

$$\text{PM}_{10}: (100 \text{ hr/yr})(92 \text{ hp})(0 \text{ g/hp-hr})(\text{lb}/454 \text{ g}) / (365 \text{ day/yr}) = \mathbf{0 \text{ lb/day}} \\ \text{and } \mathbf{0 \text{ lb/yr}}$$

$$\text{SO}_2: (100 \text{ hr/yr}) (0.76 \text{ MMBtu/hr}) (0.0006 \text{ lb/MMBtu}) / (365 \text{ day/yr}) = \mathbf{0.0001 \text{ lb/day}}$$

Daily Emissions:

Daily emissions are calculated to establish whether a source triggers the requirement for BACT (10 lb/highest day total source emissions for any class of pollutants). 24-hr/day operation will be assumed.

$$\text{NO}_x: (24 \text{ hr/day})(92 \text{ hp})(0.044 \text{ g/hp-hr})(\text{lb}/454 \text{ g}) = \mathbf{0.214 \text{ lb/day}}$$

$$\text{POC}: (24 \text{ hr/day})(92 \text{ hp})(0.846 \text{ g/hp-hr})(\text{lb}/454 \text{ g}) = \mathbf{4.11 \text{ lb/day}}$$

$$\text{CO}: (24 \text{ hr/day})(92 \text{ hp})(0.470 \text{ g/hp-hr})(\text{lb}/454 \text{ g}) = \mathbf{2.29 \text{ lb/day}}$$

$$\text{PM}_{10}: (24 \text{ hr/day})(92 \text{ hp})(0 \text{ g/hp-hr})(\text{lb}/454 \text{ g}) = \mathbf{0 \text{ lb/day}}$$

$$\text{SO}_2: (24 \text{ hr/day})(0.76 \text{ MMBtu/hr})(0.0006 \text{ lb/MMBtu}) = \mathbf{0.01 \text{ lb/day}}$$

PLANT CUMULATIVE INCREASE

Pollutant	Current Plant Emissions (TPY)	Increase in Plant Emissions Associated with this Application (TPY)	Cummalitive Emission (Current + Application) (TPY)
POC	0	0.2055	0.2055
NOx	0	0.000107	0.000107
SO2	0	0.000005	0.000005
CO	0	0.001145	0.001145
NPOC	0	0	0
PM10	0	0	0

TOXIC RISK SCREENING ANALYSIS

Estimated toxic pollutant emissions at the exhaust stack are summarized in the table below. The emission factors used in the emissions calculations were provided by AP-42 emission factors.

Basis:

- 100 hr/yr operation for testing and maintenance
- Firing rate of 0.864 MMBtu/hr
- Emission factors from AP-42 Table 3.2-2 (Uncontrolled Natural Gas Emission Factors for 4-Stroke Rich-Burn Engines)

Criteria Pollutant	AP-42 EF (lb/MMBTU)	Emissions (lb/year)	Trigger Level (lb/year)	Trigger? (Yes/No)
1,1,2,2-Tetrachloroethane	2.53E-05	2.19E-03	3.20E+00	No
1,1,2-Trichloroethane	1.53E-05	1.32E-03	1.10E+01	No
1,1-Dichloroethane	1.13E-05	9.76E-04	1.10E+02	No
1,3-Butadiene	6.63E-04	5.73E-02	1.10E+00	No

Acetaldehyde	2.79E-03	2.41E-01	6.40E+01	No
Acrolein	2.63E-03	2.27E-01	2.30E+00	No
Benzene	1.58E-03	1.37E-01	2.90E+00	No
Carbon Tetrachloride	1.77E-05	1.53E-03	4.30E+00	No
Chlorobenzene	1.29E-05	1.11E-03	3.90E+04	No
Chloroform	1.37E-05	1.18E-03	3.30E-01	No
Ethylbenzene	2.48E-05	2.14E-03	7.70E+04	No
Ethylene Dibromide	2.13E-05	1.84E-03	2.60E+00	No
Formaldehyde	2.05E-02	1.77E+00	3.00E+01	No
Methanol	3.06E-03	2.64E-01	1.50E+05	No
Methylene Chloride	4.12E-05	3.56E-03	1.80E+02	No
Naphthalene	9.71E-05	8.39E-03	5.30E+00	No
PAH or derivative TOTAL	2.04E-07	1.77E-05	1.10E-02	No
Styrene	1.19E-05	1.03E-03	3.50E+04	No
Toluene	5.58E-04	4.82E-02	1.20E+04	No
Vinyl Chloride	7.18E-06	6.20E-04	2.40E+00	No
Xylene	1.95E-04	1.68E-02	2.70E+04	No

As can be seen, no compound listed in Table above exceeds toxic trigger levels. Hence, toxic risk screening analysis is **not** required.

