TECHNICAL SUPPORT DOCUMENT
For
DRAFT/PROPOSED AIR EMISSION PERMIT NO. 08500013-004
Part 70 Reissuance

This Technical Support Document (TSD) is intended for all parties interested in the draft/proposed 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/proposed permit.

1. General Information

1.1 Applicant and Stationary Source Location:

Table 1. Applicant and Source Address

Applicant/Address	Stationary Source/Address (SIC Code: 4911)
Glencoe Light & Power Commission 305 11th St E Glencoe, MN McLeod County	Glencoe Light & Power Commission 305 11th St E Glencoe, MN McLeod County
Contact: David Meyer Phone: 320-864-5184 dave@glencoelightandpower.com	

1.2 Facility Description

Glencoe Light & Power Commission owns and operates a municipal electrical plant in Glencoe, Minnesota. The plant provides backup electrical generation for times when their wholesale supplier loses power or when their wholesale supplier is experiencing peak demand periods. Power is generated by four generators of varying size burning diesel by design and four dual fuel generators of various size. All generators are classified as compression ignition reciprocating internal combustion engines (CI-RICE). The primary pollutant of concern at this facility is Nitrogen Oxide (NO_x).The equipment at the facility does not utilize any control equipment to limit emissions.

This permit is a reissuance of the part 70 operating permit.

1.3 Description of any Changes Allowed with this Permit Issuance

No changes to the facility are authorized through this reissuance permit.

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

Permit Number and Issuance Date	Action Authorized
08500013-003 April 4, 2006	Total facility reissuance.

1.5 Facility Emissions:

Table 2. 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	6.61	6.61	6.61	25.6	242	56.7	14,223	32.4	0.05	0.14
Total Facility Actual Emissions (2011)	0.047	0.032	0.040	0.017	30.5	12.5	*	2.18	*	

*Not reported in MN emission inventory.

Table 3. 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:

- Updated to reflect current MPCA templates and standard citation formatting;
- Emission unit data updated in facility description;
- Some requirements have been reordered to help with clarity (i.e., similar requirements are grouped);
- Boiler (EU 013) was removed from insignificant activities and added to permit because it does not qualify as an insignificant activity under Minn. R. 7007.1300 subp. 4;
- Synthetic minor limit for NO_x was lowered from 245 tpy to 240 tpy, based on MPCA current policy;
- Engine (EU 006)has been disconnected and removed from service and was removed from the facility description;

- New language was added at the total facility level to describe Tier 3 requirements for modeling in the event of any minor, moderate, or major changes ;
- Requirements from 40 CFR pt. 63 subp. ZZZZ were added for GP 001 (electric generators);
- Requirements from 40 CFR pt. 63 subp. JJJJJJ were added for EU 013 (boiler);
- GP 003 was added to cover engines qualifying for the New Unit Exemption under the Acid Rain program;
- Requirements in GP 001 that did not apply to all engines were separated between GPs 003, 004, 005, and EU 010;
- Cooling towers previously omitted were added to insignificant activities.

2. Regulatory and/or Statutory Basis

New Source Review

The Permittee has accepted limits on NO_x such that the facility is a minor source under New Source Review. The Permittee has also accepted limits on the sulfur content of fuel such that the facility is a minor source of SO_2 under New Source Review.

Part 70 Permit Program

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

New Source Performance Standards (NSPS)

The Permittee has stated that no New Source Performance Standards are applicable to the operations at this facility. The tanks are all below the required volume and vapor pressure for NSPS to apply as stated in 40 CFR pt. 60 subps. Ka and Kb. All of the stationary reciprocating internal combustion engines at the facility were constructed before the applicability date (July 11, 2005) as given in 40 CFR pt. 60 Section 60.2400, thus 40 CFR pt. 60, subp. IIII does not apply.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The facility is at an area source for hazardous air pollutants (HAPs). The Reciprocating Internal Combustion Engines (RICE) at this facility are subject to a NESHAP, 40 CFR pt. 63, subp. ZZZZ. The boiler at this facility is subject to the NESHAP, 40 CFR pt. 63, subp. JJJJJJ.

Compliance Assurance Monitoring (CAM)

There is no compliance assurance monitoring requirements for the facility as there is no control equipment.

Environmental Review & AERA

This permit reissuance does not authorize any increase in emissions. No environmental review or AERA is required.

Minnesota State Rules

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

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

Table 4. Regulatory Overview of Facility

Level*	Applicable Regulations	Comments:
GP 001 (electric generators)	Title I limit to avoid classification as a major source under 40 CFR § 52.21	Prevention of Significant Deterioration. Operating hours limit taken to avoid major source status under PSD for NO_x.
	Minn. R. 7011.2300	Standards of Performance for Stationary Internal Combustion Engines.
	40 CFR pt. 63, subp. ZZZZ; Minn. R. 7011.8150	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. Determination of applicable limits from rule: • The units are considered to be compression ignition; • All engines are considered to be existing because construction or reconstruction commenced before June 12, 2006; • All engines are larger than 500 Bhp. • All engines are being classified as emergency engines.
GP 003 (new unit exemption generators)	40 CFR § 72.7	New unit exemption for Acid Rain Program.
GP 004 (Dual fuel generators)	Title I restriction to avoid classification as a major source under 40 CFR § 52.21	Fuel limited to natural gas and diesel fuel to limit SO_2 emissions.
EU 013 (boiler)	Minn. R. 7011.0515	Standards of Performance for New Indirect Heating Equipment. Determination of applicable limits from rule: • The unit was constructed in 1981; • The facility is located outside the cities in Table I; • The unit capacity is less than 250 MMBtu/hr; and • The facility has less than 250 MMBtu/hr of indirect heating equipment.

	Minn. R. 7005.0100, subp. 35a	Fuel types limited to natural gas or diesel, by design.
	40 CFR pt. 63, subp. JJJJJJ	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources. Determination of applicable limits from rule: • The unit was constructed prior to June 4, 2010; • The unit burns natural gas or diesel; • The unit's heat input capacity is less than 10 MMBtu per hr.

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

3. Technical Information

3.1 Dispersion Modeling

MPCA policy previously required the facility to complete air dispersion modeling to show modeled compliance with the NO_x national ambient air quality standards (NAAQS). Per MPCA practice, a table of the modeled parameters has been added to the permit as an appendix. The parameters listed in Appendix II of the permit describe the operation of the facility at maximum capacity. In other words, the flow rates and temperatures listed in Appendix I 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. The ambient air quality impact of the facility is predicted to be 93.2 $\mu g/m^3$ for NO_x (annual average), which is 93% of the NAAQS, respectively. As a result remodeling requirements for future changes (see Table 5 below) to the permit will follow Tier 3 requirements for NO_x. Tier 3 requirements include parameter documentation and submittal and approval for major, moderate, and minor amendments with an evaluation at reissuance that addresses changes that did not need an amendment.

Table 5. Remodeling Guidance

% of NAAQS/MAAQS:	**> 90%**	**90% - 75%**	**< 75%**
Allowable Growth Level:	**Low**	**Medium**	**High**
PSD - Limits	Tier 4	Tier 2	Tier 1
PSD – No Limits	Tier 3	Tier 2	Tier 1
Not PSD - Limits	Tier 3	Tier 2	Tier 1
Not PSD – No Limits	Tier 1	Tier 1	Tier 1

3.2 Limit to Avoid PSD

The previous permit contained a NO_x emission limit for GP 001 (electric generators) of 245 tpy. When this limit is combined with the PTE of the boiler the total facility PTE for NO_x emissions was 247 tpy, which is 99% of the prevention of significant deterioration (PSD) threshold. This value is too close to the threshold of 250 tpy to have reasonable assurance that the threshold will not be exceeded if the hourly limit of 348.34 per engine over a 12 month rolling period is exceeded by as little as a couple of hours. To maintain an adequate margin below the threshold the annual NO_x limit was reduced to 240 tpy.

To comply with this limit the Permittee retired EU 006 (engine) by disconnecting the diesel fuel line from the engine and unhooking it from the electrical supply line. Disconnecting EU 006 (engine) reduces the GP 001 limited NO_x amount by 8.2 tpy. This reduces the potential to emit for NO_x at the facility to below the 240 tpy limit imposed by this permit action. The Permittee has given assurance that without the diesel and electrical supply lines connected, the engine cannot be started. Should the Permittee decide to restart the engine, the appropriate amendment must be filed.

3.3 RICE NESHAP

The Permitte has decided to classify all engines as emergency engines.

3.4 Determination of Ignition Type for Dual-Fuel RICE

According to the Federal Register/ Vol. 73, No. 13, Friday, January 18, 2008, a dual-fuel stationary internal combustion engine can be classified as either spark or compression ignition. If dual-fuel engines have an annual average of 2 parts diesel to 100 parts natural gas by energy, then the engine is considered to be spark ignition. If the energy ratio for diesel and natural gas is higher, the engine is considered to be compression ignition.

All of the dual-fuel fired generators (EUs 005, EU 007, EU 008, EU 009) at the facility are automated to adjust the amount of diesel and natural gas being used by the engines. The minimum that the engines can typically run on is 6-7% diesel. This is above the 2% diesel cut-off proposed by the EPA. Each dual fuel engine is therefore considered to be compression ignition.

3.5 Potential to Emit

Attachment 1 to this TSD contains a summary of potential to emit (PTE) for the facility and detailed spreadsheets and supporting information prepared by the MPCA and the Permittee. PTE calculations were performed using AP-42 emissions factors. For this facility it is assumed that $PM_{2.5}$ emissions are equivalent to PM_{10} emissions. This is considered to be a conservative estimate as $PM_{2.5}$ is defined as a subset of PM_{10}. Emission factors for duel fuel engines were used to determine the PTE for all duel-fuel fired generators (EU 005, EU 007, EU 008, and EU 009).

3.6 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 6 summarizes the periodic monitoring requirements for those emission units for which the monitoring required by the applicable requirement is nonexistent or inadequate.

Table 6. Periodic Monitoring

Level*	Requirement (basis)	Additional Monitoring	Discussion
GP 001 (electric generators)	Each engine ≤ 348.34 hr/yr (Limit to avoid NSR) SO_2 ≤ 0.50 lbs/MMBtu (Minn. R. 7011.2300, subp. 2) Opacity ≤ 20% (Minn. R. 7011.2300)	Operating hours recordkeeping and fuel records Fuel supplier certification	Daily and monthly records to show compliance with a 12-month rolling sum annual limit operating hours limit. Monthly records of fuel type and usage. Diesel fuel supplier certification of sulfur content to demonstrate compliance with limit.
GP 003 (new units exempt electric generators)	Sulfur content of fuel ≤ 0.050% (40 CFR §72.7(a)(2); Minn. R.	Recording sulfur content of fuel purchased and fuel sampling each delivery	New unit exemption under Acid Rain program.

Level*	Requirement (basis)	Additional Monitoring	Discussion
	7007.1075)		
EU 013 (boiler)	Total PM ≤ 0.40 lbs/MMBtu Opacity ≤ 20% (Minn. R. 7011.0515)	Monthly records of fuel purchased and fuel type limitations	The natural gas diesel boiler is not likely to exceed the emission limits set by the performance standard.

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

3.7 Insignificant Activities

Glencoe has several operations which are classified as insignificant activities under the MPCA's permitting rules. These are listed in the Appendix II to the permit. None of the insignificant activities qualify as insignificant by the use of control equipment, thus no periodic monitoring is necessary. The permit is required to include periodic monitoring for all emissions units, including insignificant activities, per EPA guidance. The insignificant activities at this facility are only subject to general applicable requirements. Using the criteria outlined earlier in this TSD, the following table documents the justification why no additional periodic monitoring is necessary for the current insignificant activities.

Table 7. Insignificant Activities

Insignificant Activity	General Applicable Emission limit	Discussion
Fuel use: Five space heaters fueled by , natural gas, less than 420,000 Btu/hr	PM ≤ 0.60 or 0.40 lb/MMBtu, depending on year constructed Opacity≤20% with exceptions (Minn. R. 7011.0510/0515)	For these units, based on the fuels used and EPA published emissions factors, it is highly unlikely that they could violate the applicable requirement. In addition, these types of units are typically operated and vented inside a building, so testing for PM or opacity is not feasible.
Individual units with potential emissions less than 2000 lb/yr of certain pollutants	PM, variable depending on airflow Opacity ≤ 20 % (with exceptions) (Minn. R. 7011.0715 and Minn. R.	There are two 30,000 gallon, four 12,000 gallon, and ten diesel storage tanks varying size (360 gallon to 1,000 gallon). The tanks have a combined volume of over 100,000 gallons, but due to the low vapor pressure of diesel, the individual emissions of

Insignificant Activity	General Applicable Emission limit	Discussion
	7011.0610)	VOC (volatile organic compounds) are less than 2,000 pounds per year. All of the diesel storage tanks qualify as insignificant activities under Minn. R. 7007.1300 subpart 3(I). All of the diesel storage tanks that were listed in Delta have been removed from the facility description and included in the insignificant activities list per MPCA policy. The 2-30,000 gallon and 4-12,000 gallon tanks must be equipped with a submerged fill pipe or comply with the requirements of item C per Minn. R. 7011.1505 subp. (3)(B).
Individual units with potential emissions less than 2000 lb/yr of certain pollutants	PM, variable depending on airflow Opacity ≤ 20 % (with exceptions) (Minn. R. 7011.0715)	There are four cooling towers on site used to cool the engines. There is particulate matter suspended in the water droplets that is released upon evaporation. Determining the amount of particulate matter under 10 microns from cooling towers accurately is difficult. A curve based on the size distribution of particulate matter in water droplets compared to total dissolved solids was used to determine the amount of PM_{10} emitted. A drift rate of 0.00088% (AP-42, natural draft) was used; this is a conservative value as many cooling towers are rated below 0.0006% drift rate. The total dissolved solids content that produced the highest PM_{10} emissions was used to determine the PTE of the cooling tower. Based on the conservative drift rate and total dissolved solids (TDS) content used, it is unlikely that the emissions from the cooling towers would be significant. Each of the cooling towers has a PTE significantly less than 2000 lb/yr of PM_{10}.

3.8 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.

3.9 Comments Received

This section will be completed after the public comment period.

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

4. Permit Fee Assessment

This permit action is a reissuance of an individual Part 70; therefore, no application fees apply under Minn. R. 7002.0016, subp. 1.

5. Conclusion

Based on the information provided by Glencoe Light and Power Commission, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 08500013-004 and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Kirsten Baker (permit writer/engineer)
Rachel Studanski (enforcement)
Jim Kolar (stack testing)
Amrill Okonkwo (peer reviewer)

AQ File No. 679; DQ 3314

Attachments:
1. PTE Summary Calculation Spreadsheets
2. Facility Description and CD-01 Forms

ATTACHMENT 1:
PTE SUMMARY AND CALCULATION SPREADSHEETS

				lb/hr								
Pollutant	EU 005	EU 006	EU 007	EU 008	EU 009	EU 010	EU 011	EU 012	EU 013	EU 014		
PM	1.47	0.00	4.42	6.03	7.70	7.60	3.55	3.55	0.08	1.67		
PM_{10}	1.47	0.00	4.42	6.03	7.70	7.60	3.55	3.55	0.08	1.67		
SO_2	7.33	0.00	22.08	30.16	38.50	38.02	2.20	2.20	0.17	2.20		
NOx	46.88	0.00	141.28	192.99	246.40	243.30	184.07	184.07	0.47	120.81		
CO	16.99	0.00	51.21	69.96	89.32	64.63	8.49	8.49	0.27	9.82		
VOC	11.72	0.00	35.32	48.25	61.60	6.84	5.93	5.93	0.02	9.71		
Total HAP	2.31E-02	0.00E+00	6.95E-02	9.49E-02	1.21E-01	1.20E-01	6.86E-02	6.86E-02	6.03E-03	6.86E-02		
				tpy unlimited								
Pollutant	EU 005	EU 006	EU 007	EU 008	EU 009	EU 010	EU 011	EU 012	EU 013	EU 014	Total	
PM	6.42	0.00	19.34	26.42	33.73	33.30	15.55	15.55	0.34	7.33	157.96	
PM_{10}	6.42	0.00	19.34	26.42	33.73	33.30	15.55	15.55	0.34	7.33	157.96	
SO_2	32.08	0.00	96.69	132.08	168.63	166.51	9.64	9.64	0.72	9.64	625.63	
NOx	205.33	0.00	618.81	845.30	1079.23	1065.64	806.23	806.23	2.04	529.15	5957.96	
CO	74.43	0.00	224.32	306.42	391.22	283.06	37.19	37.19	1.18	43.00	1398.00	
VOC	51.33	0.00	154.70	211.33	269.81	29.97	25.97	25.97	0.08	42.51	811.67	
Total HAP	1.01E-01	0.00E+00	3.04E-01	4.16E-01	5.31E-01	5.24E-01	3.00E-01	3.00E-01	2.64E-02	3.00E-01	2.80	
				tpy limited								
Pollutant	EU 005	EU 006	EU 007	EU 008	EU 009	EU 010	EU 011	EU 012	EU 013	EU 014	Total	GP 001
PM	0.26	0.00	0.77	1.05	1.34	1.32	0.62	0.62	0.34	0.29	6.60	6.27
PM_{10}	0.26	0.00	0.77	1.05	1.34	1.32	0.62	0.62	0.34	0.29	6.60	6.27
SO_2	1.28	0.00	3.84	5.25	6.71	6.62	0.38	0.38	0.72	0.38	25.57	24.85
NOx	8.17	0.00	24.61	33.61	42.92	42.37	32.06	32.06	2.04	21.04	238.88	236.84
CO	2.96	0.00	8.92	12.18	15.56	11.26	1.48	1.48	1.18	1.71	56.72	55.54
VOC	2.04	0.00	6.15	8.40	10.73	1.19	1.03	1.03	0.08	1.69	32.35	32.27
Total HAP	4.02E-03	0.00E+00	1.21E-02	1.65E-02	2.11E-02	2.08E-02	1.19E-02	1.19E-02	2.64E-02	1.19E-02	0.137	0.11
Note: PM10 emissions are being used as a conservative estimate of PM2.5 emissions.												

EU 005 - EU 010 limited to 348.34 hr/yr

Pollutant	Distillate Oil Emission Factor lb/mmBtu	dual fuel emission factor lb/mmBtu
PM	1.00E-01	6.20E-02
PM_{10}	1.00E-01	5.73E-02
SO_2	5.00E-01	2.56E-02
NOx	3.20E+00	2.70
CO	8.50E-01	1.16
VOC	9.00E-02	0.80
benzene	7.76E-04	
formaldehyde	7.89E-05	
toluene	2.81E-04	
xylenes	1.93E-04	
acetaldehyde	2.52E-05	
acrolein	7.88E-06	
total PAH except naphthalene	8.20E-05	
naphthalene	1.30E-04	
Total (listed) HAP	1.57E-03	

factors from AP-42 ch 3.4

heat input mmBtu/hr

EU 005	14.65
EU 006	14.65
EU 007	44.15
EU 008	60.31
EU 009	77.00
EU 010	76.03

0.00068 % sulfur by wt in NG

assumes 23.8 ft^3/lb of NG and 20 gr sulfur/100 ft^3

Single 49.30 % (Benzene)

210.76 mmbtu/hr

3.89E-01 lb/hr

natgas	1.70E+00	tpy
diesel	1.42E+00	
total	3.13E+00	

1.24E-01

NatGas HAP	
2.40E-05	2.35E-08
1.80E-06	1.76E-09
1.60E-05	1.57E-08
1.80E-06	1.76E-09
1.80E-06	1.76E-09
2.40E-06	2.35E-09
1.80E-07	1.76E-10
1.20E-06	1.18E-09
1.80E-06	1.76E-09
1.80E-06	1.76E-09
1.20E-06	1.18E-09
1.20E-03	1.18E-06
3.00E-06	2.94E-09
2.08E-06	2.04E-09
7.50E-02	7.35E-05
1.80E+00	1.76E-03
1.80E-06	1.76E-09
6.10E-04	5.98E-07
1.70E-05	1.67E-08
5.00E-06	4.90E-09
3.40E-03	3.33E-06
	1.84E-03

diesel fuel lb/hr

	EU 005	EU 006	EU 007	EU 008	EU 009	EU 010
PM	1.47	0.00	4.42	6.03	7.70	7.60
PM_{10}	1.47	0.00	4.42	6.03	7.70	7.60
SO_2	7.33	0.00	22.08	30.16	38.50	38.02
NOx	46.88	0.00	141.28	192.99	246.40	243.30
CO	12.45	0.00	37.53	51.26	65.45	64.63
VOC	1.32	0.00	3.97	5.43	6.93	6.84
Total (listed) HAP	2.31E-02	0.00E+00	6.95E-02	9.49E-02	1.21E-01	1.20E-01

natural gas/dual fuel lb/hr

	EU 005	EU 006	EU 007	EU 008	EU 009
PM	0.91	0.00	2.74	3.74	4.77
PM_{10}	0.84	0.00	2.53	3.46	4.41
SO_2	0.38	0.00	1.13	1.54	1.97
NOx	39.56	0.00	119.21	162.84	207.90
CO	16.99	0.00	51.21	69.96	89.32
VOC	11.72	0.00	35.32	48.25	61.60
Total HAP					

Determination of operating hours with 240 tpy limit ar retirement of EU 006 from use.

