.47E-08	D
Dibenzo(a,h)anthracene	53-70-3	POM	1.20E-06	lb/MMSCF	3.76E-09	1.65E-08	3.76E-09	1.65E-08	D
7,12-Dimethylbenz(a)anthracene	57-97-6	POM	1.60E-05	lb/MMSCF	5.02E-08	2.20E-07	5.02E-08	2.20E-07	D
Fluoranthene	206-44-0	POM	3.00E-06	lb/MMSCF	9.41E-09	4.12E-08	9.41E-09	4.12E-08	D
Fluorene	86-73-7	POM	2.80E-06	lb/MMSCF	8.78E-09	3.85E-08	8.78E-09	3.85E-08	D
Indeno(1,2,3-cd)pyrene	193-39-5	POM	1.80E-06	lb/MMSCF	5.65E-09	2.47E-08	5.65E-09	2.47E-08	D
2-Methylnaphthalene	91-57-6	POM	2.40E-05	lb/MMSCF	7.53E-08	3.30E-07	7.53E-08	3.30E-07	D
3-Methylchloranthrene	56-49-5	POM	1.80E-06	lb/MMSCF	5.65E-09	2.47E-08	5.65E-09	2.47E-08	D
Phenanthrene	85-01-8	POM	1.70E-05	lb/MMSCF	5.33E-08	2.34E-07	5.33E-08	2.34E-07	D
Pyrene	129-00-0	POM	5.00E-05	lb/MMSCF	1.57E-07	6.87E-07	1.57E-07	6.87E-07	D
Polycyclic Organic Matter (POM)		HAP	1.33E-04	lb/MMSCF	4.18E-07	1.83E-06	4.18E-07	1.83E-06	D
Metals									
Arsenic	7440-38-2	HAP	2.00E-04	lb/MMSCF	6.27E-07	2.75E-06	6.27E-07	2.75E-06	D
Barium	7440-39-3	N/A	4.40E-03	lb/MMSCF	1.38E-05	6.05E-05	1.38E-05	6.05E-05	D
Berylinum	7440-41-7	HAP	1.20E-05	lb/MMSCF	3.76E-08	1.65E-07	3.76E-08	1.65E-07	D
Cadmium	7440-43-9	HAP	1.10E-03	lb/MMSCF	3.45E-06	1.51E-05	3.45E-06	1.51E-05	D
Chromium	7440-47-3	HAP	1.40E-03	lb/MMSCF	4.39E-06	1.92E-05	4.39E-06	1.92E-05	D
Cobalt	7440-48-4	HAP	8.40E-05	lb/MMSCF	2.64E-07	1.15E-06	2.64E-07	1.15E-06	D
Copper	7440-50-8	N/A	8.50E-04	lb/MMSCF	2.67E-06	1.17E-05	2.67E-06	1.17E-05	D
Lead	7139-92-1	HAP	5.00E-04	lb/MMSCF	1.57E-06	6.87E-06	1.57E-06	6.87E-06	D
Manganese	7439-96-5	HAP	3.80E-04	lb/MMSCF	1.19E-06	5.22E-06	1.19E-06	5.22E-06	D
Mercury	7439-97-6	HAP	2.60E-04	lb/MMSCF	8.16E-07	3.57E-06	8.16E-07	3.57E-06	D
Molybdenum	7439-98-7	N/A	1.10E-03	lb/MMSCF	3.45E-06	1.51E-05	3.45E-06	1.51E-05	D
Nickel	7440-02-0	HAP	2.10E-03	lb/MMSCF	6.59E-06	2.89E-05	6.59E-06	2.89E-05	D
Selenium	7782-49-2	HAP	2.40E-05	lb/MMSCF	7.53E-08	3.30E-07	7.53E-08	3.30E-07	D
Vanadium	7440-62-2	N/A	2.30E-03	lb/MMSCF	7.22E-06	3.16E-05	7.22E-06	3.16E-05	D
Zinc	7440-66-6	N/A	2.90E-02	lb/MMSCF	9.10E-05	3.98E-04	9.10E-05	3.98E-04	D
MAX HAP					5.65E-03	2.47E-02	5.65E-03	2.47E-02	
TOTAL HAP					5.92E-03	2.60E-02	5.92E-03	2.60E-02	

NOTES

A	AP-42 Table 1.4-1
B	Sulfur Content = 2000 grains per scf, from AP-42 Table 1.4-2, footnote d
C	AP-42 Table 1.4-2
D	AP-42 Table 1.4-3 and 1.4-4
E	40 CFR Part 98 Table C-1: Pipeline natural gas = 1028 btu/scf, CO_2 emission = 53.02 kg CO_2/mmBtu = 120162 lb/MMscf
F	40 CFR Part 98 Table C-2: Pipeline natural gas = 1028 btu/scf, CH4 = 0.001 kig CH4/mmBtu, N2O = 0.0001 kg N2O / mmBtu
G	CO_2e = (Global Warming Potential, GWP) * (Emission). GWP from 40 CFR Part 98 Table A-1. CO_2 = 1, CH_4 = 21, N_2O = 310

Attachment #2

Addition Points Calculator

1) AQ Facility ID No.:	09300001	**Total Points** 35
2) Facility Name:	Litchfield city of	
3) Small business? y/n?	N	
4) DQ Numbers (including all rolled) :	4102 3067 2936 3080 3091	
5) Date of each Application Received:	9/5/2012 4/15/2010 12/15/2009 4/19/2010 4/29/2010	
6) Final Permit No.	09300001-003	
7) Permit Staff	Benjamin Wenkel	
8) "Work completed" in which .xls file (i.e. unit 2b, unit 1a, biofuels)?		

Application Type	**DQ No.**	**Qty.**	*Points*	**Total Points**	**Details**
Administrative Amendment			*1*	0	
Minor Amendment			*4*	0	
Applicability Request			*10*	0	
Moderate Amendment			*15*	0	
Major Amendment	3067	1	*25*	25	
Individual State Permit (not reissuance)			*50*	0	
Individual Part 70 Permit (not reissuance)			*75*	0	
Additional Points					
Modeling Review			*15*	0	
BACT Review			*15*	0	
LAER Review			*15*	0	
CAIR/Part 75 CEM analysis			*10*	0	
NSPS Review			*10*	0	
NESHAP Review			*10*	0	
Case-by-case MACT Review			*20*	0	
Netting			*10*	0	
Limits to remain below threshold	3067	1	*10*	10	PSD
Plantwide Applicability Limit (PAL)			*20*	0	
AERA review			*15*	0	
Variance request under 7000.7000			*35*	0	
Confidentiality request under 7000.1300			*2*	0	
EAW review					
Part 4410.4300, subparts 18, item A; and 29			*15*	0	
Part 4410.4300, subparts 8, items A & B; 10, items A to C; 16, items A & D; 17, items A to C & E to G; and 18, items B & C			*35*	0	
Part 4410.4300, subparts 4; 5 items A & B; 13; 15; 16, items B & C; and 17 item D			*70*	0	
		Add'l Points		**10**	

NOTES:

Modified NOx limits to prevent classification as major source under PSD.

Attachment #3

Facility Description

MINNESOTA POLLUTION CONTROL AGENCY
AIR QUALITY
520 LAFAYETTE ROAD
ST. PAUL, MN 55155-4194

FACILITY DESCRIPTION: EMISSION UNIT (EU)

Show: Active and Pending Records
Action: PER 003
AQD Facility ID: 09300001
Facility Name: Litchfield city of

