Synthetic Minor Operating Permit Application Evaluation Report
PG&E Los Medanos, Plant #541
Application #23856

Background

PG&E Los Medanos, Plant #541, located in unincorporated Contra Costa County near Concord, is a facility that stores natural gas. In the warmer months, the facility compresses natural gas and stores it in an underground storage field that formerly was a source of crude oil. In the winter, the facility draws the natural gas out for distribution. Before it is distributed, it is dehydrated by two triethylene glycol (TEG) dehydrators that are abated by two thermal oxidizers with a nominal capacity up to 10.9 million British Thermal Units per hour (MMbtu/hr). The facility also has several tanks and a natural gas-powered emergency generator.

The facility's existing District permit would allow the facility to emit more than 100 tons of carbon monoxide (CO) per year. Therefore, it is defined as a major facility by BAAQMD Regulation 2-6-212.1. The facility has applied for a synthetic minor permit that will limit its emissions of CO to less than 100 tons in any consecutive 12-month period. Other pollutants will also be evaluated to ensure that the potential to emit (PTE) is less than the major source thresholds, which are 100 tons per year (tpy) of any regulated air pollutant except greenhouse gases, less than 100,000 tpy of greenhouse gases as CO2E, less than 10 tpy of any hazardous air pollutant (HAP), and less than 25 tpy of any combination of hazardous air pollutants.

In accordance with Bay Area Air Quality Management District (BAAQMD or District) Regulation 2-6-212.1, fugitive emissions of regulated air pollutants <u>are not</u> included to determine whether the facility is major. In accordance with BAAQMD Regulation 2-6-212.2, fugitive emissions of hazardous air pollutants <u>are</u> included to determine whether the facility is major.

The facility currently operates the following sources:

- S1, Natural Gas Compressor Engine, Spark Ignition Reciprocating engine, 4000 horsepower (hp), 118843 cubic inches (cu in), Natural gas
- S11, Condensate Tank #16, Fixed Roof, 8,000 gallons (gal)
- S12, Condensate Tank #21, Fixed Roof, 8,000 gal
- S17, Natural Gas Engine, Caterpillar model G398, emergency standby, 435 hp, 1649 cu in
- S18, Dehydration Station #1, Natural gas, 2.5 MMbtu/hr maximum (max)
- S19, Dehydration Station #2, Natural gas, 2.5 MMbtu/hr max
- S22, Convault Aboveground Tank, 1,000 gal, White, Condensate
- S23, Condensate Storage Tank, Fixed Roof, 500 gal
- S24, Condensate Storage Tank, Fixed Roof, 500 gal
- S25, Condensate Storage Tank, Fixed Roof, 500 gal

S26, Condensate Storage Tank, Fixed Roof, 500 gal
S27, Condensate Storage Tank, Horizontal Fixed Roof, 1700 gal

A18, Thermal Oxidizer #1, Direct Flame Afterburner, 10.9 MMbtu/hr max, Natural gas
A19, Thermal Oxidizer #2, Direct Flame Afterburner, 10.9 MMbtu /hr max, Natural gas

S23 through S26 are not yet permitted. The existing permit includes the following sources that no longer exist:

S13, Condensate Storage Tank, 500 gal, vat w/ tarp
S14, Condensate Storage Tank, 500 gal, vat w/ tarp
S15, Condensate Storage Tank, 500 gal, vat w/ tarp
S16, Condensate Storage Tank, 500 gal, vat w/ tarp

The facility replaced S13-S16 in 1993 without an Authority to Construct. However, emissions were reduced by going from vats to Convault fixed roof tanks. In this action, S23-S27 will be permitted and S13-S16 will be deleted from the permit.