Hours per en	350
Nox limit 240	240
Nox amount (	475929.5963
Nox amount (	237.9647981
Total Nox am	240.0047981

tpy

	EU 005	EU 006	EU 007	EU 008	EU 009	EU 010
PM	6.42	0.00	19.34	26.42	33.73	33.30
PM_{10}	6.42	0.00	19.34	26.42	33.73	33.30
SO_2	32.08	0.00	96.69	132.08	168.63	166.51
NOx	205.33	0.00	618.81	845.30	1079.23	1065.64
CO	54.54	0.00	164.37	224.53	286.67	283.06
VOC	5.78	0.00	17.40	23.77	30.35	29.97
Total (listed) HAP	1.01E-01	0.00E+00	3.04E-01	4.16E-01	5.31E-01	5.24E-01

tpy

	EU 005	EU 006	EU 007	EU 008	EU 009
PM	3.98	0.00	11.99	16.38	20.91
PM_{10}	3.68	0.00	11.08	15.14	19.32
SO_2	1.64	0.00	4.95	6.76	8.64
NOx	173.25	0.00	522.12	713.23	910.60
CO	74.43	0.00	224.32	306.42	391.22
VOC	51.33	0.00	154.70	211.33	269.81
Total HAP					

Single 95.72976839 % (Hexane)

1.63E+00 unlimited tpy

0.064713542 limited tpy

tpy limited

	EU 005	EU 006	EU 007	EU 008	EU 009	EU 010
PM	0.26	0.00	0.77	1.05	1.34	1.32
PM_{10}	0.255	0.00	0.77	1.05	1.34	1.32
SO_2	1.28	0.00	3.84	5.25	6.71	6.62
NOx	8.17	0.00	24.61	33.61	42.92	42.37
CO	2.17	0.00	6.54	8.93	11.40	11.26
VOC	0.23	0.00	0.69	0.95	1.21	1.19
Total (listed) HAP	4.02E-03	0.00E+00	1.21E-02	1.65E-02	2.11E-02	2.08E-02

tpy limited

	EU 005	EU 006	EU 007	EU 008	EU 009
PM	0.16	0.00	0.48	0.65	0.83
PM_{10}	0.15	0.00	0.44	0.60	0.77
SO_2	0.07	0.00	0.20	0.27	0.34
NOx	6.89	0.00	20.76	28.36	36.21
CO	2.96	0.00	8.92	12.18	15.56
VOC	2.04	0.00	6.15	8.40	10.73
Total HAP					

Note: EU 006 was retired to reduce the Nox emission from 245 tpy to 240 tpy. The Nox calculations can be found under "Determination of operating hours with 240 tpy limit and retirement of EU 006 from use"

Glencoe Light and Power Commission

Three Caterpillar 3616 diesel engine generators
EU 011 and EU 012 have same manufacturers emissions data for certain pollutants
43.58 mmBtu/hr; 311.3 gal/hr (@140,000 Btu/gal); 4840 bkW; 5060 ekW for each engine
EU 011 & EU 012

Pollutant	Distillate Oil Emission Factor lb/mmBtu	lb/hr	Uncontrolled PTE TPY	Controlled PTE tpy	tpy @ 348.34 hr
PM	manufacturer's lb/hr data	3.55	15.55	15.55	0.62
PM_{10}	manufacturer's lb/hr data	3.55	15.55	15.55	0.62
SO_2	5.05E-02	2.20	9.64	9.64	0.38
NOx	manufacturer's lb/hr data	184.07	806.23	806.23	32.06
CO	manufacturer's lb/hr data	8.49	37.19	37.19	1.48
VOC	manufacturer's lb/hr data	5.93	25.97	25.97	1.03
benzene	7.76E-04	3.38E-02	1.5E-01	1.5E-01	
formaldehyde	7.89E-05	3.44E-03	1.5E-02	1.5E-02	
toluene	2.81E-04	1.22E-02	5.4E-02	5.4E-02	
xylenes	1.93E-04	8.41E-03	3.7E-02	3.7E-02	
acetaldehyde	2.52E-05	1.10E-03	4.8E-03	4.8E-03	
acrolein	7.88E-06	3.43E-04	1.5E-03	1.5E-03	
total PAH except naphthalene	8.20E-05	3.57E-03	1.6E-02	1.6E-02	
naphthalene	1.30E-04	5.67E-03	2.5E-02	2.5E-02	
Total (listed) HAP	1.57E-03	6.86E-02	3.00E-01	3.00E-01	1.19E-02

Factors from AP-42 ch. 3-4 10/96, except NOx, PM/PM_{10}, CO, and VOC lb/hr based on emissions data from manufacturer

EU 014

Pollutant	Distillate Oil Emission Factor lb/mmBtu	lb/hr	Uncontrolled PTE TPY	Controlled PTE tpy	tpy @ 348.34 hr
PM	manufacturer's lb/hr data	1.67	7.33	7.33	0.29
PM_{10}	manufacturer's lb/hr data	1.67	7.33	7.33	0.29
SO_2	5.05E-02	2.20	9.64	9.64	0.38
NOx	manufacturer's lb/hr data	120.81	529.15	529.15	21.04
CO	manufacturer's lb/hr data	9.82	43.00	43.00	1.71
VOC	manufacturer's lb/hr data	9.71	42.51	42.51	1.69
benzene	7.76E-04	3.38E-02	1.5E-01	1.5E-01	
formaldehyde	7.89E-05	3.44E-03	1.5E-02	1.5E-02	
toluene	2.81E-04	1.22E-02	5.4E-02	5.4E-02	
xylenes	1.93E-04	8.41E-03	3.7E-02	3.7E-02	
acetaldehyde	2.52E-05	1.10E-03	4.8E-03	4.8E-03	
acrolein	7.88E-06	3.43E-04	1.5E-03	1.5E-03	
total PAH except naphthalene	8.20E-05	3.57E-03	1.6E-02	1.6E-02	
naphthalene	1.30E-04	5.67E-03	2.5E-02	2.5E-02	
Total (listed) HAP	1.57E-03	6.86E-02	3.00E-01	3.00E-01	1.19E-02

Factors from AP-42 ch. 3-4 10/96, except NOx, PM/PM_{10}, CO, and VOC lb/hr based on emissions data from manufacturer

Conversion of manufacturer's emissions data from g/bkW-hr to lb/hr
4840 ekW = 5060 bkW

pollutant	g/bkW-hr @100% load ('do not exceed')	lb/hr	lb/gal	AP-42 (lb/mmBtu)
NOx (as NO)	10.83	120.81	0.388	3.2
CO	0.88	9.82	0.032	0.85
THC	0.87	9.71	0.031	0.09
Particulates	0.15	1.67	0.005	0.1

Glencoe Light and Power Commission

EU 013 boiler - natural gas

heat input capacity		3.26	mmBtu/hr
NG heat content		1020	Btu/scf
	emission factor		
Pollutant	lb/mmscf	lb/hr	tpy
PM	7.6	0.02	0.11
PM10	7.6	0.02	0.11
SO2	0.6	1.92E-03	0.01
NOx	100	0.32	1.40
CO	84	0.27	1.18
VOC	5.5	0.02	0.08
Total HAP	1.8868	6.03E-03	2.64E-02

EU 013 boiler - distillate fuel oil

distillate oil heat content		140	mmBtu/mgal
	emission factor		
Pollutant	lb/mgal	lb/hr	tpy
PM	3.3	0.08	0.34
PM10	3.3	0.08	0.34
SO2	7.1	0.17	0.72
NOx	20	0.47	2.04
CO	5	0.12	0.51
VOC	0.2	4.66E-03	0.02
Total HAP	3.67E-04	8.55E-06	3.74E-05

Worst case emissions

Pollutant	lb/hr	tpy	fuel
PM	0.08	0.34	oil
PM10	0.08	0.34	oil
SO2	0.17	0.72	oil
NOx	0.47	2.04	oil
CO	0.27	1.18	NG
VOC	0.02	0.08	NG
Total HAP	6.03E-03	2.64E-02	NG

Glencoe Light and Power Commission

Greenhouse Gas (GHG) Calculations

Revision Date: 9/9/2012

Unit	kW Rating	GHG Pollutant	GWP	Maximum Hourly Design Rate (MMBTU/hr)	Emission Factor (kg/MMBtu)	Emission Rate (kg/hr)	[Uncontrolled] Emission Rate (lb/hr)	Factor Source (AP-42, ST, Other)	[Uncontrolled] Emission Rate at 8760 hrs/yr (ton/yr)
305 11th Street East, Glencoe, McLeod County, MN 55336									
EU-005	1,360	CO2	1	14.65	5.41E+01	7.92E+02	1.75E+03	TCR Table 12.1 / 40 CFR 98, Subp C	7.65E+03
CI RICE		CH4	21		2.72E-01	3.99E+00	8.79E+00	AP-42, Table 3.4-1	3.85E+01
(Dual-fuel)		N2O	310		1.25E-04	1.83E-03	4.04E-03	40 CFR 98, Subp C	1.77E-02
		HFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		PFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		SF6	23,900		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		CO2e	---		---	8.76E+02	1.93E+03	40 CFR 98, Subp C	**8.463E+03**
EU-005	1,360	CO2	1	14.65	7.40E+01	1.08E+03	2.39E+03	TCR Table 12.1 / 40 CFR 98, Subp C	1.05E+04
CI RICE		CH4	21		4.00E-03	5.86E-02	1.29E-01	TCR, Table 12.5	5.66E-01
(Diesel)		N2O	310		6.00E-04	8.79E-03	1.94E-02	40 CFR 98, Subp C	8.49E-02
		HFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		PFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		SF6	23,900		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		CO2e	---		---	1.09E+03	2.40E+03	40 CFR 98, Subp C	**1.050E+04**
EU-007	4,100	CO2	1	44.15	5.41E+01	2.39E+03	5.26E+03	TCR Table 12.1 / 40 CFR 98, Subp C	2.30E+04
CI RICE		CH4	21		2.72E-01	1.20E+01	2.65E+01	AP-42, Table 3.4-1	1.16E+02
(Dual-fuel)		N2O	310		1.25E-04	5.52E-03	1.22E-02	40 CFR 98, Subp C	5.33E-02
		HFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		PFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		SF6	23,900		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		CO2e	---		---	2.64E+03	5.82E+03	40 CFR 98, Subp C	**2.550E+04**
EU-007	4,100	CO2	1	44.15	7.40E+01	3.27E+03	7.20E+03	TCR Table 12.1 / 40 CFR 98, Subp C	3.15E+04

Unit	kW Rating	GHG Pollutant	GWP	Maximum Hourly Design Rate (MMBTU/hr)	Emission Factor (kg/MMBtu)	Emission Rate (kg/hr)	[Uncontrolled] Emission Rate (lb/hr)	Factor Source (AP-42, ST, Other)	[Uncontrolled] Emission Rate at 8760 hrs/yr (ton/yr)
CI RICE		CH4	21		4.00E-03	1.77E-01	3.89E-01	TCR, Table 12.5	1.71E+00
(Diesel)		N2O	310		6.00E-04	2.65E-02	5.84E-02	40 CFR 98, Subp C	2.56E-01
		HFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		PFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		SF6	23,900		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		CO2e	---		---	3.28E+03	7.23E+03	40 CFR 98, Subp C	**3.165E+04**
EU-008	5,600	CO2	1	60.31	5.41E+01	3.26E+03	7.19E+03	TCR Table 12.1 / 40 CFR 98, Subp C	3.15E+04
CI RICE		CH4	21		2.72E-01	1.64E+01	3.62E+01	AP-42, Table 3.4-1	1.58E+02
(Dual-fuel)		N2O	310		1.25E-04	7.54E-03	1.66E-02	40 CFR 98, Subp C	7.28E-02
		HFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		PFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		SF6	23,900		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		CO2e	---		---	3.61E+03	7.95E+03	40 CFR 98, Subp C	**3.484E+04**
EU-008	5,600	CO2	1	60.31	7.40E+01	4.46E+03	9.83E+03	TCR Table 12.1 / 40 CFR 98, Subp C	4.31E+04
CI RICE		CH4	21		4.00E-03	2.41E-01	5.32E-01	TCR, Table 12.5	2.33E+00
(Diesel)		N2O	310		6.00E-04	3.62E-02	7.98E-02	40 CFR 98, Subp C	3.49E-01
		HFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		PFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		SF6	23,900		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		CO2e	---		---	4.48E+03	9.87E+03	40 CFR 98, Subp C	**4.323E+04**
EU-009	7,150	CO2	1	77.00	5.41E+01	4.16E+03	9.18E+03	TCR Table 12.1 / 40 CFR 98, Subp C	4.02E+04
CI RICE		CH4	21		2.72E-01	2.10E+01	4.62E+01	AP-42, Table 3.4-1	2.02E+02
(Dual-fuel)		N2O	310		1.25E-04	9.63E-03	2.12E-02	40 CFR 98, Subp C	9.29E-02
		HFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		PFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		SF6	23,900		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		CO2e	---		---	4.61E+03	1.02E+04	40 CFR 98, Subp C	**4.448E+04**
EU-009	7,150	CO2	1	77.00	7.40E+01	5.69E+03	1.26E+04	TCR Table 12.1 / 40 CFR 98, Subp C	5.50E+04
CI RICE		CH4	21		4.00E-03	3.08E-01	6.79E-01	TCR, Table 12.5	2.97E+00
(Diesel)		N2O	310		6.00E-04	4.62E-02	1.02E-01	40 CFR 98, Subp C	4.46E-01

Unit	kW Rating	GHG Pollutant	GWP	Maximum Hourly Design Rate (MMBTU/hr)	Emission Factor (kg/MMBtu)	Emission Rate (kg/hr)	[Uncontrolled] Emission Rate (lb/hr)	Factor Source (AP-42, ST, Other)	[Uncontrolled] Emission Rate at 8760 hrs/yr (ton/yr)
		HFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		PFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		SF6	23,900		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		CO2e	---		---	5.72E+03	1.26E+04	40 CFR 98, Subp C	**5.519E+04**
EU-010	7,060	CO2	1	76.03	7.40E+01	5.62E+03	1.24E+04	TCR Table 12.1 / 40 CFR 98, Subp C	5.43E+04
CI RICE		CH4	21		4.00E-03	3.04E-01	6.70E-01	TCR, Table 12.5	2.94E+00
(Diesel)		N2O	310		6.00E-04	4.56E-02	1.01E-01	40 CFR 98, Subp C	4.40E-01
		HFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		PFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		SF6	23,900		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		CO2e	---		---	5.64E+03	1.24E+04	40 CFR 98, Subp C	**5.450E+04**
EU-011	4,840	CO2	1	43.31	7.40E+01	3.20E+03	7.06E+03	TCR Table 12.1 / 40 CFR 98, Subp C	3.09E+04
CI RICE		CH4	21		4.00E-03	1.73E-01	3.82E-01	TCR, Table 12.5	1.67E+00
(Diesel)		N2O	310		6.00E-04	2.60E-02	5.73E-02	40 CFR 98, Subp C	2.51E-01
		HFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		PFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		SF6	23,900		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		CO2e	---		---	3.21E+03	7.09E+03	40 CFR 98, Subp C	**3.104E+04**
EU-012	4,840	CO2	1	43.31	7.40E+01	3.20E+03	7.06E+03	TCR Table 12.1 / 40 CFR 98, Subp C	3.09E+04
CI RICE		CH4	21		4.00E-03	1.73E-01	3.82E-01	TCR, Table 12.5	1.67E+00
(Diesel)		N2O	310		6.00E-04	2.60E-02	5.73E-02	40 CFR 98, Subp C	2.51E-01
		HFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		PFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		SF6	23,900		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		CO2e	---		---	3.21E+03	7.09E+03	40 CFR 98, Subp C	**3.104E+04**
EU-014	4,840	CO2	1	43.31	7.40E+01	3.20E+03	7.06E+03	TCR Table 12.1 / 40 CFR 98, Subp C	3.09E+04
CI RICE		CH4	21		4.00E-03	1.73E-01	3.82E-01	TCR, Table 12.5	1.67E+00
(Diesel)		N2O	310		6.00E-04	2.60E-02	5.73E-02	40 CFR 98, Subp C	2.51E-01
		HFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		PFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00

Unit	kW Rating	GHG Pollutant	GWP	Maximum Hourly Design Rate (MMBTU/hr)	Emission Factor (kg/MMBtu)	Emission Rate (kg/hr)	[Uncontrolled] Emission Rate (lb/hr)	Factor Source (AP-42, ST, Other)	[Uncontrolled] Emission Rate at 8760 hrs/yr (ton/yr)
		SF6	23,900		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		CO2e	---		---	3.21E+03	7.09E+03	40 CFR 98, Subp C	**3.104E+04**
EU-013	---	CO2	1	3.26	5.30E+01	1.73E+02	3.81E+02	TCR Table 12.1 / 40 CFR 98, Subp C	1.67E+03
Boiler		CH4	21		1.00E-03	3.26E-03	7.19E-03	40 CFR 98, Subp C	3.15E-02
(Natural Gas)		N2O	310		9.00E-04	2.93E-03	6.47E-03	TCR, Table 12.5	2.83E-02
		HFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		PFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		SF6	23,900		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		CO2e	---		---	1.74E+02	3.83E+02	40 CFR 98, Subp C	**1.678E+03**
EU-013	---	CO2	1	3.26	7.40E+01	2.41E+02	5.32E+02	TCR Table 12.1 / 40 CFR 98, Subp C	2.33E+03
Boiler		CH4	21		3.00E-03	9.78E-03	2.16E-02	40 CFR 98, Subp C	9.44E-02
(Diesel)		N2O	310		6.00E-04	1.96E-03	4.31E-03	40 CFR 98, Subp C	1.89E-02
		HFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		PFCs	---		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		SF6	23,900		0.00E+00	0.00E+00	0.00E+00	40 CFR 98, Subp C	0.00E+00
		CO2e	---		---	2.42E+02	5.33E+02	40 CFR 98, Subp C	**2.336E+03**
Facility Summary									
		CO2	1				66,090.55		289,476.63
		CH4	21				119.50		523.43
		N2O	310				0.54		2.36
		HFCs	---				0.00		0.00
		PFCs	---				0.00		0.00
		SF6	23,900				0.00		0.00
		CO2e	---				68,767.01		**301,199.51**

Facility Total [Limited] - CO2e **14,223.12**
Facilitty Total [No Limits]-CO2e **301,199.51**

Notes / Assumptions: Dual-fuel engines consume approximately 95% natural gas and 5% diesel (energy input)

Unit	kW Rating	GHG Pollutant	GWP	Maximum Hourly Design Rate (MMBTU/hr)	Emission Factor (kg/MMBtu)	Emission Rate (kg/hr)	[Uncontrolled] Emission Rate (lb/hr)	Factor Source (AP-42, ST, Other)	[Uncontrolled] Emission Rate at 8760 hrs/yr (ton/yr)

1 cubic foot natural gas = 1,028 BTU (40 CFR 98, Subp C)
1 gallon diesel fuel (No. 2) = 138,000 BTU (40 CFR 98, Subp C)
No emission control equipment installed for GHG emissions

			CO2e Largest Emissions independent of fuel source as highlighted in blue		
Unit	[Limited] Energy Input - Proposed (MMBTU/yr)	[Limited] Controlled Emissions (*) (ton/yr)	[Uncontrolled] Emission Rate (lb/hr)	[Uncontrolled] Emission Rate at 8760 hrs/yr (ton/yr)	[Limited] Controlled Emissions (*) (ton/yr)
EU-005	5,103.2	3.04E+02			
CI RICE		1.53E+00	1.85E+02	808.50	32.15
(Dual-fuel)		7.03E-04			
		0.00E+00			
		0.00E+00			
		0.00E+00			
		3.365E+02			
EU-005	5,103.2	4.16E+02	2.39E+03	10462.67	416.05
CI RICE		2.25E-02			
(Diesel)		3.38E-03	6.01E+00	26.31	1.05
		0.00E+00			
		0.00E+00			
		0.00E+00			
		4.176E+02	**2.579E+03**	**1.130E+04**	**4.492E+02**
EU-007	15,379.2	9.17E+02			
CI RICE		4.61E+00	5.56E+02	2436.55	96.89
(Dual-fuel)		2.12E-03			
		0.00E+00			
		0.00E+00			
		0.00E+00			
		1.014E+03			
EU-007	15,379.2	1.25E+03	7.20E+03	31530.83	1253.82

Unit	[Limited] Energy Input - Proposed (MMBTU/yr)	[Limited] Controlled Emissions (*) (ton/yr)	[Uncontrolled] Emission Rate (lb/hr)	[Uncontrolled] Emission Rate at 8760 hrs/yr (ton/yr)	[Limited] Controlled Emissions (*) (ton/yr)
CI RICE		6.78E-02			
(Diesel)		1.02E-02	1.81E+01	79.30	3.15
		0.00E+00			
		0.00E+00			
		0.00E+00			
		1.258E+03	**7.773E+03**	**3.405E+04**	**1.354E+03**
EU-008	21,008.4	1.25E+03			
CI RICE		6.30E+00	7.60E+02	3328.39	132.35
(Dual-fuel)		2.89E-03			
		0.00E+00			
		0.00E+00			
		0.00E+00			
		1.385E+03			
EU-008	21,008.4	1.71E+03	9.83E+03	43071.91	1712.75
CI RICE		9.26E-02			
(Diesel)		1.39E-02	2.47E+01	108.32	4.31
		0.00E+00			
		0.00E+00			
		0.00E+00			
		1.719E+03	**1.062E+04**	**4.651E+04**	**1.849E+03**
EU-009	26,822.2	1.60E+03			
CI RICE		8.05E+00	9.70E+02	4249.48	168.98
(Dual-fuel)		3.70E-03			
		0.00E+00			
		0.00E+00			
		0.00E+00			
		1.769E+03			
EU-009	26,822.2	2.19E+03	1.26E+04	54991.49	2186.73
CI RICE		1.18E-01			
(Diesel)		1.77E-02	3.16E+01	138.30	5.50

Unit	[Limited] Energy Input - Proposed (MMBTU/yr)	[Limited] Controlled Emissions (*) (ton/yr)	[Uncontrolled] Emission Rate (lb/hr)	[Uncontrolled] Emission Rate at 8760 hrs/yr (ton/yr)	[Limited] Controlled Emissions (*) (ton/yr)
		0.00E+00			
		0.00E+00			
		0.00E+00			
		2.195E+03	**1.356E+04**	**5.938E+04**	**2.361E+03**
EU-010	26,484.3	2.16E+03	1.24E+04	54298.74	2159.18
CI RICE		1.17E-01	1.41E+01	61.67	2.45
(Diesel)		1.75E-02	3.12E+01	136.55	5.43
		0.00E+00			
		0.00E+00			
		0.00E+00			
		2.167E+03	**1.244E+04**	**5.450E+04**	**2.167E+03**
EU-011	15,086.6	1.23E+03	7.06E+03	30930.93	1229.96
CI RICE		6.65E-02	8.02E+00	35.13	1.40
(Diesel)		9.98E-03	1.78E+01	77.79	3.09
		0.00E+00			
		0.00E+00			
		0.00E+00			
		1.234E+03	**7.088E+03**	**3.104E+04**	**1.234E+03**
EU-012	15,086.6	1.23E+03	7.06E+03	30930.93	1229.96
CI RICE		6.65E-02	8.02E+00	35.13	1.40
(Diesel)		9.98E-03	1.78E+01	77.79	3.09
		0.00E+00			
		0.00E+00			
		0.00E+00			
		1.234E+03	**7.09E+03**	**3.10E+04**	**1.23E+03**
EU-014	15,086.6	1.23E+03	7.06E+03	30930.93	1229.96
CI RICE		6.65E-02	8.02E+00	35.13	1.40
(Diesel)		9.98E-03	1.78E+01	77.79	3.09
		0.00E+00			
		0.00E+00			

Unit	[Limited] Energy Input - Proposed (MMBTU/yr)	[Limited] Controlled Emissions (*) (ton/yr)	[Uncontrolled] Emission Rate (lb/hr)	[Uncontrolled] Emission Rate at 8760 hrs/yr (ton/yr)	[Limited] Controlled Emissions (*) (ton/yr)
		0.00E+00			
		1.234E+03	**7.09E+03**	**3.10E+04**	**1.23E+03**
EU-013	28,557.6	1.67E+03			
Boiler		3.15E-02			
(Natural Gas)		2.83E-02	2.01E+00	8.78	8.78
		0.00E+00			
		0.00E+00			
		0.00E+00			
		1.678E+03			
EU-013	28,557.6	2.33E+03	5.32E+02	2328.21	2328.21
Boiler		9.44E-02	4.53E-01	1.98	1.98
(Diesel)		1.89E-02			
		0.00E+00			
		0.00E+00			
		0.00E+00			
		2.336E+03	**5.34E+02**	**2.34E+03**	**2.34E+03**
		13,746.62			
		20.90			
		0.12			
		0.00			
		0.00			
		0.00			
		14,223.12	**68,767.01**	**301,199.51**	**14,223.12**

tons/yr
tons/yr

Notes / Assump

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Unit	[Limited] Energy Input - Proposed (MMBTU/yr)	[Limited] Controlled Emissions (*) (ton/yr)	[Uncontrolled] Emission Rate (lb/hr)	[Uncontrolled] Emission Rate at 8760 hrs/yr (ton/yr)	[Limited] Controlled Emissions (*) (ton/yr)