	ID No.	Emission Unit Status	Added By (Action)	Retired By (Action)	Insignif-icant Activity	Operator ID for Item	Stack/ Vent ID No(s).	Control Equip. ID No(s).	Operator Description	Manufacturer	Model Number	SIC	Max. Design Capacity	Maximum Design Capacity			Max Fuel Input (mil Btu)
														Materials	Units n	Units d	
1	EU 001	Active	PER 002		☐		SV 001 (M)		East Fairbanks Morse IC Engine	Fairbanks Morse	38TDD8 1/8	4911	2,880	Energy	BHp		19.6
2	EU 002	Active	PER 002		☐		SV 002 (M)		West Fairbanks Morse IC Engine	Fairbanks Morse	38TDD8 1/8	4911	2,880	Energy	BHp		19.6
3	EU 003	Active	PER 002		☐		SV 003 (M)		IC Engine #3	Caterpillar		4911	3,604	Energy	BHp		22.2
4	EU 003	Active	PER 003		☐		SV 003 (M)		IC Engine #3	Caterpillar	3516	4911	3,292	Energy	BHp		22.2
5	EU 004	Active	PER 002		☐		SV 004 (M)		IC Engine #4	Caterpillar		4911	3,604	Energy	BHp		22.2
6	EU 004	Active	PER 003		☐		SV 004 (M)		IC Engine #4	Caterpillar	3516	4911	3,292	Energy	BHp		22.2
7	EU 005	Active	PER 002		☐		SV 005 (M)		IC Engine #5	Caterpillar		4911	3,604	Energy	BHp		22.2
8	EU 005	Active	PER 003		☐		SV 005 (M)		IC Engine #5	Caterpillar	3516	4911	3,292	Energy	BHp		22.2
9	EU 006	Active	PER 002		☐		SV 006 (M)		IC Engine #6	Caterpillar		4911	3,604	Energy	BHp		22.2
10	EU 006	Active	PER 003		☐		SV 006 (M)		IC Engine #6	Caterpillar	3156	4911	3,292	Energy	BHp		22.2
11	EU 007	Active	PER 002		☐		SV 007 (M)		IC Engine #7	Caterpillar		4911	3,604	Energy	BHp		22.2
12	EU 007	Active	PER 003		☐		SV 007 (M)		IC Engine #7	Caterpillar	3156	4911	3,292	Energy	BHp		22.2
13	EU 008	Active	PER 002		☐		SV 008 (M)		RETIRED Keeler Boiler	E. Keeler	N/A	4911	40000	Steam	Lb	Hr	
14	EU 008	Retired	PER 003		☐				RETIRED Keeler Boiler	E. Keeler	N/A	4911	40000	Steam	Lb	Hr	
15	EU 009	Active	PER 002		☐		SV 009 (M)		RETIRED Bros Boiler	Bros	79	4911	60000	Steam	Lb	Hr	
16	EU 009	Retired	PER 003		☐				RETIRED Bros Boiler	Bros	79	4911	60000	Steam	Lb	Hr	
17	EU 010	Active	PER 003		☐				Bryan Boiler	Bryan	L48S-15-G-FE	4911	3.2		Mmbtu	Hr	3.2

FACILITY DESCRIPTION: EMISSION UNIT (EU)

	ID No.	Emission Unit Status	Added By (Action)	Comm-ence Const. Date	Initial Startup Date	Removal Date	Firing Method	Pct. Fuel/ Space Heat	Bottleneck	Elevator Type
1	EU 001	Active	PER 002	01/01/1962	01/01/1962					
2	EU 002	Active	PER 002	01/01/1962	01/01/1962					
3	EU 003	Active	PER 002							
4	EU 003	Active	PER 003	07/25/2008	04/01/2010					
5	EU 004	Active	PER 002							
6	EU 004	Active	PER 003	07/25/2008	04/01/2010					
7	EU 005	Active	PER 002							
8	EU 005	Active	PER 003	07/25/2008	04/01/2010					
9	EU 006	Active	PER 002							
10	EU 006	Active	PER 003	07/25/2008	04/01/2010					
11	EU 007	Active	PER 002							
12	EU 007	Active	PER 003	07/25/2008	04/01/2010					
13	EU 008	Active	PER 002	01/01/1973	01/01/1973					
14	EU 008	Retired	PER 003			01/01/1973				
15	EU 009	Active	PER 002	01/01/1948	01/01/1948					
16	EU 009	Retired	PER 003			01/01/1978				
17	EU 010	Active	PER 003	01/01/1979	01/01/1979			100	Whole Facility	

MINNESOTA POLLUTION CONTROL AGENCY
AIR QUALITY
520 LAFAYETTE ROAD
ST. PAUL, MN 55155-4194

FACILITY DESCRIPTION: STACK/VENTS (SV)

Show: Active and Pending Records
Action: PER 003
AQD Facility ID: 09300001
Facility Name: Litchfield city of

	ID No.	Stack/ Vent Status	Added By (Action)	Retired By (Action)	Operator ID for Item	Operators Description	Height of Opening From Ground (feet)	Inside Dimensions		Design Flow Rate at Top (ACFM)	Exit Gas Temperature at Top (ºF)	Flow Rate/ Temperature Information Source	Discharge Direction
								Diameter or Length (feet)	Width (feet)				
1	SV 001	Active	PER 002			Stack for EU 001	98.4	1.67		25,740	660	Manufacturer	Up, No Cap
2	SV 002	Active	PER 002			Stack for EU 002	98.4	1.67		25,740	660	Manufacturer	Up, No Cap
3	SV 003	Active	PER 002			Stack for EU 003	85.3	1.50		17,668	892	Manufacturer	Up, No Cap
4	SV 004	Active	PER 002			Stack for EU 004	85.3	1.50		17,668	892	Manufacturer	Up, No Cap
5	SV 005	Active	PER 002			Stack for EU 005	85.3	1.50		17,668	892	Manufacturer	Up, No Cap
6	SV 006	Active	PER 002			Stack for EU 006	85.3	1.50		17,668	892	Manufacturer	Up, No Cap
7	SV 007	Active	PER 002			Stack for EU 007	85.3	1.50		17,668	892	Manufacturer	Up, No Cap
8	SV 008	Active	PER 002			RETIRED Keeler Boiler							
9	SV 008	Retired	PER 003			RETIRED Keeler Boiler							
10	SV 009	Active	PER 002			RETIRED Bros Boiler							
11	SV 009	Retired	PER 003			RETIRED Bros Boiler							
12	SV 010	Active	PER 003			Bryan Boiler	32.8	2.0		1842	260	Manufacturer	Up, With Cap

MINNESOTA POLLUTION CONTROL AGENCY
AIR QUALITY
520 LAFAYETTE ROAD
ST. PAUL, MN 55155-4194

FACILITY DESCRIPTION: GROUPS (GP)

Show: Active and Pending Records
Action: PER 003
AQD Facility ID: 09300001
Facility Name: Litchfield city of

	ID No.	Group Status	Added By (Action)	Retired By (Action)	Include in EI	Operator ID for Item	Group Description	Group Items
1	GP 001	Active	PER 002		☐		Old Engines	EU 001, EU 002, SV 001, SV 002
2	GP 001	Active	PER 003		☐		Fairbanks Morse Engines	EU 001, EU 002, SV 001, SV 002
3	GP 002	Active	PER 002		☐		New Engines	EU 003, EU 004, EU 005, EU 006, EU 007, SV 003, SV 004, SV 005, SV 006, SV 007
4	GP 002	Active	PER 003		☐		Caterpillar Engines	EU 003, EU 004, EU 005, EU 006, EU 007, SV 003, SV 004, SV 005, SV 006, SV 007

Attachment #4

CD-01 Forms

MINNESOTA POLLUTION CONTROL AGENCY
AIR QUALITY
520 LAFAYETTE ROAD
ST. PAUL, MN 55155-4194

COMPLIANCE PLAN CD-01

Facility Name: Litchfield city of

Permit Number: 09300001 - 003

Subject Item: **Total Facility**

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	SOURCE SPECIFIC REQUIREMENTS
2.0		CD	40 CFR Section 63.6620(e); 40 CFR Section 72.7(d)(2); Minn. R. 7007.0800, subp. 2	Permit Appendices: This permit contains appendices as listed in the permit Table of Contents. The Permittee shall comply with all requirements contained in Appendices B, C and D. Modeling parameters in Appendix A are included for reference only as described elsewhere in Table A.
3.0		CD	40 CFR Part 63	General Provisions of pt. 63 applicable to subp. ZZZZ are provided in Table 8 to Subpart ZZZZ of Part 63.
4.0		CD	hdr	OPERATIONAL REQUIREMENTS
5.0		CD	40 CFR pt. 50; Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subp. 7(A), 7(L), & 7(M); Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080	The Permittee shall comply with National Primary and Secondary Ambient Air Quality Standards, 40 CFR pt. 50, and the Minnesota Ambient Air Quality Standards, Minn. R. 7009.0010 to 7009.0080. Compliance shall be demonstrated upon written request by the MPCA.
6.0		CD	Minn. R. 7011.0020	Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.
7.0		CD	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)	Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated.
8.0		CD	Minn. R. 7007.0800, subps. 14 and 16(J)	Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. At a minimum, the O & M plan shall identify all air pollution control equipment and control practices and shall include a preventative maintenance program for the equipment and practices, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment and practices to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment and practices, and the records kept to demonstrate plan implementation.
9.0		CD	Minn. R. 7019.1000, subp. 4	Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.
10.0		CD	Minn. R. 7011.0150	Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.
11.0		CD	Minn. R. 7030.0010-7030.0080	Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.
12.0		CD	Minn. R. 7007.0800, subp. 9(A)	Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A).
13.0		CD	Minn. R. 7007.0800, subp. 16	The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.
14.0		CD	hdr	PERFORMANCE TESTING
15.0		CD	Minn. R. ch. 7017	Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A, B, and/or C.

