

New Cingular Wireless dba AT&T
155 Marinwood Avenue
San Rafael, CA 94903
Application # 25525 Plant # 21996

BACKGROUND

New Cingular Wireless has filed an application to obtain an Authority to Construct and a Permit to operate the following 50 KW_e (86 Bhp) propane fired emergency generator.

S-1 Emergency Stand-by Propane Fired Generator 86 Bhp, Generac Model SG050, EPA Engine Family DGNXB06.82L6 with Integral Catalyst

The LPG fired emergency standby generator set will provide emergency standby power in the event of a disruption to power service. Regulation 9-8-330.3 limits hours of operation of emergency generators to 50 hours per year for reliability related activities. Thus the engine is conditioned to run 50 hours per year for testing and maintenance.

EMISSION CALCULATION

The emissions are calculated based on manufacturer emission data. Table 1 presents the criteria pollutant maximum pound per day and annual emissions in pound per year and ton per year. This SG Model engine has a built-in combination catalyst/silencer. This is documented in the engine brochure.

Calculation Basis:

Hours of operation per year = 50
Engine BHP = 86
Conversion g to lb = 454 g/lb

Table 1 Criteria Pollutant Emissions

Pollutant	Emission Factor g/Bhp-h	Emission (lb/day max) 24 hrs/day operation	Emission 50 hrs/yr operation	
			lb/yr	ton/yr
NO _x	0.05	0.2	0.5	0
CO	0.5	2.3	4.7	0.002
POC	0.01	0.1	0.1	0
PM ₁₀	Negligible	0	0	0
SO ₂	Negligible	0	0	0

** Engine manufacturer supplied emission factors

TOXIC RISK SCREENING ANALYSIS

To estimate Hazardous Air Pollutant (HAPs) and/or Toxic Air Contaminant (TACs) emissions from S-1, AP-42 emission factors for natural gas fired 4-stroke lean burn engines less than 650 Bhp are used. Source specific CATEF factors are used to calculate PAH emissions. S-1 has a maximum firing rate of 0.79 MM Btu/hr and a maximum Bhp rating of 86.

As shown in Table 2 below, none of the TACs exceed the District's Risk Screening trigger levels. Therefore, a Health Risk Screening Analysis (HRSA) is not required.