Potential to Emit Calculations

S1, Natural Gas Compressor Engine

The largest source at the facility is S1, Natural Gas Compressor Engine. This is a spark ignition engine with a capacity of 4,000 hp and 31 Mscf /hr natural gas throughput. 31 Mscf/hr is equivalent to 32.55 MMbtu/hr. Permit Condition 19800, part 1, limits the engine to:

NOx (oxides of nitrogen): as specified in Regulation 9, Rule 8
CO: 600 pounds per day (lb/day); 91.25 ton/yr
NMHC (non-methane hydrocarbons): 150 lb/day

The engine is a 2-stroke lean-burn engine. The NOx limit in Section 9-8-301.2 of Regulation 9, Rule 8, Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines, for lean burn engines is 65 parts per million volume (ppmv) as corrected to 15% oxygen, dry basis. The CO limit in Section 9-8-301.3 for lean and rich-burn engines is 2,000 ppmv as corrected to 15% oxygen, dry basis.

The potential to emit NOx emissions at S1 at 65 ppmv is as follows:

NO_x (at 65 ppm):

(65 ppmvd)(20.95-0)/(20.95 – 15) = 228.9 ppmv NO_x, dry @ 0% O2

$(228.9/10^6)$(1 lbmol/385.3 dscf)(46.01 lb NO_2/lbmol)(8710 dscf/MMBTU)
= 0.238 lb NO_2/MMbtu

(0.238 lb NO_2/MMbtu)(32.55 MMbtu/hr) = (7.75 lb/hr)(8760 hr/yr)/(2000 lb/ton)
= **33.94 ton NO_x/yr**

The potential to emit CO emissions at S1 at 2000 ppmv is as follows:

CO (at 2000 ppm):

(2000 ppmvd)(20.95-0)/(20.95 – 15) = 7,042 ppmv CO, dry @ 0% O2

(7,042 /10^6)(1 lbmol/385.3 dscf)(28 lb CO/lbmol)(8710 dscf/MMBTU)
= 4.457 lb CO/MMbtu

(4.457 lb CO/MMbtu)(32.55 MMbtu/hr) = (145.1 lb/hr)(8760 hr/yr)/(2000 lb/ton)
= **635.5 ton CO/yr**

The CO limit in the permit condition of 91.25 tpy is much lower than the limit in Regulation 9, Rule 7. This limit will be used to determine the PTE for CO.

The engine is subject to the maximum achievable control technology (MACT) standard in 40 Code of Federal Regulations (CFR) 63, Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. However, the MACT does not include emission limits for existing spark ignition 2-stroke lean burn engines.

The potential to emit for carbon dioxide (CO2), sulfur dioxide (SO2), volatile organic compounds (VOC), and particulate matter less than 10 micrometers (PM10) can be calculated using emission factors (EFs) from AP-42 Chapter 3.2, Table 3.2-1 for 2-stroke lean burn natural gas engines.

	EF lb/MMbtu	lb/yr	tpy
CO2	110	31,365,180	15,683
SO2	5.88E-04	168	0.08
VOC	0.118	34,217	17.11
PM10	9.91E-03	10,949	5.47

A source test performed at the facility on the engine on July 15, 2011 shows that daily emissions of VOC were 111.6 lb/day. At this rate, 20.26 tpy VOC could be emitted. The limit of 150 lb/day will be used for the potential to emit calculation. At this rate, 27.37 tpy VOC could be emitted.

The final PTE for S1 is:

	tpy
NOX	33.94
CO	91.25
CO2	15,683
SO2	0.08
VOC	27.37
PM10	5.47

S17, Natural Gas Engine, Caterpillar model G398, emergency standby

This engine is an emergency standby engine with a capacity of 435 hp and a throughput of 2.76 MMbtu/hr. Because it is an emergency standby engine, it is not subject to the limits in Section 9-7-301 of Regulation 9, Rule 7. Instead, Section 9-8-330.3 limits the use of these engines for reliability-related activities to 50 hours per year. Section 9-8-330.1 allows an unlimited number of hours of use for emergency use. Emergency use is generally estimated at 500 hours per year for PTE calculations based on EPA's Memorandum of September 6, 1995, entitled "Calculating Potential to Emit for Emergency Generators."