COMPLIANCE PLAN CD-01

Facility Name: Litchfield city of

Permit Number: 09300001 - 003

16.0		CD	Minn. R. 7017.2018; Minn. R. 7017.2030, subps. 1-4; Minn. R. 7017.2035, subps. 1-2	Performance Test Notifications and Submittals: Performance Tests are due as outlined in Table A of the permit. See Table B for additional testing requirements. Performance Test Notification (written): due 30 days before each Performance Test Performance Test Plan: due 30 days before each Performance Test Performance Test Pre-test Meeting: due 7 days before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy: due 105 days after each Performance Test The Notification, Test Plan, and Test Report may be submitted in an alternative format as allowed by Minn. R. 7017.2018.
17.0		CD	Minn. R. 7017.2025, subp. 3	Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as stated in the MPCA's Notice of Compliance letter granting preliminary approval. Preliminary approval is based on formal review of a subsequent performance test on the same unit as specified by Minn. R. 7017.2025, subp. 3. The limit is final upon issuance of a permit amendment incorporating the change.
18.0		CD	hdr	MODELING REQUIREMENTS
19.0		CD	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080	The parameters used in NOx, SO2, CO and PM10 modeling for permit number 09300001-003 are listed in Appendix A of this permit. The parameters describe the operation of the facility at maximum permitted capacity. The purpose of listing the parameters in the Appendix is to provide a benchmark for future changes.
20.0		CD	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080	Modeling Triggers-NOx: For changes that do not require a permit amendment and affect any modeled parameter or emission rate documented in Appendix A, or are an addition to the information documented in Appendix A, a Remodeling Submittal requirement is not triggered at the time of the change. The Permittee shall keep updated records on site of all parameters and emission rates. The Permittee shall submit any changes to parameters and emission rates with the next required Remodeling Submittal. For changes that require a minor, moderate, or major permit amendment and affect any modeled parameter or emission rate documented in Appendix A, or are an addition to the information documented in Appendix A, a Remodeling Submittal requirement is triggered. The Permittee shall include previously made changes to parameters and emission rates that did not trigger a Remodeling Submittal.
21.0		CD	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080	Remodeling Submittal-NOx: The Permittee must submit to the Commissioner for approval changes meeting the above criteria and must wait for a written approval before making such changes. For minor amendments, written approval of the modeling may be given before permit issuance; however, this approval applies only to the modeling and not to any other changes. The information submitted must include, for stack and vent sources, source emission rate, location, height, diameters, exit velocity, exit temperature, discharge direction, use of rain caps or rain hats, and, if applicable, locations and dimensions of nearby buildings. For non-stack/vent sources, this includes the source emission rate, location, size and shape, release height, and, if applicable, any emission rate scalars, and the initial lateral dimensions and initial vertical dimensions and adjacent building heights.
22.0		CD	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080	Remodeling Submittal-NOx, continued: The plume dispersion characteristics due to the revisions of the information must be equivalent to or better than the dispersion characteristics modeled November 2007. The Permittee shall demonstrate this equivalency in the proposal. If the information does not demonstrate equivalent or better dispersion characteristics, or if a conclusion cannot readily be made about the dispersion, the Permittee must submit full remodeling.
23.0		CD	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080	Modeling at Reissuance-NOx: The Permittee shall submit an assessment with the reissuance application (due as stated elsewhere in this permit) that addresses any changes made during the permit term that did not require a permit amendment but that affected any modeled parameter or emission rate (including adding sources beyond those documented in Appendix A) and were not assessed in a later modeling submittal. The information in this submittal shall be the same as listed in the requirement entitled "Remodeling Submittal".
24.0		CD	hdr	MONITORING REQUIREMENTS

COMPLIANCE PLAN CD-01

Facility Name: Litchfield city of

Permit Number: 09300001 - 003

25.0		CD	Minn. R. 7007.0800, subp. 4(D)	Monitoring Equipment Calibration: The Permittee shall calibrate all required monitoring equipment at least once every 12 months (any requirements applying to continuous emission monitors are listed separately in this permit).
26.0		CD	Minn. R. 7007.0800, subp. 4(D)	Operation of Monitoring Equipment: Unless otherwise noted in Tables A, B, and/or C, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.
27.0		CD	hdr	RECORDKEEPING
28.0		CD	Minn. R. 7007.0800, subp. 5(C)	Recordkeeping: Retain all records at the stationary source, unless otherwise specified within this permit, for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).
29.0		CD	Minn. R. 7007.0800, subp. 5(B)	Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350, subp. 2), including records of the emissions resulting from those changes.
30.0		CD	Minn. R. 7007.1200, subp. 4	If the Permittee determines that no permit amendment or notification is required prior to making a change, the Permittee must retain records of all calculations required under Minn. R. 7007.1200. For expiring permits, these records shall be kept for a period of five years from the date the change was made or until permit reissuance, whichever is longer. The records shall be kept at the stationary source for the current calendar year of operation and may be kept at the stationary source or office of the stationary source for all other years. The records may be maintained in either electronic or paper format.
31.0		CD	hdr	REPORTING/SUBMITTALS
32.0		CD	Minn. R. 7019.1000, subp. 3	Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3. At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.
33.0		CD	Minn. R. 7019.1000, subp. 2	Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2. At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.
34.0		CD	Minn. R. 7019.1000, subp. 1	Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.

COMPLIANCE PLAN CD-01

Facility Name: Litchfield city of

Permit Number: 09300001 - 003

35.0		CD	Minn. R. 7019.1000, subp. 1	Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.
36.0		S/A	Minn. R. 7007.0800, subp. 6(A)(2)	Semiannual Deviations Report: due 30 days after end of each calendar half-year following Permit Issuance. The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. If no deviations have occurred, the Permittee shall submit the report stating no deviations.
37.0		CD	Minn. R. 7007.1150 - 7007.1500	Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.
38.0		S/A	Minn. R. 7007.0800, subp. 6(C)	Compliance Certification: due 31 days after end of each calendar year following Permit Issuance (for the previous calendar year). The Permittee shall submit this on a form approved by the Commissioner, both to the Commissioner and to the US EPA regional office in Chicago. This report covers all deviations experienced during the calendar year.
39.0		S/A	Minn. R. 7007.0400, subp. 2	Application for Permit Reissuance: due 180 days before expiration of Existing Permit.
40.0		CD	Minn. R. 7007.1400, subp. 1(H)	Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H). Performance testing deadlines from the General Provisions of 40 CFR pt. 60 and pt. 63 are examples of deadlines for which the MPCA does not have authority to grant extensions and therefore do not meet the requirements of Minn. R. 7007.1400, subp. 1(H).
41.0		CD	Minn. R. 7019.3000 - 7019.3100	Emission Inventory Report: due on or before April 1 of each calendar year following permit issuance, to be submitted on a form approved by the Commissioner.
42.0		CD	Minn. R. 7002.0005 - 7002.0095	Emission Fees: due 60 days after receipt of an MPCA bill.