Glencoe Light and Power Commis

Hazardous Air Pollutant (HAP) Emission

Revision Date: 11/5/2012

Unit	kW Rating	bhp Rating	Guaranteed Heat Rate (BTU/kWh)	Maximum Hourly Design Rate (MMBTU/hr)	Pollutant	CAS Number	1990 CAA Listed HAP?	POM?	Emission Factor (lb/unit)	Emission Factor "Unit"
305 11th Street East, Glencoe, McLeod Cour										
EU-005	1,360	---	---	14.65	Acenaphthene	83-32-9		Yes	4.68E-06	MMBTU
(Dual-fuel)					Acenaphthylene	208-96-8		Yes	9.23E-06	MMBTU
					Acetaldehyde	75-07-0	Yes		2.52E-05	MMBTU
					Acrolein	107-02-8	Yes		7.88E-06	MMBTU
					Anthracene	120-12-7		Yes	1.23E-06	MMBTU
					Benzene	71-43-2	Yes		7.76E-04	MMBTU
					Benzo (a) anthracene	56-55-3		Yes	6.22E-07	MMBTU
					Benzo (a) pyrene	50-32-8		Yes	2.57E-07	MMBTU
					Benzo (b) fluoranthene	205-99-2		Yes	1.11E-06	MMBTU
					Benzo (g,h,i) perylene	191-24-2		Yes	5.56E-07	MMBTU
					Benzo (k) fluoranthene	207-08-9		Yes	2.18E-07	MMBTU
					Chrysene	218-01-9		Yes	1.53E-06	MMBTU
					Dibenzo(a,h) anthracene	53-70-3		Yes	3.46E-07	MMBTU
					Fluoranthene	206-44-0		Yes	4.03E-06	MMBTU
					Fluorene	86-73-7		Yes	1.28E-05	MMBTU
					Formaldehyde	50-00-0	Yes		7.89E-05	MMBTU
					Indeno(1,2,3-cd)pyrene	193-39-5		Yes	4.14E-07	MMBTU
					Isomers of xylene	1330-20-7	Yes		1.93E-04	MMBTU
					Naphthalene	91-20-3	Yes	Yes	1.30E-04	MMBTU
					Phenanthrene	85-01-8		Yes	4.08E-05	MMBTU
					Pyrene	129-00-0		Yes	3.71E-06	MMBTU
					Toluene	108-88-3	Yes		2.81E-04	MMBTU
EU-005	1,360	---	---	14.65	Acenaphthene	83-32-9		Yes	4.68E-06	MMBTU
(Diesel)					Acenaphthylene	208-96-8		Yes	9.23E-06	MMBTU
					Acetaldehyde	75-07-0	Yes		2.52E-05	MMBTU
					Acrolein	107-02-8	Yes		7.88E-06	MMBTU
					Anthracene	120-12-7		Yes	1.23E-06	MMBTU
					Benzene	71-43-2	Yes		7.76E-04	MMBTU

Unit	kW Rating	bhp Rating	Guaranteed Heat Rate (BTU/kWh)	Maximum Hourly Design Rate (MMBTU/hr)	Pollutant	CAS Number	1990 CAA Listed HAP?	POM?	Emission Factor (lb/unit)	Emission Factor "Unit"
					Benzo (a) anthracene	56-55-3		Yes	6.22E-07	MMBTU
					Benzo (a) pyrene	50-32-8		Yes	2.57E-07	MMBTU
					Benzo (b) fluoranthene	205-99-2		Yes	1.11E-06	MMBTU
					Benzo (g,h,i) perylene	191-24-2		Yes	5.56E-07	MMBTU
					Benzo (k) fluoranthene	207-08-9		Yes	2.18E-07	MMBTU
					Chrysene	218-01-9		Yes	1.53E-06	MMBTU
					Dibenzo(a,h) anthracene	53-70-3		Yes	3.46E-07	MMBTU
					Fluoranthene	206-44-0		Yes	4.03E-06	MMBTU
					Fluorene	86-73-7		Yes	1.28E-05	MMBTU
					Formaldehyde	50-00-0	Yes		7.89E-05	MMBTU
					Indeno(1,2,3-cd)pyrene	193-39-5		Yes	4.14E-07	MMBTU
					Isomers of xylene	1330-20-7	Yes		1.93E-04	MMBTU
					Naphthalene	91-20-3	Yes	Yes	1.30E-04	MMBTU
					Phenanthrene	85-01-8		Yes	4.08E-05	MMBTU
					Pyrene	129-00-0		Yes	3.71E-06	MMBTU
					Toluene	108-88-3	Yes		2.81E-04	MMBTU

Emission Unit Totals						
Acenaphthene	83-32-9					
Acenaphthylene	208-96-8					
Acetaldehyde	75-07-0					
Acrolein	107-02-8					
Anthracene	120-12-7					
Benzene	71-43-2					
Benzo (a) anthracene	56-55-3					
Benzo (a) pyrene	50-32-8					
Benzo (b) fluoranthene	205-99-2					
Benzo (g,h,i) perylene	191-24-2					
Benzo (k) fluoranthene	207-08-9					
Chrysene	218-01-9					
Dibenzo(a,h) anthracene	53-70-3					
Fluoranthene	206-44-0					
Fluorene	86-73-7					
Formaldehyde	50-00-0					
Indeno(1,2,3-cd)pyrene	193-39-5					

Unit	kW Rating	bhp Rating	Guaranteed Heat Rate (BTU/kWh)	Maximum Hourly Design Rate (MMBTU/hr)	Pollutant	CAS Number	1990 CAA Listed HAP?	POM?	Emission Factor (lb/unit)	Emission Factor "Unit"
					Isomers of xylene	1330-20-7				
					Naphthalene	91-20-3				
					Phenanthrene	85-01-8				
					Pyrene	129-00-0				
					Toluene	108-88-3				
					Sum of HAP's					
					Highest HAP	**71-43-2**	**(Benzene)**			

Notes/Assumptions: 1. Emission Factors from AP-42 - Large Stationary Diesel and All Stationary Dual-fuel Engines - 10/1996

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Calculations

[Uncontrolled] Emission Rate (lb/hr)	[Uncontrolled] Emission Rate at 8760 hrs/yr (ton/yr)	Factor Source (AP-42, ST, Other)	Control Efficiency (%)	[Controlled] Emission Rate (lb/hr)	[Controlled] Emission Rate at 8760 hrs/yr (ton/yr)	[Limited] Energy Input - Proposed (MMBTU/yr)	[Limited] Controlled Emissions (*) (ton/yr)
ıty, MN 55336							
6.86E-05	3.00E-04	AP-42, Table 3.4-4	0.0	6.86E-05	3.00E-04	5,103.2	1.19E-05
1.35E-04	5.92E-04	AP-42, Table 3.4-4	0.0	1.35E-04	5.92E-04		2.36E-05
3.69E-04	1.62E-03	AP-42, Table 3.4-3	0.0	3.69E-04	1.62E-03		6.43E-05
1.15E-04	5.06E-04	AP-42, Table 3.4-3	0.0	1.15E-04	5.06E-04		2.01E-05
1.80E-05	7.89E-05	AP-42, Table 3.4-4	0.0	1.80E-05	7.89E-05		3.14E-06
1.14E-02	4.98E-02	AP-42, Table 3.4-3	0.0	1.14E-02	4.98E-02		1.98E-03
9.11E-06	3.99E-05	AP-42, Table 3.4-4	0.0	9.11E-06	3.99E-05		1.59E-06
3.77E-06	1.65E-05	AP-42, Table 3.4-4	0.0	3.77E-06	1.65E-05		6.56E-07
1.63E-05	7.12E-05	AP-42, Table 3.4-4	0.0	1.63E-05	7.12E-05		2.83E-06
8.15E-06	3.57E-05	AP-42, Table 3.4-4	0.0	8.15E-06	3.57E-05		1.42E-06
3.19E-06	1.40E-05	AP-42, Table 3.4-4	0.0	3.19E-06	1.40E-05		5.56E-07
2.24E-05	9.82E-05	AP-42, Table 3.4-4	0.0	2.24E-05	9.82E-05		3.90E-06
5.07E-06	2.22E-05	AP-42, Table 3.4-4	0.0	5.07E-06	2.22E-05		8.83E-07
5.90E-05	2.59E-04	AP-42, Table 3.4-4	0.0	5.90E-05	2.59E-04		1.03E-05
1.88E-04	8.21E-04	AP-42, Table 3.4-4	0.0	1.88E-04	8.21E-04		3.27E-05
1.16E-03	5.06E-03	AP-42, Table 3.4-3	0.0	1.16E-03	5.06E-03		2.01E-04
6.07E-06	2.66E-05	AP-42, Table 3.4-4	0.0	6.07E-06	2.66E-05		1.06E-06
2.83E-03	1.24E-02	AP-42, Table 3.4-3	0.0	2.83E-03	1.24E-02		4.92E-04
1.90E-03	8.34E-03	AP-42, Table 3.4-4	0.0	1.90E-03	8.34E-03		3.32E-04
5.98E-04	2.62E-03	AP-42, Table 3.4-4	0.0	5.98E-04	2.62E-03		1.04E-04
5.44E-05	2.38E-04	AP-42, Table 3.4-4	0.0	5.44E-05	2.38E-04		9.47E-06
4.12E-03	1.80E-02	AP-42, Table 3.4-3	0.0	4.12E-03	1.80E-02		7.17E-04
6.86E-05	3.00E-04	AP-42, Table 3.4-4	0.0	6.86E-05	3.00E-04	5,103.2	1.19E-05
1.35E-04	5.92E-04	AP-42, Table 3.4-4	0.0	1.35E-04	5.92E-04		2.36E-05
3.69E-04	1.62E-03	AP-42, Table 3.4-3	0.0	3.69E-04	1.62E-03		6.43E-05
1.15E-04	5.06E-04	AP-42, Table 3.4-3	0.0	1.15E-04	5.06E-04		2.01E-05
1.80E-05	7.89E-05	AP-42, Table 3.4-4	0.0	1.80E-05	7.89E-05		3.14E-06
1.14E-02	4.98E-02	AP-42, Table 3.4-3	0.0	1.14E-02	4.98E-02		**1.98E-03**

[Uncontrolled] Emission Rate (lb/hr)	[Uncontrolled] Emission Rate at 8760 hrs/yr (ton/yr)	Factor Source (AP-42, ST, Other)	Control Efficiency (%)	[Controlled] Emission Rate (lb/hr)	[Controlled] Emission Rate at 8760 hrs/yr (ton/yr)	[Limited] Energy Input - Proposed (MMBTU/yr)	[Limited] Controlled Emissions (*) (ton/yr)
9.11E-06	3.99E-05	AP-42, Table 3.4-4	0.0	9.11E-06	3.99E-05		1.59E-06
3.77E-06	1.65E-05	AP-42, Table 3.4-4	0.0	3.77E-06	1.65E-05		6.56E-07
1.63E-05	7.12E-05	AP-42, Table 3.4-4	0.0	1.63E-05	7.12E-05		2.83E-06
8.15E-06	3.57E-05	AP-42, Table 3.4-4	0.0	8.15E-06	3.57E-05		1.42E-06
3.19E-06	1.40E-05	AP-42, Table 3.4-4	0.0	3.19E-06	1.40E-05		5.56E-07
2.24E-05	9.82E-05	AP-42, Table 3.4-4	0.0	2.24E-05	9.82E-05		3.90E-06
5.07E-06	2.22E-05	AP-42, Table 3.4-4	0.0	5.07E-06	2.22E-05		8.83E-07
5.90E-05	2.59E-04	AP-42, Table 3.4-4	0.0	5.90E-05	2.59E-04		1.03E-05
1.88E-04	8.21E-04	AP-42, Table 3.4-4	0.0	1.88E-04	8.21E-04		3.27E-05
1.16E-03	5.06E-03	AP-42, Table 3.4-3	0.0	1.16E-03	5.06E-03		2.01E-04
6.07E-06	2.66E-05	AP-42, Table 3.4-4	0.0	6.07E-06	2.66E-05		1.06E-06
2.83E-03	1.24E-02	AP-42, Table 3.4-3	0.0	2.83E-03	1.24E-02		4.92E-04
1.90E-03	8.34E-03	AP-42, Table 3.4-4	0.0	1.90E-03	8.34E-03		3.32E-04
5.98E-04	2.62E-03	AP-42, Table 3.4-4	0.0	5.98E-04	2.62E-03		1.04E-04
5.44E-05	2.38E-04	AP-42, Table 3.4-4	0.0	5.44E-05	2.38E-04		9.47E-06
4.12E-03	1.80E-02	AP-42, Table 3.4-3	0.0	4.12E-03	1.80E-02		7.17E-04

6.86E-05	3.00E-04			6.86E-05	3.00E-04		1.19E-05
1.35E-04	5.92E-04			1.35E-04	5.92E-04		2.36E-05
3.69E-04	1.62E-03			3.69E-04	1.62E-03		6.43E-05
1.15E-04	5.06E-04			1.15E-04	5.06E-04		2.01E-05
1.80E-05	7.89E-05			1.80E-05	7.89E-05		3.14E-06
1.14E-02	4.98E-02			1.14E-02	4.98E-02		**1.98E-03**
9.11E-06	3.99E-05			9.11E-06	3.99E-05		1.59E-06
3.77E-06	1.65E-05			3.77E-06	1.65E-05		6.56E-07
1.63E-05	7.12E-05			1.63E-05	7.12E-05		2.83E-06
8.15E-06	3.57E-05			8.15E-06	3.57E-05		1.42E-06
3.19E-06	1.40E-05			3.19E-06	1.40E-05		5.56E-07
2.24E-05	9.82E-05			2.24E-05	9.82E-05		3.90E-06
5.07E-06	2.22E-05			5.07E-06	2.22E-05		8.83E-07
5.90E-05	2.59E-04			5.90E-05	2.59E-04		1.03E-05
1.88E-04	8.21E-04			1.88E-04	8.21E-04		3.27E-05
1.16E-03	5.06E-03			1.16E-03	5.06E-03		2.01E-04
6.07E-06	2.66E-05			6.07E-06	2.66E-05		1.06E-06

[Uncontrolled] Emission Rate (lb/hr)	[Uncontrolled] Emission Rate at 8760 hrs/yr (ton/yr)	Factor Source (AP-42, ST, Other)	Control Efficiency (%)	[Controlled] Emission Rate (lb/hr)	[Controlled] Emission Rate at 8760 hrs/yr (ton/yr)	[Limited] Energy Input - Proposed (MMBTU/yr)	[Limited] Controlled Emissions (*) (ton/yr)
2.83E-03	1.24E-02			2.83E-03	1.24E-02		4.92E-04
1.90E-03	8.34E-03			1.90E-03	8.34E-03		3.32E-04
5.98E-04	2.62E-03			5.98E-04	2.62E-03		1.04E-04
5.44E-05	2.38E-04			5.44E-05	2.38E-04		9.47E-06
4.12E-03	1.80E-02			4.12E-03	1.80E-02		7.17E-04
2.31E-02	**1.01E-01**			**2.31E-02**	**1.01E-01**		**4.01E-03**

1.14E-02	**4.98E-02**			**1.14E-02**	**4.98E-02**		**1.98E-03**

Glencoe Light and Power Commis

Hazardous Air Pollutant (HAP) Emission

Revision Date: 11/5/2012

Unit	kW Rating	bhp Rating	Guaranteed Heat Rate (BTU/kWh)	Maximum Hourly Design Rate (MMBTU/hr)	Pollutant	CAS Number	1990 CAA Listed HAP?	POM?	Emission Factor (lb/unit)	Emission Factor "Unit"
305 11th Street East, Glencoe, McLeod Cour										
EU-007	4,100	---	---	44.15	Acenaphthene	83-32-9		Yes	4.68E-06	MMBTU
(Dual-fuel)					Acenaphthylene	208-96-8		Yes	9.23E-06	MMBTU
					Acetaldehyde	75-07-0	Yes		2.52E-05	MMBTU
					Acrolein	107-02-8	Yes		7.88E-06	MMBTU
					Anthracene	120-12-7		Yes	1.23E-06	MMBTU
					Benzene	71-43-2	Yes		7.76E-04	MMBTU
					Benzo (a) anthracene	56-55-3		Yes	6.22E-07	MMBTU
					Benzo (a) pyrene	50-32-8		Yes	2.57E-07	MMBTU
					Benzo (b) fluoranthene	205-99-2		Yes	1.11E-06	MMBTU
					Benzo (g,h,i) perylene	191-24-2		Yes	5.56E-07	MMBTU
					Benzo (k) fluoranthene	207-08-9		Yes	2.18E-07	MMBTU
					Chrysene	218-01-9		Yes	1.53E-06	MMBTU
					Dibenzo(a,h) anthracene	53-70-3		Yes	3.46E-07	MMBTU
					Fluoranthene	206-44-0		Yes	4.03E-06	MMBTU
					Fluorene	86-73-7		Yes	1.28E-05	MMBTU
					Formaldehyde	50-00-0	Yes		7.89E-05	MMBTU
					Indeno(1,2,3-cd)pyrene	193-39-5		Yes	4.14E-07	MMBTU
					Isomers of xylene	1330-20-7	Yes		1.93E-04	MMBTU
					Naphthalene	91-20-3	Yes	Yes	1.30E-04	MMBTU
					Phenanthrene	85-01-8		Yes	4.08E-05	MMBTU
					Pyrene	129-00-0		Yes	3.71E-06	MMBTU
					Toluene	108-88-3	Yes		2.81E-04	MMBTU
EU-007	4,100	---	---	44.15	Acenaphthene	83-32-9		Yes	4.68E-06	MMBTU
(Diesel)					Acenaphthylene	208-96-8		Yes	9.23E-06	MMBTU
					Acetaldehyde	75-07-0	Yes		2.52E-05	MMBTU
					Acrolein	107-02-8	Yes		7.88E-06	MMBTU
					Anthracene	120-12-7		Yes	1.23E-06	MMBTU
					Benzene	71-43-2	Yes		7.76E-04	MMBTU

					Benzo (a) anthracene	56-55-3		Yes	6.22E-07	MMBTU
					Benzo (a) pyrene	50-32-8		Yes	2.57E-07	MMBTU
					Benzo (b) fluoranthene	205-99-2		Yes	1.11E-06	MMBTU
					Benzo (g,h,i) perylene	191-24-2		Yes	5.56E-07	MMBTU
					Benzo (k) fluoranthene	207-08-9		Yes	2.18E-07	MMBTU
					Chrysene	218-01-9		Yes	1.53E-06	MMBTU
					Dibenzo(a,h) anthracene	53-70-3		Yes	3.46E-07	MMBTU
					Fluoranthene	206-44-0		Yes	4.03E-06	MMBTU
					Fluorene	86-73-7		Yes	1.28E-05	MMBTU
					Formaldehyde	50-00-0	Yes		7.89E-05	MMBTU
					Indeno(1,2,3-cd)pyrene	193-39-5		Yes	4.14E-07	MMBTU
					Isomers of xylene	1330-20-7	Yes		1.93E-04	MMBTU
					Naphthalene	91-20-3	Yes	Yes	1.30E-04	MMBTU
					Phenanthrene	85-01-8		Yes	4.08E-05	MMBTU
					Pyrene	129-00-0		Yes	3.71E-06	MMBTU
					Toluene	108-88-3	Yes		2.81E-04	MMBTU

Emission Unit Totals						
	Acenaphthene	83-32-9				
	Acenaphthylene	208-96-8				
	Acetaldehyde	75-07-0				
	Acrolein	107-02-8				
	Anthracene	120-12-7				
	Benzene	71-43-2				
	Benzo (a) anthracene	56-55-3				
	Benzo (a) pyrene	50-32-8				
	Benzo (b) fluoranthene	205-99-2				
	Benzo (g,h,i) perylene	191-24-2				
	Benzo (k) fluoranthene	207-08-9				
	Chrysene	218-01-9				
	Dibenzo(a,h) anthracene	53-70-3				
	Fluoranthene	206-44-0				
	Fluorene	86-73-7				
	Formaldehyde	50-00-0				
	Indeno(1,2,3-cd)pyrene	193-39-5				
	Isomers of xylene	1330-20-7				
	Naphthalene	91-20-3				
	Phenanthrene	85-01-8				
	Pyrene	129-00-0				
	Toluene	108-88-3				
	Sum of HAP's					

Highest HAP	**71-43-2**	**(Benzene)**			

Notes/Assumptions: 1. Emission Factors from AP-42 - Large Stationary Diesel and All Stationary Dual-fuel Engines - 10/1996