The engine's model year is unknown. Emission factors from AP-42 Chapter 3.2, Table 3.2-3, for 4-stroke rich burn natural gas engines have been used to estimate emissions assuming 500 hours/yr for emergency use.

	EF lb/MMbtu	lb/yr	tpy
NOX	2.21	3,050	1.52
CO	3.72	5,134	2.567
CO2	110	151,800	76
SO2	5.88E-04	0.81144	0.0004
VOC	0.00296	4	0.0020
PM10	9.91E-03	14	0.0068

S18 and S19, Dehydrators including two 2.5 MMbtu/hr reboilers
A18 and A19, Thermal Oxidizers, 10.9 MMbtu/hr max each, Natural gas
Condition 24093, part 2, allows the reboilers to burn 11 MMscf of natural gas/year each. Emission factors from AP-42 Chapter 1.4, Table 1.4-1 have been used to calculate emissions assuming 11 millions of standard cubic feet per year (MMscf/yr) each.

	EF lb/MMscf	MMscf/yr	lb/yr	tpy
NOX	100	22	2200	1.1
CO	84	22	1848	0.924
CO2	120,000	22	2640000	1320
SO2	6.00E-01	22	13.20	0.00660
VOC	5.5	22	121.0	0.0605
PM10	7.6	22	167.2	0.0836

BAAQMD Regulation 9, Rule 7, was amended on May 4, 2011, and imposed new limits on process heaters. The reboilers are process heaters, defined by Section 9-7-217 as follows:

> "Any combustion equipment that transfers heat from combustion gases to water or process streams."

33% of all sources at a facility must comply as of January 1, 2013, and 66% must comply by January 1, 2014. However, sources between 2 and 5 MMbtu that were built before January 1, 2011 have ten years from the date of manufacture to comply according to Section 9-7-308.1. S18 and S19 were installed in 2009, with a manufacture date of 2008 or 2009. Therefore, the earliest compliance date would be in 2018. The applicant will determine the date of manufacture. If CO emissions go up as a result of compliance with Regulation 9, Rule 7, the applicant may have to reapply to amend the conditions of the synthetic minor permit.

The abatement devices, A18 and A19, have no annual limits on natural gas usage. They do have the following mass emission limits in units of lb/MMbtu in Condition 24093, part 6:

NOx:	0.16 lb/MMbtu
CO:	0.10 lb/MMbtu
POC (precursor organic compounds):	0.33 lb/MMbtu

Each can burn up to 95,484 MMbtu/yr (90.94 MMscf/yr) based on the stated capacity. This capacity has not been confirmed.

The emissions of NOX, CO, and VOC are calculated on a lb/MMbtu basis based on the emission limits:

	EF lb/MMbtu	MMbtu/yr	lb/yr	tpy
NOX	0.16	190,968	30,555	15.3
CO	0.10	190,968	19,097	9.55
VOC	0.33	190,968	63,019	31.5

The NOx, CO, and VOC lb/MMbtu limits are higher than the emission rates calculated from the concentrations based on the 2009 source tests on the thermal oxidizers.

The annual emission rates are based on a maximum capacity of 10.9 MMbtu/hr. However, only concentration was measured during the source test. Flow and fuel rate were not measured. Fuel rate would not be enough in this case because the thermal oxidizers are burning the effluent from the dehydrators' flash tank and reboilers as well as natural gas. The facility will be required to perform another source test and confirm the maximum flow rate.