COMPLIANCE PLAN CD-01

Facility Name: Litchfield city of

Permit Number: 09300001 - 003

Subject Item: **GP 001 Fairbanks Morse Engines**

Associated Items: EU 001 East Fairbanks Morse IC Engine

EU 002 West Fairbanks Morse IC Engine

SV 001 Stack for EU 001

SV 002 Stack for EU 002

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	APPLICABILITY
2.0		CD	40 CFR Section 63.6595(a); Minn. R. 7011.8150	Compliance Date: The Permittee shall comply with the applicable emission and operational limitations found in 40 CFR pt. 63, subp. ZZZZ no later than May 3, 2013.
3.0		CD	hdr	EMISSION LIMITS
4.0		LIMIT	Minn. R. 7011.2300, subp. 1	Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.
5.0		LIMIT	Minn. R. 7011.2300, subp. 2	Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input (This is met through the total capacity of the equipment burning No. 2 fuel oil and/or natural gas. The total potential to emit is 0.0004 lb/hp-hr or 0.059 lb/MMBtu heat input.)
6.0		LIMIT	Title I Condition: To avoid major source thresholds under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 2	Nitrogen Oxides: less than or equal to 69.8 tons/year using 12-month Rolling Sum of the equation found in Appendix C.
7.0		LIMIT	Minn. R. 7007.0800, subp. 2	Nitrogen Oxides: less than or equal to 87.3 lbs/hour .
8.0		LIMIT	40 CFR Section 63.6603(a); 40 CFR pt. 63, subp. ZZZZ, Table 2d; Minn. R. 7011.8150	Carbon Monoxide: less than or equal to 23 parts per million , volumetric dry at 15 percent oxygen; or reduce CO emissions by 70 percent or more.
9.0		CD	40 CFR Section 63.6603; 40 CFR Section 63.6620; 40 CFR pt. 63, subp. ZZZZ Table 4; Minn. R. 7011.8150	Compliance with the numerical emission limitations established in 40 CFR pt. 63, subp. ZZZZ is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in 40 CFR Section 63.6620 and 40 CFR pt. 63, subp. ZZZZ, Table 4.
10.0		CD	hdr	EMISSION AND OPERATIONAL REQUIREMENTS
11.0		CD	40 CFR Section 63.6603(a); 40 CFR pt. 63, subp. ZZZZ, Table 2b; Minn. R. 7011.8150	For each engine using an oxidation catalyst to comply with the requirement to reduce CO emissions or limit the concentration of CO in the exhaust, the Permittee shall: - maintain the catalyst so that the pressue drop across the catalyst does not change by more than 2 inches of water at 100 percent load, plus or minus 10 percent from the pressure drop across the catalyst that was measured during the initial performance test, and - maintain the temperature of the engine exhaust so that the catalyst temperature is greater than or equal to 450 degrees F and less than or equal to 1350 degrees F.
12.0		CD	40 CFR Section 63.6603(a); 40 CFR pt. 63, subp. ZZZZ, Table 2b; Minn. R. 7011.8150	For each engine not using an oxidation catalyst to comply with the requirement to reduce CO emissions or limit the concentration of CO in the exhaust, the Permittee shall comply with the operating limitations approved by the Administrator.
13.0		CD	40 CFR Section 63.6604; 40 CFR Section 80.510(b); Minn. R. 7011.8150	Fuel Type: Diesel fuel must meet the requirements of 40 CFR Section 80.510(b) for nonroad diesel fuel which requires that diesel fuel have a maximum sulfur content of 15 parts per million and either a minimum cetaine index of 40 or a maximum aromatic content of 35 volume percent.
14.0		CD	40 CFR Section 63.6605(a); Minn. R. 7011.8150	The Permittee shall be in compliance with the emission limitations and operating limitations in 40 CFR pt. 63, subp. ZZZZ that apply at all times.

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15.0		CD	40 CFR Section 63.6605(b); Minn. R. 7011.8150	At all times, the Permittee shall operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the Permittee to make any further efforts to reduce emissions if levels required by 40 CFR pt. 63, subp. ZZZZ have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.
16.0		CD	40 CFR Section 63. 6625(g); Minn. R. 7011.8150	The Permittee shall comply with either paragraph (g)(1) or (g)(2) of 40 CFR Section 63.6625. The Permittee shall follow the manufacturer's specified maintenance requirements for operating and maintaining the open or closed crankcase ventilation systems and replacing the crankcase filters, or can request to the Administrator to approve different maintenance requirements that are as protective as manufacturer requirements. (1) Install a closed crankcase ventilation system that prevents crankcase emissions from being emitted to the atmosphere, or (2) Install an open crankcase filtration emission control system that reduces emissions from the crankcase by filtering the exhaust stream to remove oil mist, particulates, and metals.
17.0		CD	40 CFR Section 63.6625(h); Minn. R. 7011.8150	The Permittee shall minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes. After which time the emissions standards applicable to all times other than startup in Table 2d of 40 CFR pt. 63, subp. ZZZZ apply.
18.0		CD	40 CFR Section 63.6630(a); Minn. R. 7011.8150	The Permittee shall demonstrate initial compliance with each emission and operating limitation that applies according to 40 CFR pt. 63, subp. ZZZZ, Table 5.
19.0		CD	40 CFR 63.6630(a); 40 CFR pt. 63, subp. ZZZZ, Table 5; Minn. R. 7011.8150	Initial Compliance Demonstration: 1. For each engine complying with a requirement to reduce CO emissions and using an oxidation catalyst and using a CPMS, the Permittee shall demonstrate initial compliance with the requirements of 40 CFR pt. 63, subp. ZZZZ by: i. Reducing the average emissions of CO by 70 percent or more, as determined from the initial performance test; and ii. Installing a CPMS to continuously monitor catalyst inlet temperature according to the requirements of 40 CFR Section 63.6625(b); and iii. Recording the catalyst pressure drop and catalyst inlet temperature during the initial performance test. (continued below)
20.0		CD	40 CFR 63.6630(a); 40 CFR pt. 63, subp. ZZZZ, Table 5; Minn. R. 7011.8150	(continued) 2. For each engine complying with a requirement to limit the concentration of CO, using an oxidation catalyst and using a CPMS, the Permittee shall demonstrate initial compliance with the requirements of 40 CFR pt. 63, subp. ZZZZ by: i. Reducing the average CO concentration to less than or equal to 23 parts per million, volumetric dry, at 15 percent oxygen as determined from the initial performance test; and ii. Installing a CPMS to continuously monitor catalyst inlet temperature according to the requirements in 40 CFR Section 63.6625(b); and iii. Recording the catalyst pressure drop and catalyst inlet temperature during the initial performance test. (continued below)

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21.0		CD	40 CFR 63.6630(a); 40 CFR pt. 63, subp. ZZZZ, Table 5; Minn. R. 7011.8150	(continued) 3. For each engine complying with a requirement to reduce CO emissions and not using an oxidation catalyst, the Permittee shall demonstrate initial compliance with the requirements of 40 CFR pt. 63, subp. ZZZZ by: i. Reducing the average emissions of CO by 70 percent or more, as determined from the initial performance test; and ii. Installing a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements of 40 CFR 63.6625(b); and iii. Recording the approved operating parameters (if any) during the initial performance test. (continued below)
22.0		CD	40 CFR 63.6630(a); 40 CFR pt. 63, subp. ZZZZ, Table 5; Minn. R. 7011.8150	(continued) 4. For each engine complying with a requirement to limit the concentration of CO and not using an oxidation catalyst, the Permittee shall demonstrate initial compliance with the requirements of 40 CFR pt. 63, subp. ZZZZ by: i. Reducing the average CO concentration to less than or equal to 23 parts per million, volumetric dry, at 15 percent oxygen as determined from the initial performance test; and ii. Installing a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements of 40 CFR Section 63.6625(b); and iii. Recording the approved operating parameters (if any) during the initial performance test. (continued below)
23.0		CD	40 CFR 63.6630(a); 40 CFR pt. 63, subp. ZZZZ, Table 5; Minn. R. 7011.8150	(continued) 5. For each engine complying with a requirement to reduce CO emissions and using a CEMS, the Permittee shall demonstrate initial compliance with the requirements of 40 CFR pt. 63, subp. ZZZZ by: i. Installing a CEMS to continuously monitor CO and either oxygen or carbon dioxide at both the inlet and outlet of the oxidation catalyst according to the requirements of 40 CFR Section 63.6625(a); and ii. Conducting a performance evaluation of the CEMS using Performance Specifications 3 and 4A of 40 CFR pt. 60, Appendix B; and iii. Demonstrating that the average reduction of CO calculated using 40 CFR Section 63.6620 equals or exceeds 70 percent. The initial test comprises the first 4-hour period after successful validation of the CEMS. Compliance is based on the average percent reduction achieved during the 4-hour period. (continued below)
24.0		CD	40 CFR 63.6630(a); 40 CFR pt. 63, subp. ZZZZ, Table 5; Minn. R. 7011.8150	(continued) 6. For each engine complying with a requirement to limit the concentration of CO and using a CEMS, the Permittee shall demonstrate initial compliance with the requirements of 40 CFR pt. 63, subp. ZZZZ by: i. Installing a CEMS to continuously monitor CO and either oxygen or carbon dioxide at the outlet of the oxidation catalyst according to the requirements of 40 CFR Section 63.6625(a); and ii. Conducting a performance evaluation of the CEMS using Performance Specifications 3 and 4A of 40 CFR pt. 60, Appendix B; and iii. Demonstrating that the average concentration of CO calculated using 40 CFR Section 63.6620 is less than or equal to 23 parts per million, volumetric dry, at 15 percent oxygen. The initial test comprises the first 4-hour period after successful validation of the CEMS. Compliance is based on the average concentration measured during the 4-hour period.
25.0		CD	40 CFR Section 63.6640(a); Minn. R. 7011.8150	The Permittee shall demonstrate continuous compliance with each emission limitation and operating limitation in Tables 2b and 2d of 40 CFR pt. 63, subp. ZZZZ that apply according to methods specified in Table 6 of 40 CFR pt. 63, subp. ZZZZ.