Table 2 Criteria and Toxic Air Contaminant Emissions									
4-Stroke Lean Burn									
Firing Rate (MMBTU/hr) =	0.7935								
# of Hours/Yr Operation =	50								
	Source Specific	AP-42		Emissions	Trigger Level	Trigger?	Emissions	Trigger Level	Trigger?
Criteria Pollutant	EF (lb/MMBTU)	EF (lb/MMBTU)	PEF	(lb/year)	(lb/year)	(Yes/No)	(lb/hr)	(lb/hr)	(Yes/No)
NOx		4.08E+00		161.874					
CO		3.17E-01		12.576975					
SO2		5.88E-04		0.0233289					
VOC		1.18E-01		4.68165					
PM10		7.71E-05		0.0030589					
Toxic Air Contaminant									
1,1,2,2-Tetrachloroethane		4.00E-05		1.59E-03	1.90E+00	No			
1,1,2-Trichloroethane		3.18E-05		1.26E-03	6.60E+00	No			
1,1-Dichloroethane		2.36E-05		9.36E-04	6.60E+01	No			
1,3-Butadiene		2.30E-05		9.13E-04	6.30E-01	No			
Acetaldehyde		8.36E-03		3.32E-01	3.80E+01	No	6.63E-03	1.00E+00	No
Acrolein		5.14E-03		2.04E-01	1.40E+01	No	4.08E-03	5.50E-03	No
Benzene		4.40E-04		1.75E-02	3.80E+00	No	3.49E-04	2.90E+00	No
Carbon Tetrachloride		3.67E-05		1.46E-03	2.50E+00	No	2.91E-05	4.20E+00	No
Chlorobenzene		3.04E-05		1.21E-03	3.90E+04	No			
Chloroform		2.85E-05		1.13E-03	2.00E+01	No	2.26E-05	3.30E-01	No
Ethylbenzene		4.43E-05		1.76E-03	4.30E+01	No			
Ethylene Dibromide		4.43E-05		1.76E-03	1.50E+00	No			
Formaldehyde		5.28E-02		2.09E+00	1.80E+01	No	4.19E-02	1.20E-01	No
Hexane		1.11E-03		4.40E-02	2.70E+05	No			
Methanol		2.50E-03		9.92E-02	1.50E+05	No	1.98E-03	6.20E+01	No
Methylene Chloride		2.00E-05		7.94E-04	1.10E+02	No	1.59E-05	3.10E+01	No
Naphthalene		7.44E-05		2.95E-03	3.20E+00	No			
PAH or derivative*									
Benzo(a)anthracene	0.1	7.63E-08							
Benzo(a)pyrene	1	3.48E-08							
Benzo(b)fluoranthene	0.1	3.21E-07							
Benzo(k)fluoranthene	0.1	5.20E-07							
Dibenz(a,h)anthracene	1.05	1.07E-08							
Indeno(1,2,3-cd)pyrene	0.1	1.18E-07							
PAH or derivative TOTAL*		1.49E-07		5.93E-06	6.90E-03	No			
Phenol		2.40E-05		9.52E-04	7.70E+03	No	1.90E-05	1.30E+01	No
Styrene		2.36E-05		9.36E-04	3.50E+04	No	1.87E-05	4.60E+01	No
Toluene		4.08E-04		1.62E-02	1.20E+04	No	3.24E-04	8.20E+01	No
Vinyl Chloride		1.49E-05		5.91E-04	1.40E+00	No	1.18E-05	4.00E+02	No
Xylene		1.84E-04		7.30E-03	2.70E+04	No	1.46E-04	4.90E+01	No

* CATEF Factors were used instead of AP-42.

PLANT CUMULATIVE EMISSIONS

Plant cumulative increase is presented in Table 3 Plant Cumulative Increase. Plant cumulative increase analysis is required for all new or modified sources. Table 3 summarizes the cumulative increase for criteria pollutant emissions that will result at Plant 21996 from the operation of S-1.

Table 3 Plant Cumulative Increase

Plant Cumulative Increase: (tons/year)			
Pollutant	Existing	New	Total
NOx	0	0	0
CO	0	0.002	0.002
PM ₁₀	0	0	0
POC	0	0	0
SO ₂	0	0	0

BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

In accordance with Regulation 2, Rule 2, Section 301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NO_x, CO, SO₂ or PM₁₀ S-1 does not trigger BACT (Table 1).

OFFSETS

Per Regulation 2-2-302, offsets must be provided for any new or modified source at a facility that emits more than 10 tons/yr of POC or NO_x. Offsets are not required since the cumulative emissions of NO_x and POC are less than 10 tons per year. Offsets must also be provided for any new or modified source at a Major Facility that emits more than 1 ton per year of PM₁₀ or SO₂. A Major Facility is a facility that has the potential to emit 100 tons per year of any regulated air pollutant or 10 tons per year of any single hazardous air pollutant or 25 tons of a combination of hazardous air pollutants. New Cingular is not a major facility for PM₁₀ or SO₂. Based on the emission calculations above, offsets are not required for this application.

NSPS

This engine is subject to 40 CFR part 60, Subpart JJJJ, Standards of Performance pursuant to 60.4230 (a)(4)(IV) for Stationary Spark Ignition Internal Combustion Engines, because the owners and operators will commence construction after June 12, 2006 and this emergency engine has a maximum engine power greater than 25 HP and is propane fired. Further, the engine should comply with the emission standard specified in 60.4231(c). Per 60.4231(c), for spark ignition internal combustion engines (SI ICE) ≥ 25 HP < 130 HP must be certified to Phase I emission standards in 40CFR90.103, Class II.