BACT

BACT is not triggered as maximum daily emissions for each criteria pollutant do not exceed 10 lbs/day as calculated on page 1 and page 2 (Daily Emissions).

OFFSETS

Pollutant	Increase in Emissions at Plant Since April 5, 1991 (TPY)	Increase in Plant Emissions Associated with this Application (TPY)	Total Emissions (Post 04/05/1991 + Increase) (TPY)	Regulation 2-2-302; 2-3-302 Offset Triggers (TPY)
POC	0	0.2055	0.2055	> 10; < 35
NO _x	0	0.000107	0.000107	> 10; < 35
SO ₂	0	0.000005	0.000005	> 1
CO	0	0.001145	0.001145	NA
PM ₁₀	0	0	0	> 1

Offsets are not required because permitted POC and NO_x emissions are each expected to be less than 15 TPY.

STATEMENT OF COMPLIANCE

S-1 will be operated as an emergency standby engine and therefore is not subject to the emission rate limits in Regulation 9, Rule 8 ("NO_x and CO from Stationary Internal Combustion Engines"). S-1 is subject to the monitoring and record keeping requirements of Regulation 9-8-530 and the SO₂ limitations of 9-1-301 (ground-level concentration) and 9-1-304 (0.5% by weight in fuel). Regulation 9-8-530 requirements are incorporated into the proposed permit conditions. Compliance with Regulation 9-1 is very likely since natural gas has negligible sulfur

content. Like all combustion sources, S-1 is subject to Regulation 6 ("Particulate and Visible Emissions"). This engine is not expected to produce visible emissions or fallout in violation of this regulation and will be assumed to be in compliance with Regulation 6 pending a regular inspection.

This application is considered to be ministerial under the District's Regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emission factors in accordance with Permit Handbook Chapter 2.3.

This facility is within 1,000 feet from the nearest school and therefore is subject to the public notification requirements of Regulation 2-1-412.

PSD, NSPS and NESHAPS are not triggered.

PERMIT CONDITIONS

APPLICATION 18488; Cencom; PLANT 19185
CONDITIONS FOR S-1

1. The owner/operator of emergency generator S-1 shall use only PUC quality natural gas. [Basis: Cumulative Increase]
2. The owner/operator of S-1 shall only operate this engine to mitigate emergency conditions or for reliability-related activities. Operation for reliability-related activities shall not exceed 100 hours in any calendar year. Operation while mitigating emergency conditions is unlimited. [Basis: Regulation 9-8-330, Cumulative Increase]

“Emergency Conditions” is defined as any of the following:

[Basis: Regulation 9-8-231]

- a. Loss of regular natural gas supply
- b. Failure of regular electric power supply
- c. Flood mitigation
- d. Sewage overflow mitigation
- e. Fire
- f. Failure of a primary motor, but only for such time as needed to repair or replace the primary motor

“Reliability-related activities” is defined as any of the following: [Basis: Regulation 9-8-232]

- a. Operation of an emergency standby engine to test its ability to perform for an emergency use, or
 - b. Operation of an emergency standby engine during maintenance of a primary motor
3. The owner/operator of S-1 shall provide this engine with either: [Basis: Regulation 9-8-530]

- a. a non-resettable totalizing meter that measures the hours of operation for the engine,
OR
 - b. a non-resettable fuel usage meter (758,880 Btu of natural gas shall be assumed to be equivalent to 1 hour of reliability-related operation)
4. The owner/operator of S-1 shall maintain the following monthly records. These records shall be kept in a District-approved log for at least 2 years and shall be made available for District inspection upon request:
[Basis: Regulations 9-8-530, 1-441]
- a. Total hours of operation
 - b. Hours of operation under emergency conditions and a description of the nature of each emergency condition
 - c. Fuel usage

RECOMMENDATION

Issue and Authority to Construct and/or a Permit to Operate to Cencom for:

S-1
Emergency Standby Generator: Natural Gas Engine
Make: Generac, Model: QT-045,
Rated Horsepower: 92 HP

By: _____
Mohammad Ammar Khan
Air Quality Engineer Intern

Date: **July 29, 2008**