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26.0		CD	40 CFR Section 63.6640; 40 CFR pt. 63, subp. ZZZZ, Table 6; Minn. R. 7011.8150	Continuous Compliance Demonstration: 1. For each engine complying with a requirement to reduce CO emissions or limit the concentration of CO in the exhaust and using a CEMS, the Permittee shall demonstrate continuous compliance with the requirements of 40 CFR pt. 63, subp. ZZZZ by: i. Collecting the monitoring data according to 40 CFR Section 63.6625(a), reducing the measurements to 1-hour averages, calculating the percent reduction or concentration of CO emissions according to 40 CFR Section 63.6620; and ii. Demonstrating that the catalyst achieves the required percent reduction of CO emissions over the 4-hour averaging period, or that the emissions remain at or below the CO concentration limit; and iii. Conduction an annual RATA of your CEMS using Performance Specifications 3 and 4A of 40 CFR part 60, Appendix B, as well as daily and periodic data quality checks in accordance with 40 CFR part 60, Appendix F, procedure 1. (continued below)
27.0		CD	40 CFR Section 63.6640(a); 40 CFR pt. 63, subp. ZZZZ, Table 6; Minn. R. 7011.8150	(continued) 2. For each engine complying with a requirement to reduce CO emissions or limit the concentration of CO in the exhaust and using an oxidation catalyst, the Permittee shall demonstrate continuous compliance with the requirements of 40 CFR pt. 63, subp. ZZZZ by: i. Conducting performance tests every 8,760 hours or 3 years, whichever comes first, for CO to demonstrate that the required CO percent reduction is achieved or that the emissions remain at or below the CO concentration limit; and ii. Collecting the catalyst inlet temperature data according to Section 63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test. (continued below)
28.0		CD	40 CFR Section 63.6640(a); 40 CFR pt. 63, subp. ZZZZ, Table 6; Minn. R. 7011.8150	(continued) 3. For each engine complying with a requirement to reduce CO emissions or limit the concentration of CO in the exhaust and not using an oxidation catalyst, the Permittee shall demonstrate continuous compliance with the requirements of 40 CFR pt. 63, subp. ZZZZ by: i. Conducting performance tests every 8,760 hours or 3 years, whichever comes first, for CO, to demonstrate that the required 70 percent reduction is achieved or that your emissions remain at or below the 23 parts per million, dry volumetric concentration limit. ii. Collecting the approved operating parameter (if any) data according to 40 CFR Section 63.6625(b). iii. Reducing the data to 4-hour rolling averages. iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
29.0		CD	40 CFR Section 63.6665 and Table 8 to Subpart ZZZZ of Part 63; 40 CFR Section 63.1 - 63.15; Minn. R. 7011.8150	The Permittee shall comply with the General Provisions in 40 CFR Section 63.1 through 63.15, as applicable.
30.0		CD	Minn. R. 7005.0100, subp. 35a	Fuel type: Natural gas and No. 2 fuel oil (dual fuel), or No. 2 fuel oil only.
31.0		CD	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080	The exhaust stacks will have the following dimensions: Stack Height: greater than or equal to 98.4 feet (30.0 m) high; Stack Diameter: less than or equal to 20 inches (0.5 m) of inside diameter.
32.0		CD	hdr	PERFORMANCE TESTING REQUIREMENTS - CO
33.0		S/A	40 CFR Section 63.6612(a); Minn. R. 7011.8150	Initial Performance Test: due 180 days after 05/03/2013 and according to the provisions in 40 CFR Section 63.79(a)(2), to measure emissions of carbon monoxide.

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34.0		S/A	40 CFR Section 63.6615; 40 CFR pt. 63, subp. ZZZZ, Table 3; 40 CFR Section 63.6620; Minn. R. 7011.8150	Performance Test: due before end of each 36 months following Initial Performance Test or 8,760 hours of operation following the Initial Performance Test, whichever comes first. The first subsequent performance test is due 36 months or 8,760 hours of operation (whichever comes first) after the initial performance test. Subsequent testing shall be conducted to determine CO reduction according to the requirements of 40 CFR pt. 63, subp. ZZZZ, Tables 3 and 4, and 40 CFR Section 63.6620.
35.0		CD	40 CFR Section 63.6612(b); Minn. R. 7011.8150	An initial performance test on units for which a performance test has been previously conducted is not required if the test meets all of the conditions described below: 1) The test must have been conducted using the same methods specified in 40 CFR pt. 63, subp. ZZZZ, and these methods must have been followed correctly. 2) The test must not be older than 2 years. 3) The test must be reviewed and accepted by the Administrator. 4) Either no process or equipment changes have been made since the test was performed, or the owner or operator must be able to demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite process or equipment changes.
36.0		CD	40 CFR Section 63.6612(a); 40 CFR Section 63.6620(a), (b) and (d); 40 CFR pt. 63, subp. ZZZZ, Tables 3 and 4; Minn. R. 7011.8150	The Permittee shall conduct each performance test in Tables 3 and 4 of 40 CFR pt. 63, subp. ZZZZ that applies. Each performance test shall be conducted according to the requirements that are specified in Table 4 of 40 CFR pt. 63, subp. ZZZZ. The Permittee shall conduct three separate test runs for each performance test required in this section, as specified in 40 CFR Section 63.7(e)(3). Each test run shall last at least 1 hour.
37.0		CD	40 CFR Section 63.6620(e); Minn. R. 7011.8150	The Permittee shall determine compliance with the percent reduction requirement according to the procedures in 40 CFR Section 63.6620(e)(1) as described in Appendix D of this permit. The Permittee shall normalize the carbon monoxide concentrations at the inlet and outlet of the control device to a dry basis and to 15 percent oxygen, or an equivalent percent carbon dioxide. If pollutant concentrations are to be corrected to 15 percent oxygen and carbon dioxide concentration is measured in lieu of oxygen concentration measurement, a carbon dioxide correction factor is needed. The Permittee shall calculate the carbon dioxide correction factor as described in paragraphs (e)(2)(i) through (iii) of 40 CFR Section 63.6620 and in Appendix D.
38.0		CD	40 CFR Section 63.6620(f); Minn. R. 7011.8150	If the Permittee is complies with the emission limitation to reduce CO and is not using an oxidation catalyst, the Permittee shall petition the Administrator for operating limitations to be established during the initial performance test and continuously monitored thereafter; or for approval of no operating limitation. The Permittee shall not conduct the initial performance test until after the petition has been approved by the Administrator.
39.0		CD	40 CFR Section 63.6620(g); Minn. R. 7011.8150	If the Permittee petitions the Administrator for approval of operating limitations, the petition shall include the information described in paragraphs (g)(1) through (5) of 40 CFR Section 63.6620.
40.0		CD	40 CFR Section 63.6620(h); Minn. R. 7011.8150	If the Permittee petitions the Administrator for approval of no operating limitations, the petition shall include the information described in paragraphs (h)(1) through (7) of 40 CFR Section 63.6620.
41.0		CD	40 CFR Section 63.6620(i); Minn. R. 7011.8150	The engine percent load during a performance test shall be determined by documenting the calculations, assumptions, and measurement devices used to measure or estimate the percent load in a specific application. A written report of the average percent load determination shall be included in the notification of compliance status. The following information shall be included in the written report: the engine model number, the engine manufacturer, the year of purchase, the manufacturer's site-rated brake horsepower, the ambient temperature, pressure, and humidity during the performance test, and all assumptions that were made to estimate or calculate percent load during the performance test shall be clearly explained. If measurement devices such as flow meters, kilowatt meters, beta analyzers, stain gauges, etc. are used, the model number of the measurement device and an estimate of its accuracy in percentage of true value shall be provided.