Table 4: NSPS Emission Standards and Certified Standards

Pollutant	40 CFR 90.103 Phase I, Class II Stds.	Certified Emission Factors
HC+NO _x (g/Kw-h)	13.4	0.08
CO (g/Kw-h)	519	0.67

Based on the manufacturer certified emissions data, S-1 will meet the 40 CFR part 60, Subpart JJJJ, Standards of Performance pursuant to 60.4230 (a)(4)(IV) for Stationary Spark Ignition Internal Combustion Engines.

CEQA

The project is considered to be ministerial under the District's CEQA 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 emissions factors and therefore is not discretionary as defined by CEQA. (Permit Handbook Chapter 2.3)

STATEMENT OF COMPLIANCE

DISTRICT REGULATIONS

Source S-1 complies with the following District Regulations:

Permits – General Requirements, Regulation 2 Rule 1

Source S-1 is located less than 1,000 feet from the nearest school and therefore is subject to the public notification requirements of Regulation 2-1-412. A public notice will be prepared and sent to all addresses within 1000 feet of the diesel generator set and parents and guardians of students of the following school(s):

Gate Academy (K-8)
1 St. Vincent Drive
San Rafael, CA 94903.

Regulation 6-301: Particulate and Visible Emissions

Source S-1 is expected to comply with Regulation 6-1-301 Ringelman limitation, 6-1-305 visible particulate limitation and 6-1-310 of 0.15 grains/dscf limitation, since S-1 is a 2013 propane fired engine.

Regulation 9-1-301: Limitation of Ground Level Concentration of SO₂

Source S-1 is expected to comply with this regulation since S-1 is a 2013 propane fired emergency generator engine.

Regulation 9-8-110.5 and 11.3: Inorganic Gaseous Pollutants: Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines:

S-1 is an emergency standby generator and operates less than 50 hours in any consecutive 12-month period. These regulations exempt the requirements of Sections 9-8-301 through 305, 501 and 503. Allowable operating hours and the corresponding record keeping specified in Regulation 9-8-502.1 and 530 will be included in the Permit Conditions.

EXEMPTIONS

None

PERMIT CONDITIONS

Condition # 25626

1. The owner or operator shall operate the stationary emergency standby engine, only to mitigate emergency conditions or for reliability-related activities (maintenance and testing). Operating for reliability-related activities are limited to 50 hours per year. Operating while mitigating emergency conditions is unlimited. (Basis: Emergency Standby Engines, Hours of Operation Regulation 9-8-330)
2. The Owner/Operator shall equip the emergency standby engine(s) with: a non-resettable totalizing meter that measures hours of operation or fuel usage.(Basis: Emergency Standby Engines, Monitoring and Recordkeeping Regulation 9-8-530)
3. The Owner/Operator shall not operate unless the propane fired engine is abated with a Catalytic Converter/Silencer Unit. (Basis: Cumulative Increase)

4. Records: The Owner/Operator shall maintain the following monthly records in a District-approved log for at least 24 months from the date of entry. Log entries shall be retained on-site, either at a central location or at the engine's location, and made immediately available to the District staff upon request.
 - a. Hours of operation (maintenance and testing).
 - b. Hours of operation (emergency).
 - c. For each emergency, the nature of the emergency condition.
 - d. Fuel usage for engine.
 - e. CARB Certification Executive Order for the engine.(Basis: Emergency Standby Engines, Monitoring and 9-8-530)

RECOMMENDATION

The District has reviewed the material contained in the permit application for the proposed project and has made a preliminary determination that the project is expected to comply with all applicable requirements of District, state, and federal air quality-related regulations. The preliminary recommendation is to issue an Authority to Construct for the equipment listed below. However, the proposed source will be located within 1000 feet of a school, which triggers the public notification requirements of District Regulation 2-1-412.6. After the comments are received and reviewed, the District will make a final determination on the permit.

I recommend that the District initiate a public notice and consider any comments received prior to taking any final action on issuance of an Authority to Construct to for the following source:

**S-1 Emergency Stand-by Propane Fired Generator 86 Bhp, Generac Model SG050,
EPA Engine Family DGNXB06.82L6 with Integral Catalyst**

By: _____
Hari S Doss
Air Quality Engineer

Date: _____