The emissions of CO2, SO2, and PM10 are calculated on a lb/MMscf basis based on the emission factors from AP-42 Chapter 1.4, Table 1.4-1:

	EF lb/MMscf	MMscf/yr	lb/yr	tpy
CO2	120,000	181.88	21,825,600	10,913
SO2	6.00E-01	181.88	109.1	0.0546
PM10	7.6	181.88	1382	0.691

Tanks

The remaining sources listed below are all tanks, which are only sources of POC:

S11, Condensate Tank #16, Fixed Roof, 8,000 gal
S12, Condensate Tank #21, Fixed Roof, 8,000 gal
S22, Convault Aboveground Tank, 1,000 gal, White, Condensate
S23, Condensate Storage Tank, Fixed Roof, 500 gal
S24, Condensate Storage Tank, Fixed Roof, 500 gal
S25, Condensate Storage Tank, Fixed Roof, 500 gal
S26, Condensate Storage Tank, Fixed Roof, 500 gal
S27, Condensate Storage Tank, Horizontal Fixed Roof, 1,700 gal

Sources S11 and S12 are fixed-roof pressure tanks with natural gas blankets. The tanks are kept at 5 pounds per square inch gauge (psig) and the tanks have pressure-vacuum valves set at 10 psig. If the natural gas blanket systems are working well, these tanks should have no POC emissions.

Source S22 is a 1,000-gal Convault horizontal fixed-roof tank with a submerged fill. It is limited to a throughput of condensate/water of 1,600 gal/yr, which would result in POC emissions of 121 lb/yr.

Sources S23-S26 are 500-gal Convault horizontal fixed-roof tanks. These sources replaced S13-S16 in 1993, but were never permitted by the District. The permits for these tanks will be issued in this action. Sources S13-S16 were open containers covered with tarps. These tanks were expected to lose all of the POC that was stored in them. Accordingly, the emission factor for these tanks was 412 lb POC/1000 gallons of condensate/water.

The new (1993) Convault tanks are much tighter. The emissions have been estimated using EPA program Tanks 4.09d, assuming that the liquid is light crude oil, because the condensate is similar to light crude oil and it floats on top of the water.

The application states that S11-S16 and S22 will have the throughputs shown below. Emissions based on the throughputs have also been included in this table. The emissions for S22-S27 are based on EPA's Tanks 4.0 program. The calculations are attached to this evaluation in Appendix A.

	Throughput 1000 gal	Emissions lb/yr	Emissions tpy
S11	40	0	0.000
S12	40	0	0.000
S22	1.6	121	0.061
S23 (replaces S13)	8	110	0.055
S24 (replaces S14)	11.2	119	0.060
S25 (replaces S15)	35.2	146	0.073
S26 (replaces S16)	25.6	141	0.071
S27	170	337.2	0.168
Total		974	0.488

Fugitive emissions

First, the fugitive emissions of POC and other non-HAP pollutants are not included in a facility's total emissions for applicability of Title V and BAAQMD Regulation 2, Rule 6, Major Facility Review. Calculation of fugitive emissions of POC is important in this case because the facility is subject to a permit condition that limits emissions of POC to less than 35 tons in any consecutive 12-months. For the purposes of the synthetic minor permit, the fugitive emissions of POC are immaterial.

The facility estimates that it has about 5,000 fugitive components and that 10% are valves. The facility does not monitor the components using EPA Method 21. Therefore,

all components could be assumed to have fugitive emissions over 10,000 ppm. Table IV-2c on page 15 of the 1999 document "California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities" has emission factors for oil and gas production, which are appropriate to use here. The >10,000 ppm factor for valves in gas and light liquid service is 0.1386 kg/hr/source and the >10,000 ppm factor for flanges in gas and light liquid service is 0.061 kg/hr/source. 4,500 flanges and 500 valves will be assumed. The POC content of the gas is 2.64%. If the leak rates were correct, the resulting fugitive emissions would be 87.5 tpy. The calculations are shown in the table below:

Components	#	kg/hr/source	lb/yr/source	Total lb/yr inc methane, ethane	lb/yr POC	tpy POC
Valves	500	0.1386	2671	1,335,550	35,259	17.629
Flanges	4500	0.061	1175	5,290,164	139,660	69.830
Total				6,625,714	174,919	87.459

It is likely that all of the components do not leak and that the fugitive emissions are much lower. However, the true magnitude is unknown at this time. After the synthetic minor permit is issued, the facility will count and monitor all of the components. The facility will use the methods in 40 CFR 98, Subpart W, Section 238(a) to determine the volume of natural gas leaks from components and to derive the amount of fugitive POC that is emitted using the POC content of the natural gas.