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42.0		CD	40 CFR Section 63.6630(b); Minn. R. 7011.8150	During the initial performance test, the Permittee shall establish each operating limitation in Table 2b of 40 CFR pt. 63, subp. ZZZZ that apply.
43.0		CD	hdr	PERFORMANCE TESTING REQUIREMENTS - NOx
44.0		S/A	Minn. R. 7017.2020, subp. 1	Performance Test: due before end of each 36 months starting 08/31/2010 to evaluate NOx emission factors of 13.20 g/bhp-hr for burning No. 2 fuel oil and 10.29 g/bhp-hr for burning dual fuel. These are equivalent to 83.81 lb/hr and 65.33 lb/hr, respectively. Testing shall be conducted on one engine, and all future tests shall be conducted on an emission unit that has not been tested. After all units have been tested, testing shall be conducted on the unit for which testing is least current. Recurring tests shall not exceed 36 months between test dates.
45.0		CD	hdr	MONITORING REQUIREMENTS
46.0		CD	40 CFR Section 63.6625(a); 40 CFR pt. 63, subp. ZZZZ, Table 5; Minn. R. 7011.8150	If required to install a CEMS as specified in Table 5 of 40 CFR pt. 63, subp. ZZZZ, the Permittee shall install, operate, and maintain a CEMS to monitor CO and either oxygen or carbon dioxide at both the inlet and the outlet of the control device according to the following requirements: 1. Each CEMS shall be installed, operated, and maintained according to the applicable performance specifications of 40 CFR pt. 6 Appendix B. 2. The Permittee shall conduct an initial performance evaluation and an annual relative accuracy test audit (RATA) of each CEMS according to the requirements in 40 CFR Section 63.8 and according to the applicable performance specifications of 40 CFR pt. 60, Appendix B as well as daily and periodic data quality checks in accordance with 40 CFR pt. 60, Appendix F, Procedure 1. (continued below)
47.0		CD	40 CFR Section 63.6625(a); 40 CFR pt. 63, subp. ZZZZ, Table 5; Minn. R. 7011.8150	(continued) 3. As specified in 40 CFR Section 63.8(c)(4)(ii), each CEMS shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. The Permittee shall have a least two data points, with each representing a different 15-minute period, to have a valid hour of data. 4. The CEMS data shall be reduced as specified in 40 CFR Section 63.8(g)(2) and recorded in parts per million or parts per billion (as appropriate for the applicable limitation) at 15 percent oxygen or the equivalent carbon dioxide concentration.
48.0		CD	40 CFR Section 63.6625(b); 40 CFR pt. 63, subp. ZZZZ, Table 5; Minn. R. 7011.8150	If required to install a CPMS as specified in Table 5 of 40 CFR Part 63, Subpart ZZZZ, the Permittee shall install, operate, and maintain each CPMS according to the following requirements: 1. The Permittee shall prepare a site-specific monitoring plan that addresses the monitoring system design, data collection , and the quality assurance and quality control elements outline in paragraphs (b)(1)(i) through (v) of 40 CFR Section 63.6625(b) and in 40 CFR Section 63.8(d). 2. The Permittee shall install, operate, and maintain each CPMS in continuous operation according to the procedures in the site-specific monitoring plan. 3. The CPMS shall collect data at least once every 15 minutes. 4. For a CPMS for measuring temperature range, the temperature sensor shall have a minimum tolerance of 2.8 degrees Celsius or 1 percent of the measurement range, whichever is larger. (continued below)
49.0		CD	40 CFR Section 63.6625(b); 40 CFR pt. 63, subp. ZZZZ, Table 5; Minn. R. 7011.8150	(continued) 5. The Permittee shall conduct the CPMS equipment performance evaluation, system accuracy audits, or other audit procedures specified in the site-specific monitoring plan at least annually. 6. The Permittee shall conduct a performance evaluation of each CPMS in accordance with the sit-specific monitoring plan.

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50.0		CD	40 CFR Section 63.6635; Minn. R. 7011.8150	The Permittee shall monitor and collect data according to the requirements of 40 CFR Section 63.6635. Except for monitor malfunctions, associated repairs, and required quality assurance or control activities, the Permittee shall monitor continuously at all times that the stationary RICE is operating. The Permittee may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels. The Permittee shall use all the valid data collected during all other periods.
51.0		CD	40 CFR Section 63.8(a)(2)	Upon promulgation of a performance specification for the CPMS, the Permittee shall comply with the quality control provisions in 40 CFR Section 63.8(d) and shall conduct the required performance evaluation in 40 CFR Section 63.8(e), unless an alternative monitoring method has been approved under the provisions of 40 CFR Section 63.8(f).
52.0		CD	hdr	RECORDKEEPING REQUIREMENTS
53.0		CD	40 CFR Section 63.6640(a); Minn. R. 7011.8150	The Permittee shall demonstrate continuous compliance with each emission limitation and operating limitation in Table 2d of 40 CFR pt. 63, subp. ZZZZ that apply according to methods specified in Table 6 of 40 CFR pt. 63, subp. ZZZZ.
54.0		CD	40 CFR Section 63.6655(a); Minn. R. 7011.8150	The Permittee shall maintain the following records: 1. A copy of each notification and report submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status submitted, according to the requirement in 40 CFR Section 63.10(b)(2)(xiv). 2. Records of the occurrence and duration of each malfunction of operation or the air pollution control and monitoring equipment. 3. Records of performance tests and performance evaluations as required in 40 CFR Section 63.10(b)(2)(viii). 4. Records of all required maintenance performed on the air pollution control and monitoring equipment. 5. Records of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR Section 63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.
55.0		CD	40 CFR Section 63.6655(b); Minn. R. 7011.8150	The Permittee shall maintain the following records: 1. Records described in 40 CFR Section 63.10(b)(2)(vi) - (xi). 2. Previous (i.e. superseded) versions of the performance evaluation plan as required in 40 CFR Section 63.8(d)(3). 3. Requests for alternatives to the relative accuracy test for CEMS or CPMS as required in 40 CFR Section 63.8(f)(6)(i), if applicable.
56.0		CD	40 CFR Section 63.10(b)(2); Minn. R. 7019.0100, subp. 2(B)	The Permittee shall maintain, at a minimum, the following information: 1. Each period during which a CMS is malfunctioning or inoperative, including out-of-control periods; 2. All required measurements needed to demonstrate compliance with a relevant standard; 3. All results of performance tests, CMS performance evaluations, and opacity and visible emission observations; 4. All measurements as may be necessary to determine the conditions of performance tests and performance evaluations; 5. All CMS calibration checks; 6. All adjustments and maintenance performed on CMS; 7. Any information demonstrating whether a source is meeting the requirements for a waiver of recordkeeping or reporting requirements under 40 CFR pt. 63, subp. A if the Permittee has been granted a waiver under paragraph (f) of this section; (continued below)
57.0		CD	40 CFR Section 63.10(b)(2); Minn. R. 7019.0100, subp. 2(B)	(continued) 8. All emission levels relative to the criterion for obtaining permission to use an alternative to the relative accuracy test, if the source has been granted such permission under 40 CFR Section 63.8(f)(6); and 9. All documentation supporting initial notifications and notifications of compliance status under 40 CFR Section 63.9.

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58.0		CD	40 CFR Section 63.6655(b); Minn. R. 7011.8150	For each CPMS or CEMS, if used, the Permittee shall maintain the following records: 1) Records described in 40 CFR Section 63.10(b)(2)(vi) - (xi). 2) Previous (i.e. superseded) versions of the performance evaluation plan as required in 40 CFR Section 63.8(d)(3). 3) Requests for alternatives to the relative accuracy test for CEMS or CPMS as required in 40 CFR Section 63.8(f)(6)(i), if applicable.
59.0		CD	40 CFR Section 63.6655(d); Minn. R. 7011.8150	The Permittee shall keep the records required in Table 6 of 40 CFR pt. 63, subp. ZZZZ, to show continuous compliance with each emission or operating limitation that applies.
60.0		CD	40 CFR Section 63.6660; 40 CFR Section 63.10(b)(1); Minn. R. 7011.8150; Minn R. 7019.0100, subp. 2(B)	The Permittee shall maintain all records in a form suitable and readily available for expeditious review according to 40 CFR Section 63.10(b)(1). As specified in 40 CFR Section 63.10(b)(1), the Permittee shall keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. The Permittee shall keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR section 63.10(b)(1).
61.0		CD	40 CFR Section 63.10(b)(2); Minn. R. 7019.0100, subp. 2(B)	The Permittee shall maintain, at a minimum, the following information: - Each period during which a CMS is malfunctioning or inoperative, including out-of-control periods; - All required measurements needed to demonstrate compliance with a relevant standard; - All results of performance tests, CMS performance evaluations, and opacity and visible emission observations; - All measurements as may be necessary to determine the conditions of performance tests and performance evaluations; - All CMS calibration checks; - All adjustments and maintenance performed on CMS; - Any information demonstrating whether a source is meeting the requirements for a waiver of recordkeeping or reporting requirements under 40 CFR pt. 63, subp. A if the Permittee has been granted a waiver under paragraph (f) of this section; (continued below)
62.0		CD	40 CFR Section 63.10(b)(2); Minn. R. 7019.0100, subp. 2(B)	(continued) - All emission levels relative to the criterion for obtaining permission to use an alternative to the relative accuracy test, if the source has been granted such permission under 40 CFR Section 63.8(f)(6); and - All documentation supporting initial notifications and notifications of compliance status under 40 CFR Section 63.9.
63.0		CD	40 CFR Section 63.10(c)	For each CMS, if used, the Permittee shall maintain, at a minimum, the following information: 1. All required CMS measurements; 2. The date and time identifying each period during which the CMS was inoperative except for zero and high-level checks; 3. The date and time identifying each period during which the CMS was out of control, as defined in 40 CFR Section 63.8(c)(7); 4. The specific identification of each period of excess emissions and parameter monitoring exceedances, that occurs during startups, shutdowns, and malfunctions; 5. The specific identification of each time period of excess emissions and parameter monitoring exceedances, that occurs during periods other than startups, shutdowns, and malfunctions; 6. The nature and cause of any malfunction (if known); 7. The corrective action taken or preventive measures adopted; 8. The nature of the repairs or adjustments to the CMS that was inoperative or out of control; (continued below)