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Calculations

[Uncontrolled] Emission Rate (lb/hr)	[Uncontrolled] Emission Rate at 8760 hrs/yr (ton/yr)	Factor Source (AP-42, ST, Other)	Control Efficiency (%)	[Controlled] Emission Rate (lb/hr)	[Controlled] Emission Rate at 8760 hrs/yr (ton/yr)	[Limited] Energy Input - Proposed (MMBTU/yr)	[Limited] Controlled Emissions (*) (ton/yr)
ıty, MN 55336							
2.07E-04	9.05E-04	AP-42, Table 3.4-4	0.0	2.07E-04	9.05E-04	15,379.2	3.60E-05
4.08E-04	1.78E-03	AP-42, Table 3.4-4	0.0	4.08E-04	1.78E-03		7.10E-05
1.11E-03	4.87E-03	AP-42, Table 3.4-3	0.0	1.11E-03	4.87E-03		1.94E-04
3.48E-04	1.52E-03	AP-42, Table 3.4-3	0.0	3.48E-04	1.52E-03		6.06E-05
5.43E-05	2.38E-04	AP-42, Table 3.4-4	0.0	5.43E-05	2.38E-04		9.46E-06
3.43E-02	1.50E-01	AP-42, Table 3.4-3	0.0	3.43E-02	1.50E-01		5.97E-03
2.75E-05	1.20E-04	AP-42, Table 3.4-4	0.0	2.75E-05	1.20E-04		4.78E-06
1.13E-05	4.97E-05	AP-42, Table 3.4-4	0.0	1.13E-05	4.97E-05		1.98E-06
4.90E-05	2.15E-04	AP-42, Table 3.4-4	0.0	4.90E-05	2.15E-04		8.54E-06
2.45E-05	1.08E-04	AP-42, Table 3.4-4	0.0	2.45E-05	1.08E-04		4.28E-06
9.62E-06	4.22E-05	AP-42, Table 3.4-4	0.0	9.62E-06	4.22E-05		1.68E-06
6.75E-05	2.96E-04	AP-42, Table 3.4-4	0.0	6.75E-05	2.96E-04		1.18E-05
1.53E-05	6.69E-05	AP-42, Table 3.4-4	0.0	1.53E-05	6.69E-05		2.66E-06
1.78E-04	7.79E-04	AP-42, Table 3.4-4	0.0	1.78E-04	7.79E-04		3.10E-05
5.65E-04	2.48E-03	AP-42, Table 3.4-4	0.0	5.65E-04	2.48E-03		9.84E-05
3.48E-03	1.53E-02	AP-42, Table 3.4-3	0.0	3.48E-03	1.53E-02		6.07E-04
1.83E-05	8.01E-05	AP-42, Table 3.4-4	0.0	1.83E-05	8.01E-05		3.18E-06
8.52E-03	3.73E-02	AP-42, Table 3.4-3	0.0	8.52E-03	3.73E-02		1.48E-03
5.74E-03	2.51E-02	AP-42, Table 3.4-4	0.0	5.74E-03	2.51E-02		1.00E-03
1.80E-03	7.89E-03	AP-42, Table 3.4-4	0.0	1.80E-03	7.89E-03		3.14E-04
1.64E-04	7.17E-04	AP-42, Table 3.4-4	0.0	1.64E-04	7.17E-04		2.85E-05
1.24E-02	5.43E-02	AP-42, Table 3.4-3	0.0	1.24E-02	5.43E-02		2.16E-03
2.07E-04	9.05E-04	AP-42, Table 3.4-4	0.0	2.07E-04	9.05E-04	15,379.2	3.60E-05
4.08E-04	1.78E-03	AP-42, Table 3.4-4	0.0	4.08E-04	1.78E-03		7.10E-05
1.11E-03	4.87E-03	AP-42, Table 3.4-3	0.0	1.11E-03	4.87E-03		1.94E-04
3.48E-04	1.52E-03	AP-42, Table 3.4-3	0.0	3.48E-04	1.52E-03		6.06E-05
5.43E-05	2.38E-04	AP-42, Table 3.4-4	0.0	5.43E-05	2.38E-04		9.46E-06
3.43E-02	1.50E-01	AP-42, Table 3.4-3	0.0	3.43E-02	1.50E-01		**5.97E-03**

2.75E-05	1.20E-04	AP-42, Table 3.4-4	0.0	2.75E-05	1.20E-04		4.78E-06
1.13E-05	4.97E-05	AP-42, Table 3.4-4	0.0	1.13E-05	4.97E-05		1.98E-06
4.90E-05	2.15E-04	AP-42, Table 3.4-4	0.0	4.90E-05	2.15E-04		8.54E-06
2.45E-05	1.08E-04	AP-42, Table 3.4-4	0.0	2.45E-05	1.08E-04		4.28E-06
9.62E-06	4.22E-05	AP-42, Table 3.4-4	0.0	9.62E-06	4.22E-05		1.68E-06
6.75E-05	2.96E-04	AP-42, Table 3.4-4	0.0	6.75E-05	2.96E-04		1.18E-05
1.53E-05	6.69E-05	AP-42, Table 3.4-4	0.0	1.53E-05	6.69E-05		2.66E-06
1.78E-04	7.79E-04	AP-42, Table 3.4-4	0.0	1.78E-04	7.79E-04		3.10E-05
5.65E-04	2.48E-03	AP-42, Table 3.4-4	0.0	5.65E-04	2.48E-03		9.84E-05
3.48E-03	1.53E-02	AP-42, Table 3.4-3	0.0	3.48E-03	1.53E-02		6.07E-04
1.83E-05	8.01E-05	AP-42, Table 3.4-4	0.0	1.83E-05	8.01E-05		3.18E-06
8.52E-03	3.73E-02	AP-42, Table 3.4-3	0.0	8.52E-03	3.73E-02		1.48E-03
5.74E-03	2.51E-02	AP-42, Table 3.4-4	0.0	5.74E-03	2.51E-02		1.00E-03
1.80E-03	7.89E-03	AP-42, Table 3.4-4	0.0	1.80E-03	7.89E-03		3.14E-04
1.64E-04	7.17E-04	AP-42, Table 3.4-4	0.0	1.64E-04	7.17E-04		2.85E-05
1.24E-02	5.43E-02	AP-42, Table 3.4-3	0.0	1.24E-02	5.43E-02		2.16E-03

2.07E-04	9.05E-04			2.07E-04	9.05E-04		3.60E-05
4.08E-04	1.78E-03			4.08E-04	1.78E-03		7.10E-05
1.11E-03	4.87E-03			1.11E-03	4.87E-03		1.94E-04
3.48E-04	1.52E-03			3.48E-04	1.52E-03		6.06E-05
5.43E-05	2.38E-04			5.43E-05	2.38E-04		9.46E-06
3.43E-02	1.50E-01			3.43E-02	1.50E-01		**5.97E-03**
2.75E-05	1.20E-04			2.75E-05	1.20E-04		4.78E-06
1.13E-05	4.97E-05			1.13E-05	4.97E-05		1.98E-06
4.90E-05	2.15E-04			4.90E-05	2.15E-04		8.54E-06
2.45E-05	1.08E-04			2.45E-05	1.08E-04		4.28E-06
9.62E-06	4.22E-05			9.62E-06	4.22E-05		1.68E-06
6.75E-05	2.96E-04			6.75E-05	2.96E-04		1.18E-05
1.53E-05	6.69E-05			1.53E-05	6.69E-05		2.66E-06
1.78E-04	7.79E-04			1.78E-04	7.79E-04		3.10E-05
5.65E-04	2.48E-03			5.65E-04	2.48E-03		9.84E-05
3.48E-03	1.53E-02			3.48E-03	1.53E-02		6.07E-04
1.83E-05	8.01E-05			1.83E-05	8.01E-05		3.18E-06
8.52E-03	3.73E-02			8.52E-03	3.73E-02		1.48E-03
5.74E-03	2.51E-02			5.74E-03	2.51E-02		1.00E-03
1.80E-03	7.89E-03			1.80E-03	7.89E-03		3.14E-04
1.64E-04	7.17E-04			1.64E-04	7.17E-04		2.85E-05
1.24E-02	5.43E-02			1.24E-02	5.43E-02		2.16E-03
6.95E-02	**3.04E-01**			**6.95E-02**	**3.04E-01**		**1.21E-02**

3.43E-02	**1.50E-01**			**3.43E-02**	**1.50E-01**		**5.97E-03**

Glencoe Light and Power Commis

Hazardous Air Pollutant (HAP) Emission

Revision Date: 11/5/2012

Unit	kW Rating	bhp Rating	Guaranteed Heat Rate (BTU/kWh)	Maximum Hourly Design Rate (MMBTU/hr)	Pollutant	CAS Number	1990 CAA Listed HAP?	POM?	Emission Factor (lb/unit)	Emission Factor "Unit"
305 11th Street East, Glencoe, McLeod Cour										
EU-008	5,600	---	---	60.31	Acenaphthene	83-32-9		Yes	4.68E-06	MMBTU
(Dual-fuel)					Acenaphthylene	208-96-8		Yes	9.23E-06	MMBTU
					Acetaldehyde	75-07-0	Yes		2.52E-05	MMBTU
					Acrolein	107-02-8	Yes		7.88E-06	MMBTU
					Anthracene	120-12-7		Yes	1.23E-06	MMBTU
					Benzene	71-43-2	Yes		7.76E-04	MMBTU
					Benzo (a) anthracene	56-55-3		Yes	6.22E-07	MMBTU
					Benzo (a) pyrene	50-32-8		Yes	2.57E-07	MMBTU
					Benzo (b) fluoranthene	205-99-2		Yes	1.11E-06	MMBTU
					Benzo (g,h,i) perylene	191-24-2		Yes	5.56E-07	MMBTU
					Benzo (k) fluoranthene	207-08-9		Yes	2.18E-07	MMBTU
					Chrysene	218-01-9		Yes	1.53E-06	MMBTU
					Dibenzo(a,h) anthracene	53-70-3		Yes	3.46E-07	MMBTU
					Fluoranthene	206-44-0		Yes	4.03E-06	MMBTU
					Fluorene	86-73-7		Yes	1.28E-05	MMBTU
					Formaldehyde	50-00-0	Yes		7.89E-05	MMBTU
					Indeno(1,2,3-cd)pyrene	193-39-5		Yes	4.14E-07	MMBTU
					Isomers of xylene	1330-20-7	Yes		1.93E-04	MMBTU
					Naphthalene	91-20-3	Yes	Yes	1.30E-04	MMBTU
					Phenanthrene	85-01-8		Yes	4.08E-05	MMBTU
					Pyrene	129-00-0		Yes	3.71E-06	MMBTU
					Toluene	108-88-3	Yes		2.81E-04	MMBTU
EU-008	5,600	---	---	60.31	Acenaphthene	83-32-9		Yes	4.68E-06	MMBTU
(Diesel)					Acenaphthylene	208-96-8		Yes	9.23E-06	MMBTU
					Acetaldehyde	75-07-0	Yes		2.52E-05	MMBTU
					Acrolein	107-02-8	Yes		7.88E-06	MMBTU
					Anthracene	120-12-7		Yes	1.23E-06	MMBTU
					Benzene	71-43-2	Yes		7.76E-04	MMBTU

					Benzo (a) anthracene	56-55-3		Yes	6.22E-07	MMBTU
					Benzo (a) pyrene	50-32-8		Yes	2.57E-07	MMBTU
					Benzo (b) fluoranthene	205-99-2		Yes	1.11E-06	MMBTU
					Benzo (g,h,i) perylene	191-24-2		Yes	5.56E-07	MMBTU
					Benzo (k) fluoranthene	207-08-9		Yes	2.18E-07	MMBTU
					Chrysene	218-01-9		Yes	1.53E-06	MMBTU
					Dibenzo(a,h) anthracene	53-70-3		Yes	3.46E-07	MMBTU
					Fluoranthene	206-44-0		Yes	4.03E-06	MMBTU
					Fluorene	86-73-7		Yes	1.28E-05	MMBTU
					Formaldehyde	50-00-0	Yes		7.89E-05	MMBTU
					Indeno(1,2,3-cd)pyrene	193-39-5		Yes	4.14E-07	MMBTU
					Isomers of xylene	1330-20-7	Yes		1.93E-04	MMBTU
					Naphthalene	91-20-3	Yes	Yes	1.30E-04	MMBTU
					Phenanthrene	85-01-8		Yes	4.08E-05	MMBTU
					Pyrene	129-00-0		Yes	3.71E-06	MMBTU
					Toluene	108-88-3	Yes		2.81E-04	MMBTU

Emission Unit Totals						
	Acenaphthene	83-32-9				
	Acenaphthylene	208-96-8				
	Acetaldehyde	75-07-0				
	Acrolein	107-02-8				
	Anthracene	120-12-7				
	Benzene	71-43-2				
	Benzo (a) anthracene	56-55-3				
	Benzo (a) pyrene	50-32-8				
	Benzo (b) fluoranthene	205-99-2				
	Benzo (g,h,i) perylene	191-24-2				
	Benzo (k) fluoranthene	207-08-9				
	Chrysene	218-01-9				
	Dibenzo(a,h) anthracene	53-70-3				
	Fluoranthene	206-44-0				
	Fluorene	86-73-7				
	Formaldehyde	50-00-0				
	Indeno(1,2,3-cd)pyrene	193-39-5				
	Isomers of xylene	1330-20-7				
	Naphthalene	91-20-3				
	Phenanthrene	85-01-8				
	Pyrene	129-00-0				
	Toluene	108-88-3				
	Sum of HAP's					

Highest HAP	**71-43-2**	**(Benzene)**			

Notes/Assumptions: 1. Emission Factors from AP-42 - Large Stationary Diesel and All Stationary Dual-fuel Engines - 10/1996

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Calculations

[Uncontrolled] Emission Rate (lb/hr)	[Uncontrolled] Emission Rate at 8760 hrs/yr (ton/yr)	Factor Source (AP-42, ST, Other)	Control Efficiency (%)	[Controlled] Emission Rate (lb/hr)	[Controlled] Emission Rate at 8760 hrs/yr (ton/yr)	[Limited] Energy Input - Proposed (MMBTU/yr)	[Limited] Controlled Emissions (*) (ton/yr)
ıty, MN 55336							
2.82E-04	1.24E-03	AP-42, Table 3.4-4	0.0	2.82E-04	1.24E-03	21,008.4	4.92E-05
5.57E-04	2.44E-03	AP-42, Table 3.4-4	0.0	5.57E-04	2.44E-03		9.70E-05
1.52E-03	6.66E-03	AP-42, Table 3.4-3	0.0	1.52E-03	6.66E-03		2.65E-04
4.75E-04	2.08E-03	AP-42, Table 3.4-3	0.0	4.75E-04	2.08E-03		8.28E-05
7.42E-05	3.25E-04	AP-42, Table 3.4-4	0.0	7.42E-05	3.25E-04		1.29E-05
4.68E-02	2.05E-01	AP-42, Table 3.4-3	0.0	4.68E-02	2.05E-01		8.15E-03
3.75E-05	1.64E-04	AP-42, Table 3.4-4	0.0	3.75E-05	1.64E-04		6.53E-06
1.55E-05	6.79E-05	AP-42, Table 3.4-4	0.0	1.55E-05	6.79E-05		2.70E-06
6.69E-05	2.93E-04	AP-42, Table 3.4-4	0.0	6.69E-05	2.93E-04		1.17E-05
3.35E-05	1.47E-04	AP-42, Table 3.4-4	0.0	3.35E-05	1.47E-04		5.84E-06
1.31E-05	5.76E-05	AP-42, Table 3.4-4	0.0	1.31E-05	5.76E-05		2.29E-06
9.23E-05	4.04E-04	AP-42, Table 3.4-4	0.0	9.23E-05	4.04E-04		1.61E-05
2.09E-05	9.14E-05	AP-42, Table 3.4-4	0.0	2.09E-05	9.14E-05		3.63E-06
2.43E-04	1.06E-03	AP-42, Table 3.4-4	0.0	2.43E-04	1.06E-03		4.23E-05
7.72E-04	3.38E-03	AP-42, Table 3.4-4	0.0	7.72E-04	3.38E-03		1.34E-04
4.76E-03	2.08E-02	AP-42, Table 3.4-3	0.0	4.76E-03	2.08E-02		8.29E-04
2.50E-05	1.09E-04	AP-42, Table 3.4-4	0.0	2.50E-05	1.09E-04		4.35E-06
1.16E-02	5.10E-02	AP-42, Table 3.4-3	0.0	1.16E-02	5.10E-02		2.03E-03
7.84E-03	3.43E-02	AP-42, Table 3.4-4	0.0	7.84E-03	3.43E-02		1.37E-03
2.46E-03	1.08E-02	AP-42, Table 3.4-4	0.0	2.46E-03	1.08E-02		4.29E-04
2.24E-04	9.80E-04	AP-42, Table 3.4-4	0.0	2.24E-04	9.80E-04		3.90E-05
1.69E-02	7.42E-02	AP-42, Table 3.4-3	0.0	1.69E-02	7.42E-02		2.95E-03
2.82E-04	1.24E-03	AP-42, Table 3.4-4	0.0	2.82E-04	1.24E-03	21,008.4	4.92E-05
5.57E-04	2.44E-03	AP-42, Table 3.4-4	0.0	5.57E-04	2.44E-03		9.70E-05
1.52E-03	6.66E-03	AP-42, Table 3.4-3	0.0	1.52E-03	6.66E-03		2.65E-04
4.75E-04	2.08E-03	AP-42, Table 3.4-3	0.0	4.75E-04	2.08E-03		8.28E-05
7.42E-05	3.25E-04	AP-42, Table 3.4-4	0.0	7.42E-05	3.25E-04		1.29E-05
4.68E-02	2.05E-01	AP-42, Table 3.4-3	0.0	4.68E-02	2.05E-01		**8.15E-03**

3.75E-05	1.64E-04	AP-42, Table 3.4-4	0.0	3.75E-05	1.64E-04		6.53E-06
1.55E-05	6.79E-05	AP-42, Table 3.4-4	0.0	1.55E-05	6.79E-05		2.70E-06
6.69E-05	2.93E-04	AP-42, Table 3.4-4	0.0	6.69E-05	2.93E-04		1.17E-05
3.35E-05	1.47E-04	AP-42, Table 3.4-4	0.0	3.35E-05	1.47E-04		5.84E-06
1.31E-05	5.76E-05	AP-42, Table 3.4-4	0.0	1.31E-05	5.76E-05		2.29E-06
9.23E-05	4.04E-04	AP-42, Table 3.4-4	0.0	9.23E-05	4.04E-04		1.61E-05
2.09E-05	9.14E-05	AP-42, Table 3.4-4	0.0	2.09E-05	9.14E-05		3.63E-06
2.43E-04	1.06E-03	AP-42, Table 3.4-4	0.0	2.43E-04	1.06E-03		4.23E-05
7.72E-04	3.38E-03	AP-42, Table 3.4-4	0.0	7.72E-04	3.38E-03		1.34E-04
4.76E-03	2.08E-02	AP-42, Table 3.4-3	0.0	4.76E-03	2.08E-02		8.29E-04
2.50E-05	1.09E-04	AP-42, Table 3.4-4	0.0	2.50E-05	1.09E-04		4.35E-06
1.16E-02	5.10E-02	AP-42, Table 3.4-3	0.0	1.16E-02	5.10E-02		2.03E-03
7.84E-03	3.43E-02	AP-42, Table 3.4-4	0.0	7.84E-03	3.43E-02		1.37E-03
2.46E-03	1.08E-02	AP-42, Table 3.4-4	0.0	2.46E-03	1.08E-02		4.29E-04
2.24E-04	9.80E-04	AP-42, Table 3.4-4	0.0	2.24E-04	9.80E-04		3.90E-05
1.69E-02	7.42E-02	AP-42, Table 3.4-3	0.0	1.69E-02	7.42E-02		2.95E-03

2.82E-04	1.24E-03			2.82E-04	1.24E-03		4.92E-05
5.57E-04	2.44E-03			5.57E-04	2.44E-03		9.70E-05
1.52E-03	6.66E-03			1.52E-03	6.66E-03		2.65E-04
4.75E-04	2.08E-03			4.75E-04	2.08E-03		8.28E-05
7.42E-05	3.25E-04			7.42E-05	3.25E-04		1.29E-05
4.68E-02	2.05E-01			4.68E-02	2.05E-01		**8.15E-03**
3.75E-05	1.64E-04			3.75E-05	1.64E-04		6.53E-06
1.55E-05	6.79E-05			1.55E-05	6.79E-05		2.70E-06
6.69E-05	2.93E-04			6.69E-05	2.93E-04		1.17E-05
3.35E-05	1.47E-04			3.35E-05	1.47E-04		5.84E-06
1.31E-05	5.76E-05			1.31E-05	5.76E-05		2.29E-06
9.23E-05	4.04E-04			9.23E-05	4.04E-04		1.61E-05
2.09E-05	9.14E-05			2.09E-05	9.14E-05		3.63E-06
2.43E-04	1.06E-03			2.43E-04	1.06E-03		4.23E-05
7.72E-04	3.38E-03			7.72E-04	3.38E-03		1.34E-04
4.76E-03	2.08E-02			4.76E-03	2.08E-02		8.29E-04
2.50E-05	1.09E-04			2.50E-05	1.09E-04		4.35E-06
1.16E-02	5.10E-02			1.16E-02	5.10E-02		2.03E-03
7.84E-03	3.43E-02			7.84E-03	3.43E-02		1.37E-03
2.46E-03	1.08E-02			2.46E-03	1.08E-02		4.29E-04
2.24E-04	9.80E-04			2.24E-04	9.80E-04		3.90E-05
1.69E-02	7.42E-02			1.69E-02	7.42E-02		2.95E-03
9.49E-02	**4.16E-01**			**9.49E-02**	**4.16E-01**		**1.65E-02**

4.68E-02	**2.05E-01**			**4.68E-02**	**2.05E-01**		**8.15E-03**

Glencoe Light and Power Commis

Hazardous Air Pollutant (HAP) Emission

Revision Date: 11/5/2012

Unit	kW Rating	bhp Rating	Guaranteed Heat Rate (BTU/kWh)	Maximum Hourly Design Rate (MMBTU/hr)	Pollutant	CAS Number	1990 CAA Listed HAP?	POM?	Emission Factor (lb/unit)	Emission Factor "Unit"
305 11th Street East, Glencoe, McLeod Cour										
EU-009	7,150	---	---	77.00	Acenaphthene	83-32-9		Yes	4.68E-06	MMBTU
(Dual-fuel)					Acenaphthylene	208-96-8		Yes	9.23E-06	MMBTU
					Acetaldehyde	75-07-0	Yes		2.52E-05	MMBTU
					Acrolein	107-02-8	Yes		7.88E-06	MMBTU
					Anthracene	120-12-7		Yes	1.23E-06	MMBTU
					Benzene	71-43-2	Yes		7.76E-04	MMBTU
					Benzo (a) anthracene	56-55-3		Yes	6.22E-07	MMBTU
					Benzo (a) pyrene	50-32-8		Yes	2.57E-07	MMBTU
					Benzo (b) fluoranthene	205-99-2		Yes	1.11E-06	MMBTU
					Benzo (g,h,i) perylene	191-24-2		Yes	5.56E-07	MMBTU
					Benzo (k) fluoranthene	207-08-9		Yes	2.18E-07	MMBTU
					Chrysene	218-01-9		Yes	1.53E-06	MMBTU
					Dibenzo(a,h) anthracene	53-70-3		Yes	3.46E-07	MMBTU
					Fluoranthene	206-44-0		Yes	4.03E-06	MMBTU
					Fluorene	86-73-7		Yes	1.28E-05	MMBTU
					Formaldehyde	50-00-0	Yes		7.89E-05	MMBTU
					Indeno(1,2,3-cd)pyrene	193-39-5		Yes	4.14E-07	MMBTU
					Isomers of xylene	1330-20-7	Yes		1.93E-04	MMBTU
					Naphthalene	91-20-3	Yes	Yes	1.30E-04	MMBTU
					Phenanthrene	85-01-8		Yes	4.08E-05	MMBTU
					Pyrene	129-00-0		Yes	3.71E-06	MMBTU
					Toluene	108-88-3	Yes		2.81E-04	MMBTU
EU-009	7,150	---	---	77.00	Acenaphthene	83-32-9		Yes	4.68E-06	MMBTU
(Diesel)					Acenaphthylene	208-96-8		Yes	9.23E-06	MMBTU
					Acetaldehyde	75-07-0	Yes		2.52E-05	MMBTU
					Acrolein	107-02-8	Yes		7.88E-06	MMBTU
					Anthracene	120-12-7		Yes	1.23E-06	MMBTU
					Benzene	71-43-2	Yes		7.76E-04	MMBTU