The facility shall submit a report of the amount of the fugitive POC within 6 months of issuance of the synthetic minor permit. If the total emissions of POC from the facility are less than 35 tpy, no further action from the facility is necessary.

If the total emissions of POC from the facility are greater than 35 tpy, within three months the facility shall either:

- Submit 1.207 tons of POC offsets to the District or
- Submit a plan for approval to the District to reduce the POC emissions from the facility to less than 35 tpy. The facility shall implement the plan within 6 months of approval.

If the facility submits the POC offsets, the permit condition limiting the facility to 35 tpy of POC will be deleted. Any future increase in POC that is subject to BAAQMD Regulation 2-2-302 will then have to be offset by the facility.

The total potential to emit of criteria pollutants and CO2 is shown below, assuming that S1 complies with the existing annual CO limit and excluding fugitive POC and GHG emissions:

Pollutant	S1	S17	S18, S19	A18, A19	Tanks	Total
NOX	33.940	1.525	1.1	15.277		51.158
CO	91.250	2.567	0.924	9.548		**104.289**
CO2	15682	75.900	1320	10,913		27,991
SO2	0.070	0.000	0.007	0.055		0.145
VOC	27.370	0.002	0.061	31.510	**0.488**	**59.430**
PM10	1.150	0.007	0.084	0.691		1.932

Emissions of nitrous oxide (N2O) and methane (CH4) combustion have not been calculated to determine carbon dioxide equivalent (CO2e) emissions because they would only add about 3% to the quantity of greenhouse gases.

The potential to emit of hazardous air pollutants has been estimated for the combustion sources using AP-42 Table 1.4-3 for the external combustion sources, Table 3.2-1 for S1, Compressor Engine, and Table 3.2-3 for S17, Natural Gas Emergency Generators. Following are the emission factors:

Emission Factors

	S1	S17	S18, S19, A18, A19
Pollutant	lb/MMbtu	lb/MMbtu	lb/MMscf
Acetaldehyde	7.76E-03	2.79E-03	
1-3 Butadiene	8.20E-04	6.63E-04	
2,2,4-Trimethyl-pentane	8.46E-04		
Acrolein	7.78E-03	2.63E-03	
Benzene	1.94E-03	1.58E-03	2.10E-03
Dichlorobenzene			1.20E-03
Ethylbenzene	1.08E-04		
Formaldehyde	5.52E-02	2.05E-02	7.50E-02
Methanol	2.48E-03	3.06E-03	
MeCl	1.47E-04	4.12E-05	
Hexane	4.45E-04		1.8
PAH	1.34E-04	1.41E-04	
Toluene	9.63E-04	5.58E-04	3.40E-03
Xylene	2.68E-04	1.95E-04	

Following are the emissions based on maximum allowable capacity. For the purposes of the PTE of hazardous air pollutants, it has been assumed that all of the tank emissions are hexane, which is a conservative assumption. It can be seen that the PTE for every HAP is less than 10 tpy and the PTE for a combination of HAPs is less than 25 tpy.

Pollutant	S1 lb/yr	S17 lb/yr	S18, S19, A18, A19 lb/yr	Tanks lb/yr	Total lb/yr	Total tpy
Acetaldehyde	2212.67	3.85	0.00		2216.52	1.108
1-3 Butadiene	233.81	0.91	0.00		234.73	0.117
2,2,4-Trimethyl-pentane	241.23	0.00	0.00		241.23	0.121
Acrolein	2218.37	3.63	0.00		2222.00	1.111
Benzene	553.17	2.18	0.44		555.79	0.278
Dichlorobenzene	0.00	0.00	0.25		0.25	0.000
Ethylbenzene	30.79	0.00	0.00		30.79	0.015
Formaldehyde	15739.62	28.29	15.69		15783.60	7.892
Methanol	707.14	4.22	0.00		711.37	0.356
MeCl	41.92	0.06	0.00		41.97	0.021
Hexane	126.89	0.00	376.56	637.00	1140.45	0.570
PAH	38.21	0.19	0.00		38.40	0.019
Toluene	274.59	0.77	0.71		276.07	0.138
Xylene	76.42	0.27	0.00		76.69	0.038
Total: tpy						11.785