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64.0		CD	40 CFR Section 63.10(c)	(continued) 9. The total process operating time during the reporting period; and 10. All procedures that are part of a quality control program developed and implemented for CMS under 40 CFR Section 63.8(d).
65.0		CD	Title I Condition: To avoid major source thresholds under 40 CFR Section 52.21; Minn. R. 7007.3000; Minn. R. 7007.0800 subp. 2	Monthly Recordkeeping - NOx Emissions: By the 15th of the month, the Permittee shall calculate and record the following: 1) The total NOx emissions of each engine in the group for the previous calendar month using the formula found in Appendix C. 2) The total GP 001 NOx emissions for the previous month. 3) The 12 month GP 001 rolling sum NOx emissions for the previous 12 month period by summing the monthly NOx emissions data for the previous 12 months.
66.0		CD	Minn. R. 7007.0800, subps. 4 & 5	Fuel Supplier Certification: The Permittee shall obtain and maintain a fuel supplier certification for each shipment of No. 2 fuel oil, certifying that the sulfur content does not exceed 0.05% by weight.
67.0		CD	hdr	REPORTING AND NOTIFICATION REQUIREMENTS
68.0		CD	40 CFR Section 63.6630(c); 40 CFR Section 63.6645(h)(2); Minn. R. 7011.8150	Notification of Compliance Status: due 60 days after Initial Performance Test for each initial compliance demonstration that includes performance test results as specified in 40 CFR Section 63.10(d)(2).
69.0		CD	40 CFR Section 63.6645(a); Minn. R. 7011.8150	The Permittee shall submit all of the notifications in 40 CFR Section 63.7(b) and (c), 63.8(e), (f)(4) and (f)(6), 63.9(b)-(e), and (g) and (h) that apply by the dates specified.
70.0		S/A	40 CFR Section 63.6645(g); 40 CFR Section 63.7(b)(1); 40 CFR Section 63.7(b); 40 CFR Section 63.9(e); Minn. R. 7011.8150	Notification: due 60 days before Performance Test as required in 40 CFR Section 63.7(b)(1) to allow the Administrator, upon request, to review and approve the site-specific test plan required under paragraph (c) of 40 CFR Section 63.7 and to have an observer present during the test.
71.0		CD	40 CFR Section 63.6645(a); 40 CFR Section 63.9(g); Minn. R. 7011.8150	For each CMS, if used: Notification of CMS Performance Evaluation: due 60 days before Performance Test. This notification is due simultaneously with the Notification of Intent to conduct a performance test.
72.0		S/A	40 CFR Section 63.6630(c); 40 CFR Section 63.6645(h)(2); 40 CFR Section 63.9(h); Minn. R. 7011.8150	Notification of compliance status: due 60 days after Initial Performance Test. For each initial compliance demonstration that includes performance test results as specified in 40 CFR Section 63.10(d)(2).
73.0		CD	40 CFR 63.6650(a); 40 CFR pt. 63 supb. ZZZZ, Table 7; Minn. R. 7011.8150	The Permittee shall submit each report in Table 7 of 40 CFR pt. 63, subp. ZZZZ, as applicable.
74.0		S/A	40 CFR Section 63.6650(b)(1)-(4); Minn. R. 7011.8150	Semiannual Compliance Report: due 31 days after end of each calendar half-year starting 05/03/2013. The Report shall cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31. Each subsequent Compliance report shall be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.
75.0		CD	40 CFR Section 63.6650(c); Minn. R. 7011.8150	The Semiannual Compliance report shall contain the information in paragraphs (c)(1) through (c)(6) of 40 CFR Section 63.6650.
76.0		CD	40 CFR Section 63.6650(d); Minn. R. 7011.8150	For each deviation from an emission or operating limitation for an engine where a CMS is not used, the Compliance report shall contain the information in paragraphs (c)(1) through (c)(4) of 40 CFR Section 63.6650 and the information in paragraphs (d)(1) and (d)(2) of 40 CFR Section 63.6650.
77.0		CD	40 CFR Section 63.6650(e); Minn. R. 7011.8150	For each deviation from an emission or operating limitation for an engine where a CMS is used, the Compliance report shall contain the information in paragraphs (c)(1) through (c)(4) and (e)(1) through (e)(12) of 40 CFR Section 63.6650.
78.0		CD	40 CFR Section 63.6650(f); Minn. R. 7011.8150	The Permittee shall report all deviations as defined in 40 CFR pt. 63, subp. ZZZZ in the semiannual monitoring report required by 40 CFR Section 70.6(a)(3)(iii)(A).
79.0		CD	40 CFR Section 63.6640(b); Minn. R. 7011.8150	The Permittee shall report each instance in which the stationary RICE did not meet each applicable emission limitation or operating limitation. These instances are deviations from the emission and operating limitations. These deviations shall be reported according to the requirements in 40 CFR Section 63.6650.

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80.0		CD	40 CFR Section 63.6650(a); 40 CFR pt. 63, subp. ZZZZ, Table 7; Minn. R. 7011.8150	The Permittee shall submit a Compliance Report semiannually according to the requirements in 40 CFR Section 63.6650(b) with the following contents: 1. If there are no deviations from any applicable emission limitations or operating limitations, a statement that there were no deviations from the emission limitations or operating limitations during the reporting period. If there were no periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in 40 CFR Section 63.8(c)(7), a statement that there were not periods during which the CMS was out-of-control during the reporting period; or (continued below)
81.0		CD	40 CFR Section 63.6650(a); 40 CFR pt. 63, subp. ZZZZ, Table 7; Minn. R. 7011.8150	(continued) 2. If there was a deviation from any emission limitation or operating limitation during the reporting period, the information in 40 CFR Section 63.6650(d). If there were periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in 40 CFR Section 63.8(c)(7), the information in 40 CFR Section 63.6650(e); or 3. If there was a malfunction during the reporting period, the information in 40 CFR Section 63.6650(c)(4).
82.0		CD	40 CFR Section 63.6640(e); 40 CFR pt. 63, subp. ZZZZ, Table 8; Minn. R. 7011.8150	The Permittee shall report each instance when the applicable requirements in Table 8 of 40 CFR pt. 63, subp. ZZZZ were not met.