					Benzo (a) anthracene	56-55-3		Yes	6.22E-07	MMBTU
					Benzo (a) pyrene	50-32-8		Yes	2.57E-07	MMBTU
					Benzo (b) fluoranthene	205-99-2		Yes	1.11E-06	MMBTU
					Benzo (g,h,i) perylene	191-24-2		Yes	5.56E-07	MMBTU
					Benzo (k) fluoranthene	207-08-9		Yes	2.18E-07	MMBTU
					Chrysene	218-01-9		Yes	1.53E-06	MMBTU
					Dibenzo(a,h) anthracene	53-70-3		Yes	3.46E-07	MMBTU
					Fluoranthene	206-44-0		Yes	4.03E-06	MMBTU
					Fluorene	86-73-7		Yes	1.28E-05	MMBTU
					Formaldehyde	50-00-0	Yes		7.89E-05	MMBTU
					Indeno(1,2,3-cd)pyrene	193-39-5		Yes	4.14E-07	MMBTU
					Isomers of xylene	1330-20-7	Yes		1.93E-04	MMBTU
					Naphthalene	91-20-3	Yes	Yes	1.30E-04	MMBTU
					Phenanthrene	85-01-8		Yes	4.08E-05	MMBTU
					Pyrene	129-00-0		Yes	3.71E-06	MMBTU
					Toluene	108-88-3	Yes		2.81E-04	MMBTU

Emission Unit Totals						
	Acenaphthene	83-32-9				
	Acenaphthylene	208-96-8				
	Acetaldehyde	75-07-0				
	Acrolein	107-02-8				
	Anthracene	120-12-7				
	Benzene	71-43-2				
	Benzo (a) anthracene	56-55-3				
	Benzo (a) pyrene	50-32-8				
	Benzo (b) fluoranthene	205-99-2				
	Benzo (g,h,i) perylene	191-24-2				
	Benzo (k) fluoranthene	207-08-9				
	Chrysene	218-01-9				
	Dibenzo(a,h) anthracene	53-70-3				
	Fluoranthene	206-44-0				
	Fluorene	86-73-7				
	Formaldehyde	50-00-0				
	Indeno(1,2,3-cd)pyrene	193-39-5				
	Isomers of xylene	1330-20-7				
	Naphthalene	91-20-3				
	Phenanthrene	85-01-8				
	Pyrene	129-00-0				
	Toluene	108-88-3				
	Sum of HAP's					

Highest HAP	**71-43-2**	**(Benzene)**			

Notes/Assumptions: 1. Emission Factors from AP-42 - Large Stationary Diesel and All Stationary Dual-fuel Engines - 10/1996

sion

Calculations

[Uncontrolled] Emission Rate (lb/hr)	[Uncontrolled] Emission Rate at 8760 hrs/yr (ton/yr)	Factor Source (AP-42, ST, Other)	Control Efficiency (%)	[Controlled] Emission Rate (lb/hr)	[Controlled] Emission Rate at 8760 hrs/yr (ton/yr)	[Limited] Energy Input - Proposed (MMBTU/yr)	[Limited] Controlled Emissions (*) (ton/yr)
ıty, MN 55336							
3.60E-04	1.58E-03	AP-42, Table 3.4-4	0.0	3.60E-04	1.58E-03	26,822.2	6.28E-05
7.11E-04	3.11E-03	AP-42, Table 3.4-4	0.0	7.11E-04	3.11E-03		1.24E-04
1.94E-03	8.50E-03	AP-42, Table 3.4-3	0.0	1.94E-03	8.50E-03		3.38E-04
6.07E-04	2.66E-03	AP-42, Table 3.4-3	0.0	6.07E-04	2.66E-03		1.06E-04
9.47E-05	4.15E-04	AP-42, Table 3.4-4	0.0	9.47E-05	4.15E-04		1.65E-05
5.98E-02	2.62E-01	AP-42, Table 3.4-3	0.0	5.98E-02	2.62E-01		1.04E-02
4.79E-05	2.10E-04	AP-42, Table 3.4-4	0.0	4.79E-05	2.10E-04		8.34E-06
1.98E-05	8.67E-05	AP-42, Table 3.4-4	0.0	1.98E-05	8.67E-05		3.45E-06
8.55E-05	3.74E-04	AP-42, Table 3.4-4	0.0	8.55E-05	3.74E-04		1.49E-05
4.28E-05	1.88E-04	AP-42, Table 3.4-4	0.0	4.28E-05	1.88E-04		7.46E-06
1.68E-05	7.35E-05	AP-42, Table 3.4-4	0.0	1.68E-05	7.35E-05		2.92E-06
1.18E-04	5.16E-04	AP-42, Table 3.4-4	0.0	1.18E-04	5.16E-04		2.05E-05
2.66E-05	1.17E-04	AP-42, Table 3.4-4	0.0	2.66E-05	1.17E-04		4.64E-06
3.10E-04	1.36E-03	AP-42, Table 3.4-4	0.0	3.10E-04	1.36E-03		5.40E-05
9.86E-04	4.32E-03	AP-42, Table 3.4-4	0.0	9.86E-04	4.32E-03		1.72E-04
6.08E-03	2.66E-02	AP-42, Table 3.4-3	0.0	6.08E-03	2.66E-02		1.06E-03
3.19E-05	1.40E-04	AP-42, Table 3.4-4	0.0	3.19E-05	1.40E-04		5.55E-06
1.49E-02	6.51E-02	AP-42, Table 3.4-3	0.0	1.49E-02	6.51E-02		2.59E-03
1.00E-02	4.38E-02	AP-42, Table 3.4-4	0.0	1.00E-02	4.38E-02		1.74E-03
3.14E-03	1.38E-02	AP-42, Table 3.4-4	0.0	3.14E-03	1.38E-02		5.47E-04
2.86E-04	1.25E-03	AP-42, Table 3.4-4	0.0	2.86E-04	1.25E-03		4.98E-05
2.16E-02	9.48E-02	AP-42, Table 3.4-3	0.0	2.16E-02	9.48E-02		3.77E-03
3.60E-04	1.58E-03	AP-42, Table 3.4-4	0.0	3.60E-04	1.58E-03	26,822.2	6.28E-05
7.11E-04	3.11E-03	AP-42, Table 3.4-4	0.0	7.11E-04	3.11E-03		1.24E-04
1.94E-03	8.50E-03	AP-42, Table 3.4-3	0.0	1.94E-03	8.50E-03		3.38E-04
6.07E-04	2.66E-03	AP-42, Table 3.4-3	0.0	6.07E-04	2.66E-03		1.06E-04
9.47E-05	4.15E-04	AP-42, Table 3.4-4	0.0	9.47E-05	4.15E-04		1.65E-05
5.98E-02	2.62E-01	AP-42, Table 3.4-3	0.0	5.98E-02	2.62E-01		**1.04E-02**

4.79E-05	2.10E-04	AP-42, Table 3.4-4	0.0	4.79E-05	2.10E-04		8.34E-06
1.98E-05	8.67E-05	AP-42, Table 3.4-4	0.0	1.98E-05	8.67E-05		3.45E-06
8.55E-05	3.74E-04	AP-42, Table 3.4-4	0.0	8.55E-05	3.74E-04		1.49E-05
4.28E-05	1.88E-04	AP-42, Table 3.4-4	0.0	4.28E-05	1.88E-04		7.46E-06
1.68E-05	7.35E-05	AP-42, Table 3.4-4	0.0	1.68E-05	7.35E-05		2.92E-06
1.18E-04	5.16E-04	AP-42, Table 3.4-4	0.0	1.18E-04	5.16E-04		2.05E-05
2.66E-05	1.17E-04	AP-42, Table 3.4-4	0.0	2.66E-05	1.17E-04		4.64E-06
3.10E-04	1.36E-03	AP-42, Table 3.4-4	0.0	3.10E-04	1.36E-03		5.40E-05
9.86E-04	4.32E-03	AP-42, Table 3.4-4	0.0	9.86E-04	4.32E-03		1.72E-04
6.08E-03	2.66E-02	AP-42, Table 3.4-3	0.0	6.08E-03	2.66E-02		1.06E-03
3.19E-05	1.40E-04	AP-42, Table 3.4-4	0.0	3.19E-05	1.40E-04		5.55E-06
1.49E-02	6.51E-02	AP-42, Table 3.4-3	0.0	1.49E-02	6.51E-02		2.59E-03
1.00E-02	4.38E-02	AP-42, Table 3.4-4	0.0	1.00E-02	4.38E-02		1.74E-03
3.14E-03	1.38E-02	AP-42, Table 3.4-4	0.0	3.14E-03	1.38E-02		5.47E-04
2.86E-04	1.25E-03	AP-42, Table 3.4-4	0.0	2.86E-04	1.25E-03		4.98E-05
2.16E-02	9.48E-02	AP-42, Table 3.4-3	0.0	2.16E-02	9.48E-02		3.77E-03

3.60E-04	1.58E-03			3.60E-04	1.58E-03		6.28E-05
7.11E-04	3.11E-03			7.11E-04	3.11E-03		1.24E-04
1.94E-03	8.50E-03			1.94E-03	8.50E-03		3.38E-04
6.07E-04	2.66E-03			6.07E-04	2.66E-03		1.06E-04
9.47E-05	4.15E-04			9.47E-05	4.15E-04		1.65E-05
5.98E-02	2.62E-01			5.98E-02	2.62E-01		**1.04E-02**
4.79E-05	2.10E-04			4.79E-05	2.10E-04		8.34E-06
1.98E-05	8.67E-05			1.98E-05	8.67E-05		3.45E-06
8.55E-05	3.74E-04			8.55E-05	3.74E-04		1.49E-05
4.28E-05	1.88E-04			4.28E-05	1.88E-04		7.46E-06
1.68E-05	7.35E-05			1.68E-05	7.35E-05		2.92E-06
1.18E-04	5.16E-04			1.18E-04	5.16E-04		2.05E-05
2.66E-05	1.17E-04			2.66E-05	1.17E-04		4.64E-06
3.10E-04	1.36E-03			3.10E-04	1.36E-03		5.40E-05
9.86E-04	4.32E-03			9.86E-04	4.32E-03		1.72E-04
6.08E-03	2.66E-02			6.08E-03	2.66E-02		1.06E-03
3.19E-05	1.40E-04			3.19E-05	1.40E-04		5.55E-06
1.49E-02	6.51E-02			1.49E-02	6.51E-02		2.59E-03
1.00E-02	4.38E-02			1.00E-02	4.38E-02		1.74E-03
3.14E-03	1.38E-02			3.14E-03	1.38E-02		5.47E-04
2.86E-04	1.25E-03			2.86E-04	1.25E-03		4.98E-05
2.16E-02	9.48E-02			2.16E-02	9.48E-02		3.77E-03
1.21E-01	**5.31E-01**			**1.21E-01**	**5.31E-01**		**2.11E-02**

5.98E-02	**2.62E-01**			**5.98E-02**	**2.62E-01**		**1.04E-02**

Glencoe Light and Power Commis

Hazardous Air Pollutant (HAP) Emission

Revision Date: 11/5/2012

Unit	kW Rating	bhp Rating	Guaranteed Heat Rate (BTU/kWh)	Maximum Hourly Design Rate (MMBTU/hr)	Pollutant	CAS Number	1990 CAA Listed HAP?	POM?	Emission Factor (lb/unit)	Emission Factor "Unit"
305 11th Street East, Glencoe, McLeod Cour										
EU-010	7,060	---	---	76.03	Acenaphthene	83-32-9		Yes	4.68E-06	MMBTU
(Diesel)					Acenaphthylene	208-96-8		Yes	9.23E-06	MMBTU
					Acetaldehyde	75-07-0	Yes		2.52E-05	MMBTU
					Acrolein	107-02-8	Yes		7.88E-06	MMBTU
					Anthracene	120-12-7		Yes	1.23E-06	MMBTU
					Benzene	71-43-2	Yes		7.76E-04	MMBTU
					Benzo (a) anthracene	56-55-3		Yes	6.22E-07	MMBTU
					Benzo (a) pyrene	50-32-8		Yes	2.57E-07	MMBTU
					Benzo (b) fluoranthene	205-99-2		Yes	1.11E-06	MMBTU
					Benzo (g,h,i) perylene	191-24-2		Yes	5.56E-07	MMBTU
					Benzo (k) fluoranthene	207-08-9		Yes	2.18E-07	MMBTU
					Chrysene	218-01-9		Yes	1.53E-06	MMBTU
					Dibenzo(a,h) anthracene	53-70-3		Yes	3.46E-07	MMBTU
					Fluoranthene	206-44-0		Yes	4.03E-06	MMBTU
					Fluorene	86-73-7		Yes	1.28E-05	MMBTU
					Formaldehyde	50-00-0	Yes		7.89E-05	MMBTU
					Indeno(1,2,3-cd)pyrene	193-39-5		Yes	4.14E-07	MMBTU
					Isomers of xylene	1330-20-7	Yes		1.93E-04	MMBTU
					Naphthalene	91-20-3	Yes	Yes	1.30E-04	MMBTU
					Phenanthrene	85-01-8		Yes	4.08E-05	MMBTU
					Pyrene	129-00-0		Yes	3.71E-06	MMBTU
					Toluene	108-88-3	Yes		2.81E-04	MMBTU
Emission Unit Totals					Acenaphthene	83-32-9				
					Acenaphthylene	208-96-8				
					Acetaldehyde	75-07-0				
					Acrolein	107-02-8				
					Anthracene	120-12-7				

Benzene	71-43-2				
Benzo (a) anthracene	56-55-3				
Benzo (a) pyrene	50-32-8				
Benzo (b) fluoranthene	205-99-2				
Benzo (g,h,i) perylene	191-24-2				
Benzo (k) fluoranthene	207-08-9				
Chrysene	218-01-9				
Dibenzo(a,h) anthracene	53-70-3				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Indeno(1,2,3-cd)pyrene	193-39-5				
Isomers of xylene	1330-20-7				
Naphthalene	91-20-3				
Phenanthrene	85-01-8				
Pyrene	129-00-0				
Toluene	108-88-3				
Sum of HAP's					

Highest HAP	**71-43-2**	**(Benzene)**			

Notes/Assumptions: 1. Emission Factors from AP-42 - Large Stationary Diesel and All Stationary Dual-fuel Engines - 10/1996

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Calculations

[Uncontrolled] Emission Rate (lb/hr)	[Uncontrolled] Emission Rate at 8760 hrs/yr (ton/yr)	Factor Source (AP-42, ST, Other)	Control Efficiency (%)	[Controlled] Emission Rate (lb/hr)	[Controlled] Emission Rate at 8760 hrs/yr (ton/yr)	[Limited] Energy Input - Proposed (MMBTU/yr)	[Limited] Controlled Emissions (*) (ton/yr)
ıty, MN 55336							
3.56E-04	1.56E-03	AP-42, Table 3.4-4	0.0	3.56E-04	1.56E-03	26,484.3	6.20E-05
7.02E-04	3.07E-03	AP-42, Table 3.4-4	0.0	7.02E-04	3.07E-03		1.22E-04
1.92E-03	8.39E-03	AP-42, Table 3.4-3	0.0	1.92E-03	8.39E-03		3.34E-04
5.99E-04	2.62E-03	AP-42, Table 3.4-3	0.0	5.99E-04	2.62E-03		1.04E-04
9.35E-05	4.10E-04	AP-42, Table 3.4-4	0.0	9.35E-05	4.10E-04		1.63E-05
5.90E-02	2.58E-01	AP-42, Table 3.4-3	0.0	5.90E-02	2.58E-01		**1.03E-02**
4.73E-05	2.07E-04	AP-42, Table 3.4-4	0.0	4.73E-05	2.07E-04		8.24E-06
1.95E-05	8.56E-05	AP-42, Table 3.4-4	0.0	1.95E-05	8.56E-05		3.40E-06
8.44E-05	3.70E-04	AP-42, Table 3.4-4	0.0	8.44E-05	3.70E-04		1.47E-05
4.23E-05	1.85E-04	AP-42, Table 3.4-4	0.0	4.23E-05	1.85E-04		7.36E-06
1.66E-05	7.26E-05	AP-42, Table 3.4-4	0.0	1.66E-05	7.26E-05		2.89E-06
1.16E-04	5.10E-04	AP-42, Table 3.4-4	0.0	1.16E-04	5.10E-04		2.03E-05
2.63E-05	1.15E-04	AP-42, Table 3.4-4	0.0	2.63E-05	1.15E-04		4.58E-06
3.06E-04	1.34E-03	AP-42, Table 3.4-4	0.0	3.06E-04	1.34E-03		5.34E-05
9.73E-04	4.26E-03	AP-42, Table 3.4-4	0.0	9.73E-04	4.26E-03		1.69E-04
6.00E-03	2.63E-02	AP-42, Table 3.4-3	0.0	6.00E-03	2.63E-02		1.04E-03
3.15E-05	1.38E-04	AP-42, Table 3.4-4	0.0	3.15E-05	1.38E-04		5.48E-06
1.47E-02	6.43E-02	AP-42, Table 3.4-3	0.0	1.47E-02	6.43E-02		2.56E-03
9.88E-03	4.33E-02	AP-42, Table 3.4-4	0.0	9.88E-03	4.33E-02		1.72E-03
3.10E-03	1.36E-02	AP-42, Table 3.4-4	0.0	3.10E-03	1.36E-02		5.40E-04
2.82E-04	1.24E-03	AP-42, Table 3.4-4	0.0	2.82E-04	1.24E-03		4.91E-05
2.14E-02	9.36E-02	AP-42, Table 3.4-3	0.0	2.14E-02	9.36E-02		3.72E-03

3.56E-04	1.56E-03			3.56E-04	1.56E-03		6.20E-05
7.02E-04	3.07E-03			7.02E-04	3.07E-03		1.22E-04
1.92E-03	8.39E-03			1.92E-03	8.39E-03		3.34E-04
5.99E-04	2.62E-03			5.99E-04	2.62E-03		1.04E-04
9.35E-05	4.10E-04			9.35E-05	4.10E-04		1.63E-05

5.90E-02	2.58E-01			5.90E-02	2.58E-01		**1.03E-02**
4.73E-05	2.07E-04			4.73E-05	2.07E-04		8.24E-06
1.95E-05	8.56E-05			1.95E-05	8.56E-05		3.40E-06
8.44E-05	3.70E-04			8.44E-05	3.70E-04		1.47E-05
4.23E-05	1.85E-04			4.23E-05	1.85E-04		7.36E-06
1.66E-05	7.26E-05			1.66E-05	7.26E-05		2.89E-06
1.16E-04	5.10E-04			1.16E-04	5.10E-04		2.03E-05
2.63E-05	1.15E-04			2.63E-05	1.15E-04		4.58E-06
3.06E-04	1.34E-03			3.06E-04	1.34E-03		5.34E-05
9.73E-04	4.26E-03			9.73E-04	4.26E-03		1.69E-04
6.00E-03	2.63E-02			6.00E-03	2.63E-02		1.04E-03
3.15E-05	1.38E-04			3.15E-05	1.38E-04		5.48E-06
1.47E-02	6.43E-02			1.47E-02	6.43E-02		2.56E-03
9.88E-03	4.33E-02			9.88E-03	4.33E-02		1.72E-03
3.10E-03	1.36E-02			3.10E-03	1.36E-02		5.40E-04
2.82E-04	1.24E-03			2.82E-04	1.24E-03		4.91E-05
2.14E-02	9.36E-02			2.14E-02	9.36E-02		3.72E-03
1.20E-01	**5.24E-01**			**1.20E-01**	**5.24E-01**		**2.08E-02**

5.90E-02	**2.58E-01**			**5.90E-02**	**2.58E-01**		**1.03E-02**

Glencoe Light and Power Commis

Hazardous Air Pollutant (HAP) Emission

Revision Date: 11/5/2012

Unit	kW Rating	bhp Rating	Guaranteed Heat Rate (BTU/kWh)	Maximum Hourly Design Rate (MMBTU/hr)	Pollutant	CAS Number	1990 CAA Listed HAP?	POM?	Emission Factor (lb/unit)	Emission Factor "Unit"
305 11th Street East, Glencoe, McLeod Cour										
EU-011	4,840	---	---	43.58	Acenaphthene	83-32-9		Yes	4.68E-06	MMBTU
(Diesel)					Acenaphthylene	208-96-8		Yes	9.23E-06	MMBTU
					Acetaldehyde	75-07-0	Yes		2.52E-05	MMBTU
					Acrolein	107-02-8	Yes		7.88E-06	MMBTU
					Anthracene	120-12-7		Yes	1.23E-06	MMBTU
					Benzene	71-43-2	Yes		7.76E-04	MMBTU
					Benzo (a) anthracene	56-55-3		Yes	6.22E-07	MMBTU
					Benzo (a) pyrene	50-32-8		Yes	2.57E-07	MMBTU
					Benzo (b) fluoranthene	205-99-2		Yes	1.11E-06	MMBTU
					Benzo (g,h,i) perylene	191-24-2		Yes	5.56E-07	MMBTU
					Benzo (k) fluoranthene	207-08-9		Yes	2.18E-07	MMBTU
					Chrysene	218-01-9		Yes	1.53E-06	MMBTU
					Dibenzo(a,h) anthracene	53-70-3		Yes	3.46E-07	MMBTU
					Fluoranthene	206-44-0		Yes	4.03E-06	MMBTU
					Fluorene	86-73-7		Yes	1.28E-05	MMBTU
					Formaldehyde	50-00-0	Yes		7.89E-05	MMBTU
					Indeno(1,2,3-cd)pyrene	193-39-5		Yes	4.14E-07	MMBTU
					Isomers of xylene	1330-20-7	Yes		1.93E-04	MMBTU
					Naphthalene	91-20-3	Yes	Yes	1.30E-04	MMBTU
					Phenanthrene	85-01-8		Yes	4.08E-05	MMBTU
					Pyrene	129-00-0		Yes	3.71E-06	MMBTU
					Toluene	108-88-3	Yes		2.81E-04	MMBTU
Emission Unit Totals					Acenaphthene	83-32-9				
					Acenaphthylene	208-96-8				
					Acetaldehyde	75-07-0				
					Acrolein	107-02-8				
					Anthracene	120-12-7				

Benzene	71-43-2				
Benzo (a) anthracene	56-55-3				
Benzo (a) pyrene	50-32-8				
Benzo (b) fluoranthene	205-99-2				
Benzo (g,h,i) perylene	191-24-2				
Benzo (k) fluoranthene	207-08-9				
Chrysene	218-01-9				
Dibenzo(a,h) anthracene	53-70-3				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Indeno(1,2,3-cd)pyrene	193-39-5				
Isomers of xylene	1330-20-7				
Naphthalene	91-20-3				
Phenanthrene	85-01-8				
Pyrene	129-00-0				
Toluene	108-88-3				
Sum of HAP's					

Highest HAP	**71-43-2**	**(Benzene)**			

Notes/Assumptions: 1. Emission Factors from AP-42 - Large Stationary Diesel and All Stationary Dual-fuel Engines - 10/1996