Emission Limit Strategy

To obtain a Synthetic Minor Operating Permit, a facility must have practically enforceable emission or operational conditions that limit its potential to emit to 95 tpy of any regulated air pollutant (except for CO2e emissions @ 90,000 tpy), 9 tpy of any single HAP, and 23 tpy of any combination of HAPs.

The potential to emit for criteria pollutants, CO2, and formaldehyde excluding fugitive POC and GHG is reiterated here:

Pollutant	tpy
NOX	45.502
CO	**104.289**
CO2	27991
SO2	0.132
VOC	**59.262**
PM10	1.932
Formaldehyde	7.892

The calculations show that the potential to emit for NOx, PM10, SO2, and CO2 are well below major source thresholds. Therefore, no additional synthetic minor permit limits have been imposed on these pollutants.

<u>Carbon Monoxide</u>
The potential to emit CO is 9.3 tpy above the threshold. PG&E has proposed to reduce the annual CO limit of S1, Natural Gas Compressor Engine, from 91.25 tpy to 86.35 tpy, and the annual CO limit of A18 and A19, Thermal Oxidizers, from 9.55 tpy to 4.90 tpy total. In this case, the potential to emit would be 94.74 tpy. This is feasible because S1, S18, and S19 are not actually used for 8,760 hours/yr. Permit conditions will be imposed to ensure that the CO emissions are less than 95 tpy for any consecutive 12-month period.

The largest CO source at the facility is S1, Compressor Engine. This engine already has a short-term limit of 600 lb CO/day.

The District considered imposing throughput limits to limit the potential to emit. In this case, however, CO is not solely proportional to throughput, but also proportional to concentration in the S1 effluent, which is allowed to vary, so throughput limits would not necessary be sufficient. The facility will be required to monitor the CO concentration at S1, Compressor Engine, S17, Standby Engine, and S18, S19, reboilers at dehydrators, monthly, for any calendar month where that engine operates and the fuel consumed by the engine. The facility will calculate the CO emissions for each month and each consecutive 12-month period to ensure continued compliance.

The facility will estimate the emissions from the thermal oxidizers, A18 and A19, by using the maximum flow and the CO emission limit, which is a worst-case estimate. The 2009 source tests on the thermal oxidizers showed that CO was not detected at A18 and was less than 10 ppm @ 3% O2, dry at A19. The limit is 0.10 lb/MMbtu and both source tests were at 0.01 lb/MMbtu or below, a tenth of the limit. Moreover, the thermal oxidizers will be required to run at 1,500 degrees F. and monitor the temperature, which will ensure good combustion and low CO levels.

The facility will be required to submit to the District an annual emissions report and any non-compliance with the permit conditions within 10 days of discovery.

Finally, the potential to emit calculations, based on maximum throughputs and District-approved emission factors for all sources, have demonstrated that the emissions from these sources are less than major source thresholds for all categories of regulated air pollutants including CO2 equivalents, except for CO. The maximum potential emissions of CO from all of the combustion sources were estimated at 104.29 tpy at maximum production rates and using actual emissions factors and emission limits. The applicant has agreed to lower the potential to emit by taking new emission limits on S1, Compressor Engine, and A18 and A19, Thermal Oxidizers. These limits, together with the existing limits, will be sufficient to reduce the CO PTE to less than 95 tpy.

Actual emissions will be lower because the facility capacity factor for the large engine, S1, is about 55%.