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Subject Item: **GP 002 Caterpillar Engines**

Associated Items: EU 003 IC Engine #3
EU 004 IC Engine #4
EU 005 IC Engine #5
EU 006 IC Engine #6
EU 007 IC Engine #7
SV 003 Stack for EU 003
SV 004 Stack for EU 004
SV 005 Stack for EU 005
SV 006 Stack for EU 006
SV 007 Stack for EU 007

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	SOURCE-SPECIFIC REQUIREMENTS
2.0		CD	40 CFR Section 63.6590(c); Minn. R. 7011.8150	EUs 003-007 are new affected sources as defined under 40 CFR pt. 63, subp. ZZZZ, and the facility is an area source as defined at 40 CFR Section 63.2. The Permittee shall meet the requirements of 40 CFR pt. 63, subp. ZZZZ by meeting the requirements of 40 CFR pt. 60, subp. IIII. No further requirements of 40 CFR pt. 63, subp. ZZZZ apply to EUs 003-007.
3.0		CD	hdr	ACID RAIN REQUIREMENTS
4.0		CD	40 CFR Section 72.6(b)(9)	Each emission unit in GP 002 is a "new utility unit" as defined in 40 CFR Section 72.2, and is exempt from the Acid Rain Program requirements as provided by 40 CFR Section 72.7(a). Although each unit is not an affected unit (as defined in Section 72.2), each unit is subject to the requirements of Section 72.7, Section 72.8, or Section 72.14, as applicable to the exemption.
5.0		CD	40 CFR Section 72.7(d)(3)	Average Annual Sulfur Content Determination: The annual average sulfur content, as a percentage by weight, shall be calculated using the equation at 40 CFR Section 72.7(d)(2) as modified by Section 72.7(d)(3). This equation is in Appendix B of this permit.
6.0		CD	hdr	EMISSION LIMITS
7.0		LIMIT	Minn. R. 7011.2300, subp. 1	Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.
8.0		CD	40 CFR Section 60.4202(a)(2); 40 CFR Section 89.113(a); Minn. R. 7011.3520	Exhaust Opacity: Less than or equal to: 1. 20 percent during the acceleration mode 2. 15 percent during the lugging mode; and 3. 50 percent during the peaks in either the acceleration or lugging modes.
9.0		LIMIT	Minn. R. 7011.2300, subp. 2	Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input . (This is met through the total capacity of the equipment burning No. 2 fuel oil. The total potential to emit is 0.0004 lb/hp-hr or 0.059 lb/MMBtu heat input.)
10.0		LIMIT	40 CFR Section 60.4204(b); 40 CRF Section 60.4201(b); Minn. R. 7011.3520	Nitrogen Oxides: less than or equal to 0.020283 lbs/kilowatt-hour . This limit is equivalent to 9.2 g/kw-hr, or 6.9 g/hp-hr. (This is met through the total capacity of the equipment burning No. 2 fuel oil. The total potential to emit is 41.37 lb/hr or 0.0169 lb/kw-hr.)
11.0		LIMIT	40 CFR Section 60.4204(b); 40 CRF Section 60.4201(b); Minn. R. 7011.3520	Carbon Monoxide: less than or equal to 0.025132 lbs/kilowatt-hour . This limit is equivalent to 11.4 g/kw-hr, or 8.5 g/hp-hr. (This is met through the total capacity of the equipment burning No. 2 fuel oil. The total potential to emit is 4.02 lb/hr or 0.00164 lb/kw-hr.)
12.0		LIMIT	40 CFR Section 60.4204(b); 40 CRF Section 60.4201(b); Minn. R. 7011.3520	Total Particulate Matter: less than or equal to 0.001190 lbs/kilowatt-hour . This limit is equivalent to 0.54 g/kw-hr, or 0.40 g/hp-hr. (This is met through the total capacity of the equipment burning No. 2 fuel oil. The total potential to emit is 0.29 lb/hr or 0.000118 lb/kw-hr.)

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13.0		CD	40 CFR Section 60.4204(b); 40 CRF Section 60.4201(b); Minn. R. 7011.3520	Hydrocarbons: less than or equal to 0.002866 lbs/kilowatt-hour. This limit is equivalent to 1.3 g/kw-hr, or 1.0 g/hp-hr.
14.0		CD	hdr	OPERATING CONDITIONS
15.0		CD	Minn. R. 7005.0100, subp. 35a	Fuel type: No. 2 fuel oil only.
16.0		CD	40 CFR Section 60.4207(b); 40 CFR Section 80.510(b); Minn. R. 7011.3520	Fuel Type: Diesel fuel must meet the requirements of 40 CFR Section 80.510(b) for nonroad diesel fuel which requires that diesel fuel have a maximum sulfur content of 15 parts per million and either a minimum cetaine index of 40 or a maximum aromatic content of 35 volume percent.
17.0		LIMIT	Title I Condition: To avoid major source thresholds under 40 CFR Section 52.21; Minn. R. 7007.3000; Minn. R. 7007.0800 subp. 2	Operating Hours: less than or equal to 8,000 hours/year using 12-month Rolling Sum to be calculated by the 15th day of each month. This limit is for EU's 003-007 combined.
18.0		CD	40 CFR Section 60.4206; 40 CFR Section 60.4211(a); Minn. R. 7011.3520	Emission Standards: Operate and maintain the engine according to the manufacturer's written instructions or procedures approved by the manufacturer for the entire life of the engine. Change only those emission-related settings that are permitted by the manufacturer. Meet the requirements of 40 CFR Part 89, 94, and/or 1068 as applicable. Settings for the unit may not be changed unless permitted by the manufacturer.
19.0		CD	40 CFR Section 60.4211(c); Minn. R. 7011.3520	Engine Certification: The engine must be certified to the emission standards in 40 CFR Section 60.4204(b), for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications.
20.0		CD	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080	The exhaust stacks will have the following dimensions: Stack Height: greater than or equal to 85.3 feet (26.0 m) high; Stack Diameter: less than or equal to 18 inches (0.457 m) of inside diameter.
21.0		CD	40 CFR Section 60.4218 and Table 8 to Subpart IIII of Part 60; 40 CFR Section 60.1 - 60.19; Minn. R. 7011.3520	The Permittee shall comply with the General Provisions in 40 CFR Section 60.1 through 60.19, as applicable.
22.0		CD	hdr	PERFORMANCE TESTING
23.0		S/A	Minn. R. 7017.2020, subp. 1	Performance Test: due before end of each 36 months starting 08/31/2010 to evaluate NOx emission factor of 4.36 g/bhp-hr. This is equivalent to 31.64 lb/hr at 100% load. Testing shall be conducted on one engine, and all future tests shall be conducted on an emission unit that has not been tested. After all units have been tested, testing shall be conducted on the unit for which testing is least current. Recurring testing shall not exceed 36 month between test dates.
24.0		CD	Minn. R. 7007.0800, subp. 2	Application for Major Amendment Required: If any GP 002 NOx emission factor evaluation test measures NOx emissions greater than 5.70 g/bhp-hr, the Permittee shall submit a complete application for a major permit amendment to adjust the GP 002 operating hour limit. The application shall be submitted within 30 days after the Permittee's receipt of the test report (from the testing company), indicating emissions greater than 5.70 g/bhp-hr. The application shall include a proposed revised operating hour limit to restrict GP 001 and GP 002 NOx emissions to a maximum of 235 tons per year (12-month rolling sum basis) based on the actual value of the emission factor that was measured greater than 5.70 g/bhp-hr.
25.0		CD	hdr	RECORDKEEPING REQUIREMENTS
26.0		CD	40 CFR Section 60.4214(a)(2); Minn. R. 7011.3520	Keep records of the following: i) All notifications submitted to comply with this subpart and all documentation supporting any notification. ii) Maintenance conducted on the engine. iii) If the stationary CI internal combustion is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards. iv) If the stationary CI internal combustion is not a certified engine, documentation that the engine meets the emission standards.

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27.0		CD	Title I Condition: To avoid major source thresholds under 40 CFR Section 52.21; Minn. R. 7007.3000; Minn. R. 7007.0800 subp. 2	Monthly Recordkeeping - Operating Hours: By the 15th of the month, the Permittee shall calculate and record the following: 1) The total operating hours of each engine in the group for the previous calendar month. 2) The total GP002 operating hours for the previous month. 3) The 12 month GP002 rolling sum operating hours for the previous 12 month period by summing the monthly operating hours data for the previous 12 months.
28.0		CD	Minn. R. 7007.0800, subps. 4 & 5	Fuel Supplier Certification: The Permittee shall obtain and maintain a fuel supplier certification for each shipment of No. 2 fuel oil, certifying that the sulfur content does not exceed 0.0015% by weight.

MINNESOTA POLLUTION CONTROL AGENCY
AIR QUALITY
520 LAFAYETTE ROAD
ST. PAUL, MN 55155-4194

COMPLIANCE PLAN CD-01

Facility Name: Litchfield city of

Permit Number: 09300001 - 003

Subject Item: EU 010 Bryan Boiler

	NC/ CA	Type	Citation	Requirement
1.0		LIMIT	Minn. R. 7011.0515, subp. 1; Minn. R. 7011.0550	Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input . The potential to emit from the unit is 0.00745 lb/MMBtu due to equipment design and allowable fuels.
2.0		LIMIT	Minn. R. 7011.0515, subp. 2	Opacity: less than or equal to 20 percent except for one six-minute period per hour of not more than 60 percent opacity.
3.0		CD	Minn. R. 7005.0100, subp. 35a	Fuel type: Natural gas only, by design.
4.0		CD	Minn. R. 7007.0800, subp. 4 and 5	Fuel Recordkeeping: The Permittee shall keep records of fuel purchases.