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Calculations

[Uncontrolled] Emission Rate (lb/hr)	[Uncontrolled] Emission Rate at 8760 hrs/yr (ton/yr)	Factor Source (AP-42, ST, Other)	Control Efficiency (%)	[Controlled] Emission Rate (lb/hr)	[Controlled] Emission Rate at 8760 hrs/yr (ton/yr)	[Limited] Energy Input - Proposed (MMBTU/yr)	[Limited] Controlled Emissions (*) (ton/yr)
ıty, MN 55336							
2.04E-04	8.93E-04	AP-42, Table 3.4-4	0.0	2.04E-04	8.93E-04	15,180.7	3.55E-05
4.02E-04	1.76E-03	AP-42, Table 3.4-4	0.0	4.02E-04	1.76E-03		7.01E-05
1.10E-03	4.81E-03	AP-42, Table 3.4-3	0.0	1.10E-03	4.81E-03		1.91E-04
3.43E-04	1.50E-03	AP-42, Table 3.4-3	0.0	3.43E-04	1.50E-03		5.98E-05
5.36E-05	2.35E-04	AP-42, Table 3.4-4	0.0	5.36E-05	2.35E-04		9.34E-06
3.38E-02	1.48E-01	AP-42, Table 3.4-3	0.0	3.38E-02	1.48E-01		**5.89E-03**
2.71E-05	1.19E-04	AP-42, Table 3.4-4	0.0	2.71E-05	1.19E-04		4.72E-06
1.12E-05	4.91E-05	AP-42, Table 3.4-4	0.0	1.12E-05	4.91E-05		1.95E-06
4.84E-05	2.12E-04	AP-42, Table 3.4-4	0.0	4.84E-05	2.12E-04		8.43E-06
2.42E-05	1.06E-04	AP-42, Table 3.4-4	0.0	2.42E-05	1.06E-04		4.22E-06
9.50E-06	4.16E-05	AP-42, Table 3.4-4	0.0	9.50E-06	4.16E-05		1.65E-06
6.67E-05	2.92E-04	AP-42, Table 3.4-4	0.0	6.67E-05	2.92E-04		1.16E-05
1.51E-05	6.60E-05	AP-42, Table 3.4-4	0.0	1.51E-05	6.60E-05		2.63E-06
1.76E-04	7.69E-04	AP-42, Table 3.4-4	0.0	1.76E-04	7.69E-04		3.06E-05
5.58E-04	2.44E-03	AP-42, Table 3.4-4	0.0	5.58E-04	2.44E-03		9.72E-05
3.44E-03	1.51E-02	AP-42, Table 3.4-3	0.0	3.44E-03	1.51E-02		5.99E-04
1.80E-05	7.90E-05	AP-42, Table 3.4-4	0.0	1.80E-05	7.90E-05		3.14E-06
8.41E-03	3.68E-02	AP-42, Table 3.4-3	0.0	8.41E-03	3.68E-02		1.46E-03
5.67E-03	2.48E-02	AP-42, Table 3.4-4	0.0	5.67E-03	2.48E-02		9.87E-04
1.78E-03	7.79E-03	AP-42, Table 3.4-4	0.0	1.78E-03	7.79E-03		3.10E-04
1.62E-04	7.08E-04	AP-42, Table 3.4-4	0.0	1.62E-04	7.08E-04		2.82E-05
1.22E-02	5.36E-02	AP-42, Table 3.4-3	0.0	1.22E-02	5.36E-02		2.13E-03

2.04E-04	8.93E-04			2.04E-04	8.93E-04		3.55E-05
4.02E-04	1.76E-03			4.02E-04	1.76E-03		7.01E-05
1.10E-03	4.81E-03			1.10E-03	4.81E-03		1.91E-04
3.43E-04	1.50E-03			3.43E-04	1.50E-03		5.98E-05
5.36E-05	2.35E-04			5.36E-05	2.35E-04		9.34E-06

3.38E-02	1.48E-01			3.38E-02	1.48E-01		**5.89E-03**
2.71E-05	1.19E-04			2.71E-05	1.19E-04		4.72E-06
1.12E-05	4.91E-05			1.12E-05	4.91E-05		1.95E-06
4.84E-05	2.12E-04			4.84E-05	2.12E-04		8.43E-06
2.42E-05	1.06E-04			2.42E-05	1.06E-04		4.22E-06
9.50E-06	4.16E-05			9.50E-06	4.16E-05		1.65E-06
6.67E-05	2.92E-04			6.67E-05	2.92E-04		1.16E-05
1.51E-05	6.60E-05			1.51E-05	6.60E-05		2.63E-06
1.76E-04	7.69E-04			1.76E-04	7.69E-04		3.06E-05
5.58E-04	2.44E-03			5.58E-04	2.44E-03		9.72E-05
3.44E-03	1.51E-02			3.44E-03	1.51E-02		5.99E-04
1.80E-05	7.90E-05			1.80E-05	7.90E-05		3.14E-06
8.41E-03	3.68E-02			8.41E-03	3.68E-02		1.46E-03
5.67E-03	2.48E-02			5.67E-03	2.48E-02		9.87E-04
1.78E-03	7.79E-03			1.78E-03	7.79E-03		3.10E-04
1.62E-04	7.08E-04			1.62E-04	7.08E-04		2.82E-05
1.22E-02	5.36E-02			1.22E-02	5.36E-02		2.13E-03
6.86E-02	**3.00E-01**			**6.86E-02**	**3.00E-01**		**1.19E-02**

3.38E-02	**1.48E-01**			**3.38E-02**	**1.48E-01**		**5.89E-03**

Glencoe Light and Power Commis

Hazardous Air Pollutant (HAP) Emission

Revision Date: 11/5/2012

Unit	kW Rating	bhp Rating	Guaranteed Heat Rate (BTU/kWh)	Maximum Hourly Design Rate (MMBTU/hr)	Pollutant	CAS Number	1990 CAA Listed HAP?	POM?	Emission Factor (lb/unit)	Emission Factor "Unit"
305 11th Street East, Glencoe, McLeod Cour										
EU-012	4,840	---	---	43.58	Acenaphthene	83-32-9		Yes	4.68E-06	MMBTU
(Diesel)					Acenaphthylene	208-96-8		Yes	9.23E-06	MMBTU
					Acetaldehyde	75-07-0	Yes		2.52E-05	MMBTU
					Acrolein	107-02-8	Yes		7.88E-06	MMBTU
					Anthracene	120-12-7		Yes	1.23E-06	MMBTU
					Benzene	71-43-2	Yes		7.76E-04	MMBTU
					Benzo (a) anthracene	56-55-3		Yes	6.22E-07	MMBTU
					Benzo (a) pyrene	50-32-8		Yes	2.57E-07	MMBTU
					Benzo (b) fluoranthene	205-99-2		Yes	1.11E-06	MMBTU
					Benzo (g,h,i) perylene	191-24-2		Yes	5.56E-07	MMBTU
					Benzo (k) fluoranthene	207-08-9		Yes	2.18E-07	MMBTU
					Chrysene	218-01-9		Yes	1.53E-06	MMBTU
					Dibenzo(a,h) anthracene	53-70-3		Yes	3.46E-07	MMBTU
					Fluoranthene	206-44-0		Yes	4.03E-06	MMBTU
					Fluorene	86-73-7		Yes	1.28E-05	MMBTU
					Formaldehyde	50-00-0	Yes		7.89E-05	MMBTU
					Indeno(1,2,3-cd)pyrene	193-39-5		Yes	4.14E-07	MMBTU
					Isomers of xylene	1330-20-7	Yes		1.93E-04	MMBTU
					Naphthalene	91-20-3	Yes	Yes	1.30E-04	MMBTU
					Phenanthrene	85-01-8		Yes	4.08E-05	MMBTU
					Pyrene	129-00-0		Yes	3.71E-06	MMBTU
					Toluene	108-88-3	Yes		2.81E-04	MMBTU
Emission Unit Totals					Acenaphthene	83-32-9				
					Acenaphthylene	208-96-8				
					Acetaldehyde	75-07-0				
					Acrolein	107-02-8				
					Anthracene	120-12-7				

Benzene	71-43-2				
Benzo (a) anthracene	56-55-3				
Benzo (a) pyrene	50-32-8				
Benzo (b) fluoranthene	205-99-2				
Benzo (g,h,i) perylene	191-24-2				
Benzo (k) fluoranthene	207-08-9				
Chrysene	218-01-9				
Dibenzo(a,h) anthracene	53-70-3				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Indeno(1,2,3-cd)pyrene	193-39-5				
Isomers of xylene	1330-20-7				
Naphthalene	91-20-3				
Phenanthrene	85-01-8				
Pyrene	129-00-0				
Toluene	108-88-3				
Sum of HAP's					

Highest HAP	**71-43-2**	**(Benzene)**			

Notes/Assumptions: 1. Emission Factors from AP-42 - Large Stationary Diesel and All Stationary Dual-fuel Engines - 10/1996

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Calculations

[Uncontrolled] Emission Rate (lb/hr)	[Uncontrolled] Emission Rate at 8760 hrs/yr (ton/yr)	Factor Source (AP-42, ST, Other)	Control Efficiency (%)	[Controlled] Emission Rate (lb/hr)	[Controlled] Emission Rate at 8760 hrs/yr (ton/yr)	[Limited] Energy Input - Proposed (MMBTU/yr)	[Limited] Controlled Emissions (*) (ton/yr)
ıty, MN 55336							
2.04E-04	8.93E-04	AP-42, Table 3.4-4	0.0	2.04E-04	8.93E-04	15,180.7	3.55E-05
4.02E-04	1.76E-03	AP-42, Table 3.4-4	0.0	4.02E-04	1.76E-03		7.01E-05
1.10E-03	4.81E-03	AP-42, Table 3.4-3	0.0	1.10E-03	4.81E-03		1.91E-04
3.43E-04	1.50E-03	AP-42, Table 3.4-3	0.0	3.43E-04	1.50E-03		5.98E-05
5.36E-05	2.35E-04	AP-42, Table 3.4-4	0.0	5.36E-05	2.35E-04		9.34E-06
3.38E-02	1.48E-01	AP-42, Table 3.4-3	0.0	3.38E-02	1.48E-01		**5.89E-03**
2.71E-05	1.19E-04	AP-42, Table 3.4-4	0.0	2.71E-05	1.19E-04		4.72E-06
1.12E-05	4.91E-05	AP-42, Table 3.4-4	0.0	1.12E-05	4.91E-05		1.95E-06
4.84E-05	2.12E-04	AP-42, Table 3.4-4	0.0	4.84E-05	2.12E-04		8.43E-06
2.42E-05	1.06E-04	AP-42, Table 3.4-4	0.0	2.42E-05	1.06E-04		4.22E-06
9.50E-06	4.16E-05	AP-42, Table 3.4-4	0.0	9.50E-06	4.16E-05		1.65E-06
6.67E-05	2.92E-04	AP-42, Table 3.4-4	0.0	6.67E-05	2.92E-04		1.16E-05
1.51E-05	6.60E-05	AP-42, Table 3.4-4	0.0	1.51E-05	6.60E-05		2.63E-06
1.76E-04	7.69E-04	AP-42, Table 3.4-4	0.0	1.76E-04	7.69E-04		3.06E-05
5.58E-04	2.44E-03	AP-42, Table 3.4-4	0.0	5.58E-04	2.44E-03		9.72E-05
3.44E-03	1.51E-02	AP-42, Table 3.4-3	0.0	3.44E-03	1.51E-02		5.99E-04
1.80E-05	7.90E-05	AP-42, Table 3.4-4	0.0	1.80E-05	7.90E-05		3.14E-06
8.41E-03	3.68E-02	AP-42, Table 3.4-3	0.0	8.41E-03	3.68E-02		1.46E-03
5.67E-03	2.48E-02	AP-42, Table 3.4-4	0.0	5.67E-03	2.48E-02		9.87E-04
1.78E-03	7.79E-03	AP-42, Table 3.4-4	0.0	1.78E-03	7.79E-03		3.10E-04
1.62E-04	7.08E-04	AP-42, Table 3.4-4	0.0	1.62E-04	7.08E-04		2.82E-05
1.22E-02	5.36E-02	AP-42, Table 3.4-3	0.0	1.22E-02	5.36E-02		2.13E-03

2.04E-04	8.93E-04			2.04E-04	8.93E-04		3.55E-05
4.02E-04	1.76E-03			4.02E-04	1.76E-03		7.01E-05
1.10E-03	4.81E-03			1.10E-03	4.81E-03		1.91E-04
3.43E-04	1.50E-03			3.43E-04	1.50E-03		5.98E-05
5.36E-05	2.35E-04			5.36E-05	2.35E-04		9.34E-06

3.38E-02	1.48E-01			3.38E-02	1.48E-01		**5.89E-03**
2.71E-05	1.19E-04			2.71E-05	1.19E-04		4.72E-06
1.12E-05	4.91E-05			1.12E-05	4.91E-05		1.95E-06
4.84E-05	2.12E-04			4.84E-05	2.12E-04		8.43E-06
2.42E-05	1.06E-04			2.42E-05	1.06E-04		4.22E-06
9.50E-06	4.16E-05			9.50E-06	4.16E-05		1.65E-06
6.67E-05	2.92E-04			6.67E-05	2.92E-04		1.16E-05
1.51E-05	6.60E-05			1.51E-05	6.60E-05		2.63E-06
1.76E-04	7.69E-04			1.76E-04	7.69E-04		3.06E-05
5.58E-04	2.44E-03			5.58E-04	2.44E-03		9.72E-05
3.44E-03	1.51E-02			3.44E-03	1.51E-02		5.99E-04
1.80E-05	7.90E-05			1.80E-05	7.90E-05		3.14E-06
8.41E-03	3.68E-02			8.41E-03	3.68E-02		1.46E-03
5.67E-03	2.48E-02			5.67E-03	2.48E-02		9.87E-04
1.78E-03	7.79E-03			1.78E-03	7.79E-03		3.10E-04
1.62E-04	7.08E-04			1.62E-04	7.08E-04		2.82E-05
1.22E-02	5.36E-02			1.22E-02	5.36E-02		2.13E-03
6.86E-02	**3.00E-01**			**6.86E-02**	**3.00E-01**		**1.19E-02**

3.38E-02	**1.48E-01**			**3.38E-02**	**1.48E-01**		**5.89E-03**

Glencoe Light and Power Commis

Hazardous Air Pollutant (HAP) Emission

Revision Date: 11/5/2012

Unit	kW Rating	bhp Rating	Guaranteed Heat Rate (BTU/kWh)	Maximum Hourly Design Rate (MMBTU/hr)	Pollutant	CAS Number	1990 CAA Listed HAP?	POM?	Emission Factor (lb/unit)	Emission Factor "Unit"
305 11th Street East, Glencoe, McLeod Cour										
EU-014	4,840	---	---	43.58	Acenaphthene	83-32-9		Yes	4.68E-06	MMBTU
(Diesel)					Acenaphthylene	208-96-8		Yes	9.23E-06	MMBTU
					Acetaldehyde	75-07-0	Yes		2.52E-05	MMBTU
					Acrolein	107-02-8	Yes		7.88E-06	MMBTU
					Anthracene	120-12-7		Yes	1.23E-06	MMBTU
					Benzene	71-43-2	Yes		7.76E-04	MMBTU
					Benzo (a) anthracene	56-55-3		Yes	6.22E-07	MMBTU
					Benzo (a) pyrene	50-32-8		Yes	2.57E-07	MMBTU
					Benzo (b) fluoranthene	205-99-2		Yes	1.11E-06	MMBTU
					Benzo (g,h,i) perylene	191-24-2		Yes	5.56E-07	MMBTU
					Benzo (k) fluoranthene	207-08-9		Yes	2.18E-07	MMBTU
					Chrysene	218-01-9		Yes	1.53E-06	MMBTU
					Dibenzo(a,h) anthracene	53-70-3		Yes	3.46E-07	MMBTU
					Fluoranthene	206-44-0		Yes	4.03E-06	MMBTU
					Fluorene	86-73-7		Yes	1.28E-05	MMBTU
					Formaldehyde	50-00-0	Yes		7.89E-05	MMBTU
					Indeno(1,2,3-cd)pyrene	193-39-5		Yes	4.14E-07	MMBTU
					Isomers of xylene	1330-20-7	Yes		1.93E-04	MMBTU
					Naphthalene	91-20-3	Yes	Yes	1.30E-04	MMBTU
					Phenanthrene	85-01-8		Yes	4.08E-05	MMBTU
					Pyrene	129-00-0		Yes	3.71E-06	MMBTU
					Toluene	108-88-3	Yes		2.81E-04	MMBTU
Emission Unit Totals					Acenaphthene	83-32-9				
					Acenaphthylene	208-96-8				
					Acetaldehyde	75-07-0				
					Acrolein	107-02-8				
					Anthracene	120-12-7				

Benzene	71-43-2				
Benzo (a) anthracene	56-55-3				
Benzo (a) pyrene	50-32-8				
Benzo (b) fluoranthene	205-99-2				
Benzo (g,h,i) perylene	191-24-2				
Benzo (k) fluoranthene	207-08-9				
Chrysene	218-01-9				
Dibenzo(a,h) anthracene	53-70-3				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Indeno(1,2,3-cd)pyrene	193-39-5				
Isomers of xylene	1330-20-7				
Naphthalene	91-20-3				
Phenanthrene	85-01-8				
Pyrene	129-00-0				
Toluene	108-88-3				
Sum of HAP's					

Highest HAP	**71-43-2**	**(Benzene)**			

Notes/Assumptions: 1. Emission Factors from AP-42 - Large Stationary Diesel and All Stationary Dual-fuel Engines - 10/1996

sion

Calculations

[Uncontrolled] Emission Rate (lb/hr)	[Uncontrolled] Emission Rate at 8760 hrs/yr (ton/yr)	Factor Source (AP-42, ST, Other)	Control Efficiency (%)	[Controlled] Emission Rate (lb/hr)	[Controlled] Emission Rate at 8760 hrs/yr (ton/yr)	[Limited] Energy Input - Proposed (MMBTU/yr)	[Limited] Controlled Emissions (*) (ton/yr)
ıty, MN 55336							
2.04E-04	8.93E-04	AP-42, Table 3.4-4	0.0	2.04E-04	8.93E-04	15,180.7	3.55E-05
4.02E-04	1.76E-03	AP-42, Table 3.4-4	0.0	4.02E-04	1.76E-03		7.01E-05
1.10E-03	4.81E-03	AP-42, Table 3.4-3	0.0	1.10E-03	4.81E-03		1.91E-04
3.43E-04	1.50E-03	AP-42, Table 3.4-3	0.0	3.43E-04	1.50E-03		5.98E-05
5.36E-05	2.35E-04	AP-42, Table 3.4-4	0.0	5.36E-05	2.35E-04		9.34E-06
3.38E-02	1.48E-01	AP-42, Table 3.4-3	0.0	3.38E-02	1.48E-01		**5.89E-03**
2.71E-05	1.19E-04	AP-42, Table 3.4-4	0.0	2.71E-05	1.19E-04		4.72E-06
1.12E-05	4.91E-05	AP-42, Table 3.4-4	0.0	1.12E-05	4.91E-05		1.95E-06
4.84E-05	2.12E-04	AP-42, Table 3.4-4	0.0	4.84E-05	2.12E-04		8.43E-06
2.42E-05	1.06E-04	AP-42, Table 3.4-4	0.0	2.42E-05	1.06E-04		4.22E-06
9.50E-06	4.16E-05	AP-42, Table 3.4-4	0.0	9.50E-06	4.16E-05		1.65E-06
6.67E-05	2.92E-04	AP-42, Table 3.4-4	0.0	6.67E-05	2.92E-04		1.16E-05
1.51E-05	6.60E-05	AP-42, Table 3.4-4	0.0	1.51E-05	6.60E-05		2.63E-06
1.76E-04	7.69E-04	AP-42, Table 3.4-4	0.0	1.76E-04	7.69E-04		3.06E-05
5.58E-04	2.44E-03	AP-42, Table 3.4-4	0.0	5.58E-04	2.44E-03		9.72E-05
3.44E-03	1.51E-02	AP-42, Table 3.4-3	0.0	3.44E-03	1.51E-02		5.99E-04
1.80E-05	7.90E-05	AP-42, Table 3.4-4	0.0	1.80E-05	7.90E-05		3.14E-06
8.41E-03	3.68E-02	AP-42, Table 3.4-3	0.0	8.41E-03	3.68E-02		1.46E-03
5.67E-03	2.48E-02	AP-42, Table 3.4-4	0.0	5.67E-03	2.48E-02		9.87E-04
1.78E-03	7.79E-03	AP-42, Table 3.4-4	0.0	1.78E-03	7.79E-03		3.10E-04
1.62E-04	7.08E-04	AP-42, Table 3.4-4	0.0	1.62E-04	7.08E-04		2.82E-05
1.22E-02	5.36E-02	AP-42, Table 3.4-3	0.0	1.22E-02	5.36E-02		2.13E-03

2.04E-04	8.93E-04			2.04E-04	8.93E-04		3.55E-05
4.02E-04	1.76E-03			4.02E-04	1.76E-03		7.01E-05
1.10E-03	4.81E-03			1.10E-03	4.81E-03		1.91E-04
3.43E-04	1.50E-03			3.43E-04	1.50E-03		5.98E-05
5.36E-05	2.35E-04			5.36E-05	2.35E-04		9.34E-06

3.38E-02	1.48E-01			3.38E-02	1.48E-01		**5.89E-03**
2.71E-05	1.19E-04			2.71E-05	1.19E-04		4.72E-06
1.12E-05	4.91E-05			1.12E-05	4.91E-05		1.95E-06
4.84E-05	2.12E-04			4.84E-05	2.12E-04		8.43E-06
2.42E-05	1.06E-04			2.42E-05	1.06E-04		4.22E-06
9.50E-06	4.16E-05			9.50E-06	4.16E-05		1.65E-06
6.67E-05	2.92E-04			6.67E-05	2.92E-04		1.16E-05
1.51E-05	6.60E-05			1.51E-05	6.60E-05		2.63E-06
1.76E-04	7.69E-04			1.76E-04	7.69E-04		3.06E-05
5.58E-04	2.44E-03			5.58E-04	2.44E-03		9.72E-05
3.44E-03	1.51E-02			3.44E-03	1.51E-02		5.99E-04
1.80E-05	7.90E-05			1.80E-05	7.90E-05		3.14E-06
8.41E-03	3.68E-02			8.41E-03	3.68E-02		1.46E-03
5.67E-03	2.48E-02			5.67E-03	2.48E-02		9.87E-04
1.78E-03	7.79E-03			1.78E-03	7.79E-03		3.10E-04
1.62E-04	7.08E-04			1.62E-04	7.08E-04		2.82E-05
1.22E-02	5.36E-02			1.22E-02	5.36E-02		2.13E-03
6.86E-02	**3.00E-01**			**6.86E-02**	**3.00E-01**		**1.19E-02**

3.38E-02	**1.48E-01**			**3.38E-02**	**1.48E-01**		**5.89E-03**

Glencoe Light and Power Commission

Hazardous Air Pollutant (HAP) Emission Calculations

Revision Date: 11/5/2012

	Facility Totals - Maximum Controlled Potential to Emit											
	Pollutant	PM	PM10	PM2.5	SO2	NOx	VOC	CO	CO2	CH4	N2O	CO2e
Emission Unit	Unit Short Name	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)
EU-005	Generator No. 5											
EU-006	Generator No. 6											
EU-007	Generator No. 7											
EU-008	Generator No. 8											
EU-009	Generator No. 9											
EU-010	Generator No. 10											
EU-011	Generator No. 11											
EU-012	Generator No. 12											
EU-014	Generator No. 14											
Totals		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Facility Totals - Limited Controlled Potential to Emit											
	Pollutant	PM	PM10	PM2.5	SO2	NOx	VOC	CO	CO2	CH4	N2O	CO2e
Emission Unit	Unit Short Name	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)
EU-005	Generator No. 5											
EU-006	Generator No. 6											
EU-007	Generator No. 7											
EU-008	Generator No. 8											
EU-009	Generator No. 9											
EU-010	Generator No. 10											
EU-011	Generator No. 11											
EU-012	Generator No. 12											
EU-014	Generator No. 14											
Totals		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

MPCA Requested Major Source Threshold Totals	240.00	240.00	240.00	240.00	240.00	240.00	240.00	---	---	---	90,000.00

HAP Totals

Single HAP (tons/yr)	Pollutant	Total HAP (tons/yr)
0.05	Benzene	0.10
0.00		0.00
0.15	Benzene	0.30
0.20	Benzene	0.42
0.26	Benzene	0.53
0.26	Benzene	0.52
0.15	Benzene	0.30
0.15	Benzene	0.30
0.15	Benzene	0.30
1.37	Benzene	2.78

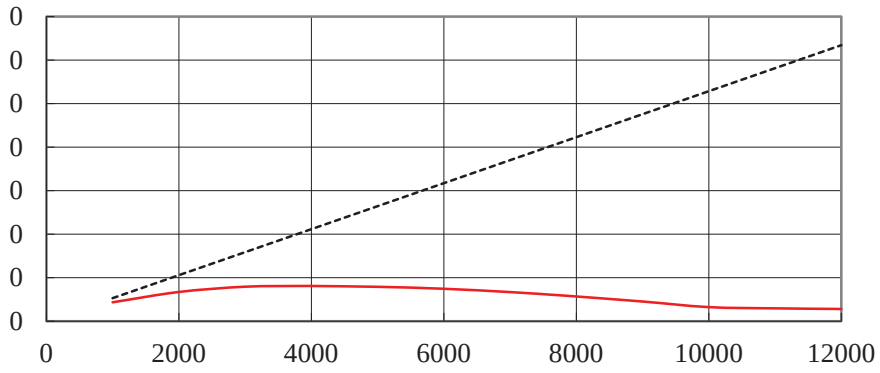
Single HAP (tons/yr)	Pollutant	Total HAP (tons/yr)
1.98E-03	Benzene	4.01E-03
0.00E+00		0.00E+00
5.97E-03	Benzene	1.21E-02
8.15E-03	Benzene	1.65E-02
1.04E-02	Benzene	2.11E-02
1.03E-02	Benzene	2.08E-02
5.89E-03	Benzene	1.19E-02
5.89E-03	Benzene	1.19E-02
5.89E-03	Benzene	1.19E-02
5.45E-02	Benzene	1.10E-01

9.00	---	22.50

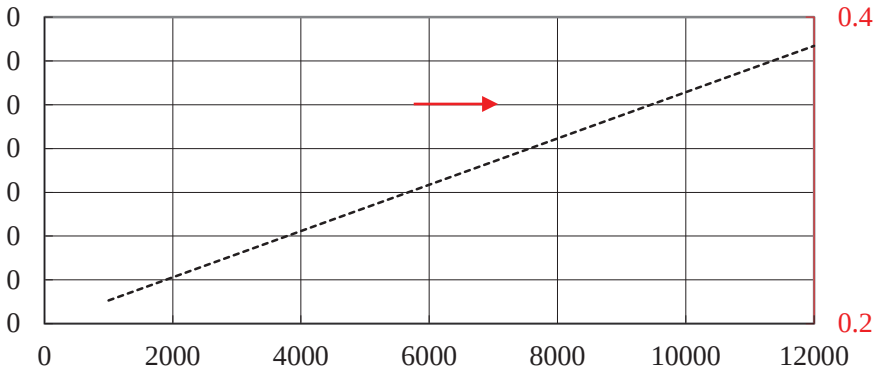
TDS,ppmw	PM,lb/hr	PM10,lb/hr	PM10/PM,%	Circulation, gpm
1000	0.0026	0.0022	82.03	600
2000	0.0053	0.0034	63.46	
3000	0.0079	0.0040	49.95	Drift rate:
3897	0.0103	**0.0040**	39.26	0.00088%
4000	0.0106	0.0040	38.24	
5000	0.0132	0.0039	29.87	Density,w:
6000	0.0159	0.0037	23.48	8.345
7000	0.0185	0.0033	18.07	
7700	0.0204	0.0030	14.73	
8000	0.0212	0.0028	13.42	
9000	0.0238	0.0023	9.49	
10000	0.0264	0.0016	6.11	
11000	0.0291	0.0015	5.07	
12000	0.0317	0.0014	4.41	

Q: Why the lower ppmw valu
PM10 mass emission (lb/hr)?
A: As Jenny Reinertsen and D
water has more mass in the fir
"dirty" water. This is what co
(HJ, 4/13/02)

Y-axis (lb/hr); X-axis (ppmw) -- solid (PM10); dashed (PM)



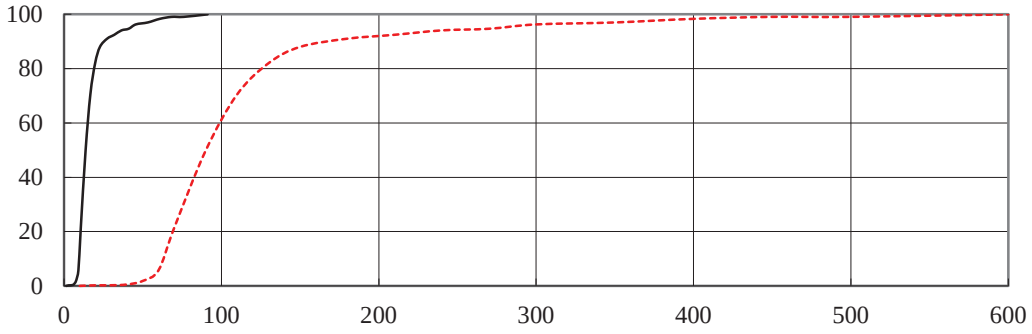
The chart below is the same as above but in double-Y format

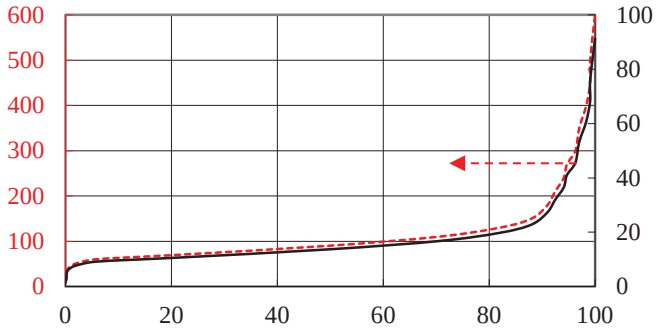


Re-calculating Cooling Tower PM10 Emissions Presented by Reisman and Frisbie (2001)

Ddroplet,um	Droplet vol,um3	Solid vol,um3	Dsolid,um	%mass <	Density,w:
10	523.60	1.84	1.52	0.000	1.0 g/cm^3
20	4,188.79	14.72	3.04	0.196	
30	14,137.17	49.69	4.56	0.226	Density,tds:
40	33,510.32	117.78	6.08	0.514	2.2 g/cm^3
50	65,449.85	230.04	7.60	1.816	
60	113,097.34	397.51	9.12	5.702	TDS,ppmw:
70	179,594.38	631.23	10.64	21.348	7,700
90	381,703.51	1,341.60	13.68	49.812	
110	696,909.97	2,449.47	16.72	70.509	Linear interpolation:
130	1,150,346.51	4,043.19	19.77	82.023	For 10 um,
150	1,767,145.87	6,211.10	22.81	88.012	14.7 percent
180	3,053,628.06	10,732.78	27.37	91.032	
210	4,849,048.26	17,043.25	31.93	92.468	
240	7,238,229.47	25,440.65	36.49	94.091	
270	10,305,994.70	36,223.12	41.05	94.689	
300	14,137,166.94	49,688.78	45.61	96.288	
350	22,449,297.50	78,903.94	53.21	97.012	
400	33,510,321.64	117,780.81	60.82	98.340	
450	47,712,938.43	167,699.62	68.42	99.071	
500	65,449,846.95	230,040.63	76.02	99.071	
600	113,097,335.53	397,510.22	91.23	100.000	

Y:cumulative %; X:particle diameter (um) - black line: solid; red-dashed: droplet





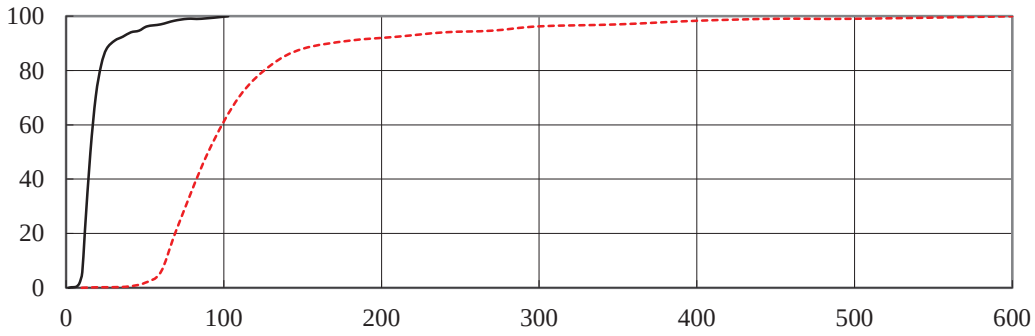
Similarity observed ==>

For the smaller chart above, X: cumulative %,
Y:particle diameter (um) - black line: solid (right Y); red-dashed: droplet (left Y)

Re-calculating Cooling Tower PM10 Emissions Presented by Reisman and Frisbie (2001)

Ddroplet,um	Droplet vol,um3	Solid vol,um3	Dsolid,um	%mass <	Density,w:
10	523.60	2.63	1.71	0.000	1.0 g/cm^3
20	4,188.79	21.07	3.43	0.196	
30	14,137.17	71.11	5.14	0.226	Density,tds:
40	33,510.32	168.56	6.85	0.514	2.2 g/cm^3
50	65,449.85	329.22	8.57	1.816	
60	113,097.34	568.90	10.28	5.702	TDS,ppmw:
70	179,594.38	903.39	11.99	21.348	11,000
90	381,703.51	1,920.04	15.42	49.812	
110	696,909.97	3,505.58	18.85	70.509	Linear interpolation:
130	1,150,346.51	5,786.45	22.27	82.023	For 10 um,
150	1,767,145.87	8,889.06	25.70	88.012	5.07 percent
180	3,053,628.06	15,360.30	30.84	91.032	
210	4,849,048.26	24,391.59	35.98	92.468	
240	7,238,229.47	36,409.60	41.12	94.091	
270	10,305,994.70	51,841.02	46.26	94.689	
300	14,137,166.94	71,112.51	51.40	96.288	
350	22,449,297.50	112,924.03	59.97	97.012	
400	33,510,321.64	168,562.99	68.54	98.340	
450	47,712,938.43	240,004.72	77.10	99.071	
500	65,449,846.95	329,224.58	85.67	99.071	
600	113,097,335.53	568,900.08	102.80	100.000	

Y:cumulative %; X:particle diameter (um) - black line: solid; red-dashed: droplet



TDS 11000 ppmw

ATTACHMENT 2:
FACILITY DESCRIPTION AND CD-01 FORMS

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 004
AQD Facility ID: 08500013
Facility Name: Glencoe Light _Power Commission

	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 005	Active	PER 002		☐		SV 001 (M)		Engine #5 Fairbanks-Morse 1360 kW	Fairbanks-Morse	38DD8-1/8	4911	1360	Energy	Kw	4.64
2	EU 005	Active	PER 004		☐		SV 001 (M)		Engine #5 Fairbanks-Morse 1360 kW	Fairbanks-Morse	38DD8-1/8	4911	1360	Energy	Kw	14.65
3	EU 006	Active	PER 002		☐		SV 002 (M)		Engine #6 Fairbanks-Morse 1360 kW	Fairbanks-Morse	38DD8-1/8	4911	1360	Energy	Kw	4.64
4	EU 006	Retired	PER 004		☐				Engine #6 Fairbanks-Morse 1360 kW	Fairbanks-Morse	38DD8-1/8	4911	1360	Energy	Kw	14.65
5	EU 007	Active	PER 002		☐		SV 003 (M)		Engine #7 Enterprise 4100 kW	Enterprise	DGSRV-163□□	4911	4100	Energy	Kw	13.98
6	EU 007	Active	PER 004		☐		SV 003 (M)		Engine #7 Enterprise 4100 kW	Enterprise	DGSRV-163	4911	4100	Energy	Kw	44.15
7	EU 008	Active	PER 002		☐		SV 004 (M)		Engine #8 Cooper-Bessemer 5600 kW	Cooper-Bessemer	LSV-20-GDT	4911	5600	Energy	Kw	19.1
8	EU 008	Active	PER 004		☐		SV 004 (M)		Engine #8 Cooper-Bessemer 5600 kW	Cooper-Bessemer	LSV-20-GDT	4911	5600	Energy	Kw	60.31
9	EU 009	Active	PER 002		☐		SV 005 (M)		Engine #9 Enterprise 7150 kW	Enterprise	DG-SRV-16-4	4911	7150	Energy	Kw	24.38
10	EU 009	Active	PER 004		☐		SV 005 (M)		Engine #9 Enterprise 7150 kW	Enterprise	DG-SRV-16-4	4911	7150	Energy	Kw	77.00
11	EU 010	Active	PER 002		☐		SV 006 (M)		Engine #10 Enterprise 7060 kW	Enterprise	DG-SRV-16-4	4911	7060	Energy	Kw	24.07
12	EU 010	Active	PER 004		☐		SV 006 (M)		Engine #10 Enterprise 7060 kW	Enterprise	DG-SRV-16-4	4911	7060	Energy	Kw	76.03
13	EU 011	Active	PER 002		☐		SV 011 (M)		Engine #11 Caterpillar 4840 kW	Caterpillar	3616	4911	4840	Energy	Kw	43.31
14	EU 012	Active	PER 002		☐		SV 012 (M)		Engine #12 Caterpillar 4840 kW	Caterpillar	3616	4911	4840	Energy	Kw	43.31
15	EU 013	Active	PER 003		☒		SV 007 (M)		Boiler #1	Burnham	PF520	4911	3.26	Heat	Mmbtu	3.26
16	EU 013	Active	PER 004		☐		SV 007 (M)		Boiler #1	Burnham	PF520	4911	3.26	Heat	Mmbtu	3.26
17	EU 014	Active	PER 002		☐		SV 013 (M)		Engine #14 Caterpillar 4840 kW	Caterpillar	3616	4911	4840	Energy	Kw	43.31

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 005	Active	PER 002	01/01/1957	01/01/1957					
2	EU 005	Active	PER 004	01/01/1957	01/01/1957					
3	EU 006	Active	PER 002	01/01/1961	01/01/1961					
4	EU 006	Retired	PER 004	01/01/1961	01/01/1961					
5	EU 007	Active	PER 002	01/01/1966	01/01/1966					
6	EU 007	Active	PER 004	01/01/1966	01/01/1966					
7	EU 008	Active	PER 002	01/01/1969	01/01/1969					
8	EU 008	Active	PER 004	01/01/1969	01/01/1969					
9	EU 009	Active	PER 002	01/01/1973	01/01/1973					
10	EU 009	Active	PER 004	01/01/1973	01/01/1973					
11	EU 010	Active	PER 002	01/01/1985	01/01/1985					
12	EU 010	Active	PER 004	01/01/1985	01/01/1985					
13	EU 011	Active	PER 002	12/15/1996	12/18/1997					
14	EU 012	Active	PER 002	12/15/1996	12/18/1997					
15	EU 013	Active	PER 003	01/01/1981	01/01/1981			75		
16	EU 013	Active	PER 004	01/01/1981	01/01/1981			75		
17	EU 014	Active	PER 002	02/21/2005	10/14/2005					

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 004
AQD Facility ID: 08500013
Facility Name: Glencoe Light _Power Commission

	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		☐		Electric Generators	EU 005, EU 006, EU 007, EU 008, EU 009, EU 010, EU 011, EU 012, EU 014
2	GP 001	Active	PER 004		☑		Electric Generators	EU 005, EU 007, EU 008, EU 009, EU 010, EU 011, EU 012, EU 014
3	GP 002	Retired	PER 003		☐		Main Tanks	TK 002, TK 013, TK 014, TK 015, TK 016
4	GP 003	Active	PER 004		☐		New Unit Exempt Electric Generators	EU 011, EU 012, EU 014
5	GP 004	Active	PER 004		☐		Dual Fuel Generators	EU 005, EU 007, EU 008, EU 009
6	GP 005	Active	PER 004		☐		Electric Generator Fuel Requirements	EU 005, EU 007, EU 008, EU 009, EU 010

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 004
AQD Facility ID: 08500013
Facility Name: Glencoe Light _Power Commission

	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			Engine #5	36	0.96		14800	680	Estimate	Up, No Cap
2	SV 002	Active	PER 002			Engine #6	36	0.96		14800	680	Estimate	Up, No Cap
3	SV 003	Active	PER 002			Engine #7	47	2.5		39367	900	Estimate	Up, No Cap
4	SV 004	Active	PER 002			Engine #8	57	2.5		48300	790	Estimate	Up, No Cap
5	SV 005	Active	PER 002			Engine #9	57	3		68608	1009	Estimate	Up, No Cap
6	SV 006	Active	PER 002			Engine #10	57	3		67874	998	Estimate	Up, No Cap
7	SV 007	Active	PER 002			Boiler	27	2		1032	350	Estimate	Up, No Cap
8	SV 008	Active	PER 001				12	.5					Down
9	SV 008	Removec	PER 004				12	0.5					Down
10	SV 009	Active	PER 001				12	.5					Down
11	SV 009	Removec	PER 004				12	0.5					Down
12	SV 010	Active	PER 001				12	.5					Horizontal
13	SV 010	Removec	PER 004				12	0.5					Horizontal
14	SV 011	Active	PER 002			Engine #11	57	2.5		35445	816	Manufacturer	Up, No Cap
15	SV 012	Active	PER 002			Engine #12	57	2.5		35445	816	Manufacturer	Up, No Cap
16	SV 013	Active	PER 002			Engine #14	57	2.5		38654	710	Manufacturer	Up, No Cap
17	SV 014	Active	PER 004		103	30,000 gallon diesel storage tank	36	0.33		20	45	Estimate	Down
18	SV 015	Active	PER 004		104	30,000 gallon diesel storage tank	36	0.33		20	45	Estimate	Down
19	SV 016	Active	PER 004		116	12,000 gallon diesel storage tank	19	0.25		20	45	Estimate	Down
20	SV 017	Active	PER 004		117	12,000 gallon diesel storage tank	19	0.25		20	45	Estimate	Down
21	SV 018	Active	PER 004		118	12,000 gallon diesel storage tank	19	0.25		20	45	Estimate	Down
22	SV 019	Active	PER 004		119	12,000 gallon diesel storage tank	19	0.25		20	45	Estimate	Down

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

COMPLIANCE PLAN CD-01

Facility Name: Glencoe Light & Power Commission

Permit Number: 08500013 - 004

Subject Item: **Total Facility**

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	SOURCE-SPECIFIC REQUIREMENTS
2.0		CD	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 Appendix II: Insignificant Activities and Applicable Requirements. Modeling parameters in Appendix I: Stack Parameters for Modeling are included for reference only as described elsewhere in Table A.
3.0		CD	hdr	OPERATIONAL REQUIREMENTS
4.0		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.
5.0		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.
6.0		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.
7.0		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.
8.0		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.
9.0		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.
10.0		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.
11.0		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).
12.0		CD	Minn. R. 7007.0800, subp. 16	The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.
13.0		CD	hdr	PERFORMANCE TESTING
14.0		CD	Minn. R. ch. 7017	Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A and B.

COMPLIANCE PLAN CD-01

Facility Name: Glencoe Light & Power Commission

Permit Number: 08500013 - 004

15.0		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.
16.0		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.
17.0		CD	hdr	MONITORING REQUIREMENTS
18.0		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).
19.0		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.
20.0		CD	hdr	MODELING REQUIREMENTS
21.0		CD	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 parameters used in NOx modeling are listed in Appendix I 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.
22.0		CD	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	Modeling Triggers: For changes that do not require a permit amendment and affect any modeled parameter or emission rate documented in Appendix I, or are an addition to the information documented in Appedix I, 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 I, or are an addition to the information documented in Appendix I, 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.
23.0		CD	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	Remodeling Submittal: 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.

COMPLIANCE PLAN CD-01

Facility Name: Glencoe Light & Power Commission

Permit Number: 08500013 - 004

24.0		CD	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	Remodeling Submittal, continued: The plume dispersion characteristics due to the revisions of the information must be equivalent to or better than the dispersion characteristics modeled November 10, 2004. 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.
25.0		CD	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	Modeling at Reissuance: 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 I) 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".
26.0		CD	hdr	RECORDKEEPING
27.0		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).
28.0		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.
29.0		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.
30.0		CD	hdr	REPORTING/SUBMITTALS
31.0		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.
32.0		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.
33.0		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: Glencoe Light & Power Commission

Permit Number: 08500013 - 004

34.0		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.
35.0		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.
36.0		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.
37.0		S/A	Minn. R. 7007.0400, subp. 2	Application for Permit Reissuance: due 180 days before expiration of Existing Permit
38.0		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).
39.0		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.
40.0		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.
41.0		CD	Minn. R. 7002.0005 - 7002.0095	Emission Fees: due 60 days after receipt of an MPCA bill.

COMPLIANCE PLAN CD-01

Facility Name: Glencoe Light & Power Commission

Permit Number: 08500013 - 004

Subject Item: **GP 001 Electric Generators**

Associated Items: EU 005 Engine #5 Fairbanks-Morse 1360 kW

EU 007 Engine #7 Enterprise 4100 kW

EU 008 Engine #8 Cooper-Bessemer 5600 kW

EU 009 Engine #9 Enterprise 7150 kW

EU 010 Engine #10 Enterprise 7060 kW

EU 011 Engine #11 Caterpillar 4840 kW

EU 012 Engine #12 Caterpillar 4840 kW

EU 014 Engine #14 Caterpillar 4840 kW

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	EMISSION LIMITS
2.0		LIMIT	Minn. R. 7011.2300, subp. 1	Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.
3.0		CD	Minn. R. 7011.2300, subp. 2	Sulfur Dioxide: less than or equal to 0.50 lbs/million Btu heat input.
4.0		CD	hdr	OPERATING CONDITIONS
5.0		LIMIT	Title I Condition: To avoid classification as major source under 40 CFR Section 52.21 & Minn. R. 7007.3000	Operating Hours: less than or equal to 348.34 hours/year based on a 12-month rolling sum. This applies to each engine individually. This limits GP 001 NOx emissions to 240 tons per year over the 12 month rolling period.
6.0		CD	hdr	MONITORING AND RECORDKEEPING REQUIREMENTS
7.0		CD	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21 & Minn. R. 7007.3000	Operating Hours Monitoring and Recordkeeping: The Permittee shall monitor and record daily operating hours for each GP 001 emission unit.
8.0		CD	Minn. R. 7007.0800, subps. 4 and 5	Recordkeeping - Operating Hours: By the 15th day of each month the Permittee shall determine and separately record for each GP 001 emission unit: A) The monthly operating hours for the previous month; and B) The 12-month rolling sum operating hours for the previous 12-month period by summing the monthly operating hours for the previous 12 calendar months.
9.0		CD	Minn. R. 7007.0800, subp. 5	The Permittee shall keep records of fuel type and usage on a monthly basis.
10.0		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 diesel fuel, certifying that the sulfur content does not exceed 0.495% by weight. If the Permittee uses the same diesel fuel in EUs 005 through EU 010 as used in the Acid Rain units (EUs 011, 012, and 014), the Permittee can determine sulfur content of diesel fuel combusted in EUs 005 through EU 010 according to the requirements of 40 CFR Section 72.7(d)(3).
11.0		CD	hdr	Additional requirements are located in Groups 003 and 004 and at the EU 010 level for these emission units.
12.0		CD	hdr	NESHAP ZZZZ REQUIREMENTS Requirements under 40 CFR pt. 63, subp. ZZZZ: National Emission Standards for Reciprocating Internal Combustion Engines
13.0		CD	40 CFR Section 63.6595(a)(1); Minn. R. 7011.8150	The Permittee shall comply with the applicable emission and operational limitations from 40 CFR pt. 63, subp. ZZZZ no later than May 3, 2013.
14.0		CD	hdr	EMISSION AND OPERATIONAL LIMITS
15.0		CD	40 CFR Section 63.6603; 40 CFR Section 63.6640; and Table 2d to subpart ZZZZ of Part 63; Minn. R. 7011.8150	Change oil and filter every 500 hours of operation or annually, whichever comes first. The Permittee has the option of utilizing an oil analysis program in order to extend the oil change requirement as described below.

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16.0		CD	40 CFR Section 63.6603; 40 CFR Section 63.6640; and Table 2d to subpart ZZZZ of Part 63; Minn. R. 7011.8150	Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary.
17.0		CD	40 CFR Section 63.6603; 40 CFR Section 63.6640; and Table 2d to subpart ZZZZ of Part 63; Minn. R. 7011.8150	Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.
18.0		CD	40 CFR Section 63.6604(b); Minn. R. 7011.8150	Beginning January 1, 2015, if you own or operate an existing emergency CI stationary RICE with a site rating of more than 100 brake HP and a displacement of less than 30 liters per cylinder that uses diesel fuel and operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in 40 CFR Section 63.6640(f)(2)(ii) and (iii) or that operates for the purpose specified in 40 CFR Section 63.6640(f)(4)(ii), the Permittee must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to January 1, 2015, may be used until depleted.
19.0		CD	40 CFR Section 63.6605(a); Minn. R. 7011.8150	The Permittee shall be in compliance with the emission limitations, operating limitations, and other requirements in 40 CFR pt. 63, subp. ZZZZ that apply at all times.
20.0		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 this standard 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.
21.0		CD	40 CFR Section 63.6625(e); Minn. R. 7011.8150	The Permittee shall operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop a maintenance plan which shall provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.
22.0		CD	40 CFR Section 63.6625(f); Minn. R. 7011.8150	The Permittee shall install a non-resettable hour meter if one is not already installed by May 3, 2013.
23.0		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 emission standards applicable to all times other than startup apply.
24.0		CD	40 CFR Section 63.6625(i); Minn. R. 7011.8150	The Permittee has the option of utilizing an oil analysis program in order to extend the specified oil change requirement. The oil analysis shall be performed at the same frequency specified for changing the oil. The analysis program shall at a minimum analyze the following 3 parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. (continued below)
25.0		CD	40 CFR Section 63.6625(i); Minn. R. 7011.8150	(continued from above) If none of the condemning limits are exceeded, the Permittee is not required to change the oil. If any of the limits are exceeded, the Permittee shall change the oil within 2 business days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the Permittee shall change the oil within 2 business days or before commencing operation, whichever is later. The Permittee shall keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program shall be part of the maintenance plan for the engine.
26.0		CD	40 CFR Section 63.6640(a); 40 CFR pt. 63 subp. ZZZZ, Table 6	The Permittee shall operate and maintain the stationary RICE according to the manufacturer's emission related operation and maintenance instructions; or the Permittee shall develop and follow a maintenance plan which shall provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.

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27.0		CD	40 CFR Section 63.6665 and Table 8 to Subpart ZZZZ of Part 63; 40 CFR Section 63.1 through 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.
28.0		CD	40 CFR Section 63.4(a)	The Permittee may not operate any affected source in violation of the requirements of 40 CFR pt. 63, subp. A. The Permittee shall not fail to keep records, notify, report or revise reports as required under this part.
29.0		CD	40 CFR Section 63.4(b)	The Permittee shall not build, erect, install, or use any article, machine, equipment, or process to conceal an emission that would otherwise constitute noncompliance with a relevant standard. Such concealment includes, but is not limited to: 1. The use of diluents to achieve compliance with a relevant standard based on the concentration of a pollutant in the effluent discharged to the atmosphere; 2. The use of gaseous diluents to achieve compliance with a relevant standard for visible emissions.
30.0		CD	hdr	REQUIREMENTS FOR EMERGENCY STATIONARY RICE
31.0		CD	40 CFR Section 63.6640(f); Minn. R. 7011.8150	The Permittee shall operate the emergency stationary RICE according to the requirements in paragraphs 40 CFR Section 63.6640 (f)(1) through (4). Any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as described in 40 CFR Section 63.6640(f)(1) through (4), is prohibited. If the engine is not operated according to the requirements in 40 CFR Section 63.6640(f)(1)(1), (2) and (4), the engine will not be considered an emergency engine under this subpart and will need to meet all requirements for non-emergency engines.
32.0		CD	40 CFR Section 63.6640(f)(1) and (2); Minn. R. 7011.8150	(1) There is no time limit on the use of emergency stationary RICE in emergency situations. (2) The Permittee may operate for any combination of purposes specified in 40 CFR Section 63.6640(f)(2)(i) through (iii) for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by 40 CFR Section 63.6640(f) (4) counts as part of the 100 hours. (continued below)
33.0		CD	40 CFR Section 63.6640(f)(1) and (2); Minn. R. 7011.8150	(continued from above) (i) The Permittee shall operate the emergency stationary RICE for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The Permittee may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the Permittee maintains records indication that Federal, State, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year. (continued below)
34.0		CD	40 CFR Section 63.6640(f)(1) and (2); Minn. R. 7011.8150	(continued from above) (ii) Emergency stationary RICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (MERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies, or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3. (iii) Emergency stationary RICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.
35.0		CD	40 CFR Section 63.6640(f)(4); Minn. R. 7011.8150	The engines may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in 40 CFR Section 63.6640(f)(2). Except as provided in 40 CFR Section 63.6640(f)(4)(i) and (ii), the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity. (continued below)

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36.0		CD	40 CFR Section 63.6640(f)(4); Minn. R. 7011.8150	(continued from above) (i) Prior to May 3, 2014, the 50 hours per year for non-emergency situations can be used for peak shaving or non-emergency demand response to generate income for a facility, or to otherwise supply power as part of a financial arrangement with another entity if the engine is operated as part of a peak shaving (load management program) with the local distribution system operator and the power is provided only to the facility itself or to support the local distribution system. (continued below)
37.0		CD	40 CFR Section 63.6640(f)(4); Minn. R. 7011.8150	(continued from above) (ii) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met: (A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator. (B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region. (C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines. (continued below)
38.0		CD	40 CFR Section 63.6640(f)(4); Minn. R. 7011.8150	(continued from above) (D) The power is provided only to the facility itself or to support the local transmission and distribution system. (E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.
39.0		CD	hdr	RECORDKEEPING REQUIREMENTS
40.0		CD	40 CFR Section 63.6640(a); Minn. R. 7011.8150	The Permittee shall demonstrate continuous compliance with each emission limitation, operating limitation, and other requirements 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.
41.0		CD	40 CFR Section 63.6655(e); Minn. R. 7011.8150	The Permittee shall keep records of the maintenance conducted on the stationary RICE in order to demonstrate that the Permittee operated and maintained the stationary RICE and after-treatment control device (if any) according to the maintenance plan.
42.0		CD	40 CFR Section 63.6655(f); Minn. R. 7011.8150	The Permittee shall keep records of the hours of operation of the engine that are recorded through the non-resettable hour meter. The Permittee shall document how many hours are spent for emergency operation; including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the engine is used for purposes specified in 40 CFR Sections 63.6640(f)(2)(ii) or (iii) or 63.6640(f)(4)(ii), the Permittee shall keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes.
43.0		CD	40 CFR Section 63.6660; 40 CFR Section 63.10(b)(1); Minn. R. 7011.8150	The Permittee shall keep 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.
44.0		CD	hdr	REPORTING AND NOTIFICATION REQUIREMENTS
45.0		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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Facility Name: Glencoe Light & Power Commission

Permit Number: 08500013 - 004

Subject Item: **GP 003 New Unit Exempt Electric Generators**

Associated Items: EU 011 Engine #11 Caterpillar 4840 kW

EU 012 Engine #12 Caterpillar 4840 kW

EU 014 Engine #14 Caterpillar 4840 kW

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	The requirements in GP 003 apply to each emission unit individually.
2.0		CD	hdr	EMISSIONS AND OPERATING LIMITS
3.0		CD	40 CFR Section 72.7(a)(2); Minn. R. 7007.1075; Minn. R. 7005.0100, subp. 35a	Fuel Type: Diesel fuel, by design.
4.0		LIMIT	40 CFR Section 72.7(a)(3); Minn. R. 7007.1075	Sulfur Content of Fuel: less than or equal to 0.05 percent by weight on an annual average.
5.0		CD	hdr	MONITORING AND RECORDKEEPING
6.0		CD	40 CFR Section 72.7(d)(3); Minn. R. 7007.1075	Average Annual Suflur Content Determination The Permittee shall calculate the annual average sulfur content, as a percentage by weight, using the equation in 40 CFR Section 72.7(d)(2). In lieu of the factor, volume times density, in the equation, the factor, mass (Mn), may be used, where Mn is: mass of the nongaseous fuel in a delivery during the year to the unit of which the nth sample is taken, in lb. Fuel shall be sampled at least once for every delivery.
7.0		CD	40 CFR Section 72.7(f)(3); Minn. R. 7007.1075	For a period of 5 years from the date the records are created, the Permittee shall retain at the source records demonstrating that the requirements of 40 CFR Section 72.7(a) are met. The 5-year period for keeping records may be extended for cause, at any time prior to the end of the period, in writing by the Administrator or the permitting authority. (i) Such records shall include, for each delivery of fuel to the unit, the type of fuel, the sulfur content, and the sulfur content of each sample taken. (ii) The Permittee bears the burden of proof that the requirements of 40 CFR Section 72.7(a) are met.
8.0		CD	40 CFR Section 72.7(f)(4)(i); Minn. R. 7007.1075	Loss of exemption. An exempt unit shall be treated as an affected unit under the Acid Rain Program on the earliest of the following dates: (A) The date on which the unit first serves one or more generators with total nameplate capacity in excess of 25 MWe (megawatt electrical); (B) The date on which the unit burns any coal or coal-derived fuel except for coal-derived gaseous fuel with a total sulfur content no greater than natural gas; or (C) January 1 of the year following the year in which the annual average sulfur content for gaseous fuel burned at the unit exceeds 0.050 percent by weight (as determined under 40 CFR Section 72.7(d)).
9.0		CD	hdr	Additional requirements are included in GP 001.

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Facility Name: Glencoe Light & Power Commission

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Subject Item: **GP 004 Dual Fuel Generators**

Associated Items: EU 005 Engine #5 Fairbanks-Morse 1360 kW

EU 007 Engine #7 Enterprise 4100 kW

EU 008 Engine #8 Cooper-Bessemer 5600 kW

EU 009 Engine #9 Enterprise 7150 kW

	NC/ CA	Type	Citation	Requirement
1.0		CD	Title I Condition: To avoid classification as a major source under 40 CFR 52.21 & Minn. R. 7007.3000; Minn. R. 7005.0100, subp. 35a	Fuel Type: Natural gas and diesel fuel only.
2.0		CD	Minn. R. 7007.0800, subp. 5	The Permittee shall keep records of fuel type and usage on a monthly basis.
3.0		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 diesel fuel, certifying that the sulfur content does not exceed 0.495% by weight. If the Permittee uses the same diesel fuel in EUs 005 through EU 010 as used in the Acid Rain units (EUs 011, 012, and 014), the Permittee can determine sulfur content of diesel fuel combusted in EUs 005 through EU 010 according to the requirements of 40 CFR Section 72.7(d)(3).
4.0		CD	hdr	Additional requirements are included in GP 001.

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Subject Item: **EU 010 Engine #10 Enterprise 7060 kW**

Associated Items: GP 001 Electric Generators

SV 006 Engine #10

	NC/ CA	Type	Citation	Requirement
1.0		CD	Title I Condition: To avoid classification as a major source under 40 CFR 52.21 & Minn. R. 7007.3000; Minn. R. 7005.0100, subp. 35a	Fuel type: Diesel fuel only by design.
2.0		CD	Minn. R. 7007.0800, subp. 5	The Permittee shall keep records of fuel type and usage on a monthly basis.
3.0		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 diesel fuel, certifying that the sulfur content does not exceed 0.495% by weight. If the Permittee uses the same diesel fuel in EU 010 as used in the Acid Rain units (EUs 011, 012, and 014), the Permittee can determine sulfur content of diesel fuel combusted in EUs 005 through EU 010 according to the requirements of 40 CFR Section 72.7(d)(3).
4.0		CD	hdr	Additional requirements are included in GP 001.

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Facility Name: Glencoe Light & Power Commission

Permit Number: 08500013 - 004

Subject Item: **EU 013 Boiler #1**

Associated Items: SV 007 Boiler

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	OPERATIONAL REQUIREMENTS
2.0		LIMIT	Minn. R. 7011.0515, sub. 1	Total Particulate Matter: less than or equal to 0.40 lbs/million Btu heat input . The potential emissions for this boiler utilizing diesel as the fuel source is 0.236 lbs/million Btu heat input.
3.0		LIMIT	Minn. R. 7011.0515, subp. 2	Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.
4.0		CD	hdr	OPERATING CONDITIONS
5.0		CD	Minn. R. 7005.0100, subp. 35a	Fuel Types: Natural gas or diesel, by design.
6.0		CD	hdr	RECORDKEEPING
7.0		CD	Minn. R. 7007.0800, subp. 5	Fuel Records: The Permittee shall keep records of fuel purchases for the facility on a monthly basis.
8.0		CD	hdr	NESHAP JJJJJJ RREQUIREMENTS Requirements under 40 CFR pt. 63, subp. JJJJJJ: National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial and Institutional Boilers Area Sources Enforcement not delegated to MPCA.
9.0		CD	hdr	NESHAP OPERATIONAL REQUIREMENTS
10.0		CD	40 CFR Section 63.11196(a)(1)	The Permittee must comply with the requirement to conduct a tune-up according to 40 CFR Section 63.11223(b) no later than March 21, 2014.
11.0		CD	40 CFR Section 63.11205(a)	At all times the Permittee must operate and maintain affected boilers, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that 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.
12.0		CD	40 CFR Section 63.11210(c)	The Permittee must demonstrate initial compliance with each applicable work practice standard, management practice, or emission reduction measure no later than March 21, 2014 and according to the applicable provisions in 40 CFR Section 63.7(a)(2).
13.0		CD	40 CFR Section 63.11201(b); 40 CFR Section 63.11223(a); 40 CFR Section 63.11223(e); 40 CFR Section 63, subp. JJJJJJ, Table 2	The Permittee must conduct an initial tune-up as specified in 40 CFR Section 63.11214 and a tune-up every 5 years as specified in 40 CFR Section 63.11223 for each boiler and keep records as required in 40 CFR Section 63.11225(c) to demonstrate continuous compliance. Each tune-up must be conducted no more than 61 months after the previous tune-up
14.0		CD	40 CFR Section 63.11223(b) and (e)	The Permittee must conduct a tune-up of the boiler every 5 years to demonstrate continuous compliance as specified in (1) through (7) as follows: (1) As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the Permittee may delay the burner inspection until the next scheduled unit shutdown, not to exceed 72 months from the previous inspection). (2) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available. (3) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (the Permittee may delay the inspection until the next scheduled unit shutdown, not to exceed 72 months from the previous inspection). (continued below)

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15.0		CD	40 CFR Section 63.11223(b) and (e)	(continued from above) (4) Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any nitrogen oxide requirement to which the unit is subject. (5) Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). (continued below)
16.0		CD	40 CFR Section 63.11223(b)	(continued from above) (6) Maintain on-site and submit, if requested by the Administrator, a report containing the information in (i) through (iii) as follows: (i) The concentrations of CO in the effluent stream in parts per million, by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler. (ii) A description of any corrective actions taken as a part of the tune-up of the boiler. (iii) The type and amount of fuel used over the 12 months prior to the tune-up of the boiler, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel use by each unit. (7) If the unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 days of startup.
17.0		CD	40 CFR Section 63.11201(d)	The standards in 40 CFR Section 63.11201 apply at all times the affected boilers are operating, except during periods of startup and shutdown as defined in 40 CFR Section 63.11237, during which time the Permittee must comply only with Table 2 to 40 CFR pt. 63, subp. JJJJJJ.
18.0		CD	40 CFR Section 63.11235; 40 CFR pt. 63 subp. JJJJJJ, Table 8	The Permittee must comply with the General Provisions as applicable in Table 8 of 40 CFR pt. 63, subp. JJJJJJ.
19.0		CD	hdr	NESHAP RECORDKEEPING
20.0		CD	40 CFR Section 63.11225(c)	The Permittee must maintain the following records: (1) A copy of each notification and report that was submitted to comply with 40 CFR pt. 63, subp. JJJJJJ, including all documentation supporting any Initial Notification or Notification of Compliance Status that was submitted, as required by 40 CFR Section 63.10(b)(2)(xiv); (2) Records to document conformance with 40 CFR Sections 63.11214 and 63.11223 as specified as follows: (i) Records must identify each boiler, the date of tune-up, the procedures followed for tune-up, and the manufacturer's specifications to which the boiler was tuned. (continued below)
21.0		CD	40 CFR Section 63.11225(c)	(continued from above) (4) Records of the occurrence and duration of each malfunction of each boiler or of the associated air pollution control and monitoring equipment. (5) Records of actions taken during periods of malfunction to minimize emissions in accordance with the general duty to minimize emissions in 40 CFR Section 63.11205(a), including corrective actions to restore the malfunctioning boiler, air pollution control, or monitoring equipment to its normal or usual manner of operation. (continued below)
22.0		CD	40 CFR Section 63.11225(c)	(continued from above) (6) Records of all inspection and monitoring data as required by 40 CFR Sections 63.11221 and 63.11222, and the information identified below for each required inspection or monitoring: (i) The date, place, and time of the monitoring event; (ii) Person conducting the monitoring. (iii) Technique or method used; Operating conditions during the activity; (v) Results, including the date, time, and duration of the period from the time the monitoring indicated a problem to the time that monitoring indicated proper operation; (vi) Maintenance or corrective action taken (if applicable).
23.0		CD	40 CFR Section 63.11225(d)	Records must be in a form suitable and readily available for expeditious review. The Permittee must keep each record for 5 years following the date of each recorded action. The Permittee must keep each record on-site or be accessible from a central location by computer or other means that instantly provide access at the site for at least 2 years after the date of each recorded action. The Permittee may keep the records off site for the remaining 3 years.

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24.0		CD	hdr	REPORTING AND NOTIFICATION REQUIREMENTS
25.0		CD	40 CFR Sections 63.11225(b)	The Permittee must prepare by March 1 of each year, and submit to the Administrator upon request, a 5-year compliance certification report for the previous calendar year containing the information described below. (1) Company name and address (2) Statement by a responsible official, with the official's name, title, phone number, e-mail address, and signature, certifying the truth, accuracy, and completeness of the notification and a statement of whether the source has complied with all the relevant standards and other requirements of 40 CFR pt. 63, subp. JJJJJJ. The notification must include the following certifications of compliance, as applicable, and signed by a responsible official. (i) "This facility complies with the requirements in 40 CFR Section 63.11223 to conduct a 5-year tune-up of each boiler." (continued below)
26.0		CD	40 CFR Sections 63.11225(b)	continued from above) (ii) "This facility complies with the requirement in 40 CFR Section 63.11214(d) and 63.11223(g) to minimize the boiler's time spent during startup and shutdown and to conduct startups and shutdowns according to the manufacturer's recommended procedures or procedures specified for a boiler of similar design if manufacturer's recommended procedures are not available."
27.0		CD	40 CFR Section 63.11225(a)(4)	Notification of compliance status: due 120 days after March 21, 2014. The notification must include the following certifications of compliance, as applicable and signed by a responsible official: (i) The Permittee must submit the information require in 40 CFR Section 63.9(h)(2), except the information listed in 40 CFR Section 63.9(h)(2)(i)(B), (D), (E) and (F). If the Permittee conducts any performance tests or CMS performance evaluations, the Permittee must submit that data as specified in paragraph (e) of this section. If you conduct any opacity or visible emission observations, or other monitoring procedures or methods, the Permittee must submit that data to the Administrator at the appropriate address listed in 40 CFR Section 63.13. (continued below)
28.0		CD	40 CFR Section 63.11225(a)(4)	(continued from above) (ii) "This facility complies with the requirements in 40 CFR Section 63.11214 to conduct an initial tune-up of the boiler." (iii) The notification must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX). However, if the reporting form specific to 40 CFR pt. 63, subp. JJJJJJ is not available in CEDRI at the time that the report is due, the written Notification of Compliance Status must be submitted to the Administrator at the appropriate address listed in 40 CFR Section 63.13.
29.0		CD	40 CFR Section 63.11214(b)	The Permittee must conduct a performance tune-up according to 40 CFR Section 63.11223(b) and submit a signed statement in the Notification of Compliance Status report that indicates that the Permittee conducted a tune-up of the boiler.
30.0		CD	40 CFR Section 63.11225(a)(1)	The Permittee must submit all of the notifications in 40 CFR Sections 63.7(b); 63.8(e) and (f); 63.9(b) through (e), (g) and (h) that apply by the dates specified in those sections except as specified in 40 CFR Section 63.11225(a)(2) and (4).