Formaldehyde

The calculated PTE for formaldehyde based on the emission factor in AP-42 Table 3.2-1. The PTE at 7.9 tpy is about 80% of the 10 tpy threshold. However, BAAQMD Regulation 2-6-423.2.1 requires for synthetic minor facilities to emit 9 tpy or less of any hazardous air pollutant. PG&E will be required to conduct a source test to measure the formaldehyde emission factor for this particular engine. The emission factor will be used to calculate the formaldehyde emissions on a monthly basis.

Because the engine is used at 55% of its annual capacity, the actual emissions of formaldehyde will likely be about 4 tpy based on AP-42. In any year that PG&E calculates that actual emissions are over 5 tpy, PG&E will conduct an additional source test.

POC

The PTE for non-fugitive POC is calculated at 59.26 tpy. Condition 25275 limits facility-wide POC emissions to 35 tpy.

The total PTE for POC for each of S18 and S19 and the associated abatement devices will be reduced to 1.825 tpy, which is equivalent to the best available control technology (BACT) trigger for POC of 10 lb/day. The evaluation for these abatement devices pursuant to Application 17680 mistakenly assumed that the POC emissions for these

abatement devices were not subject to BACT, but instead subject to readily available control technology (RACT), because BAAQMD Regulation 2-2-112, Exemption, Secondary Emissions from Abatement, exempts secondary emissions from the BACT requirement in BAAQMD Regulation 2-2-301. In this case, NOx and CO emissions are secondary because they are the direct result of use of the abatement device. The emission of POC is primary, because the abatement device is primarily intended to control POC. The POC is derived from the dehydrator reboilers and flash tank.

Since Application 17680 contains no BACT analysis, and the applicant did not propose BACT, an emission limit of 10 lb POC/day, expressed as NMOC, will be imposed. Since the source tests in 2009 did not detect POC emissions (concentration < 5 ppm) and the owner/operator runs the abatement devices at 1,500 degrees F., the equipment is expected to meet the 10 lb POC/day limit. The evaluation for Application 17680 states that 3.235 tpy of contemporaneous offsets were derived from the shutdown of S4 and S7. The new proposed emission limit for S18 and S19 and the associated abatement devices is 3.650 tpy, so only 0.415 tpy of additional POC offsets were required. 12.540 tpy of POC offsets were given to the facility from the District's Small Facilities Bank. 12.125 tpy of POC offsets will be returned to the Small Facilities Bank, reducing the facility's indebtedness of POC offsets to 1.207 tpy.

The new limit on S18 and S19 and the associated abatement devices will reduce the non-fugitive POC PTE to 29.746 tpy. If the total of the fugitive POC emissions and the non-fugitive POC PTE is less than 35 tpy, the facility will be allowed to retain the credits from the Small Facilities Bank and comply with Condition 25275. The facility will determine the quantity of fugitive POC emissions within 6 months of issuance of the synthetic minor permit.

Discussion of Existing Conditions

The complete set of existing District permit conditions that apply to this facility is attached to this evaluation. The table below contains the condition number for each source. Most of these conditions will be incorporated in the synthetic minor conditions, because the synthetic minor permit relies on these limits as well as the new limits and monitoring and recordkeeping conditions. The permit does not rely on Condition 19533 for S17, Engine, and so it will not be incorporated. However, the number of hours allowed for reliability and maintenance will be reduced from 100 to 50 hours/yr, in accordance with Regulation 9-7-330.3, as amended on July 25, 2007.

Source	Condition Numbers
S1, Natural Gas Compressor Engine	19800, 25275
S11, Condensate Tank #16	6463, 25275
S12, Condensate Tank #21	6463, 25275
S13, Condensate Storage Tank	6463, 25275
S14, Condensate Storage Tank	6463, 25275
S15, Condensate Storage Tank	6463, 25275
S16, Condensate Storage Tank	6463, 25275
S17, Natural Gas Engine	19533, 25275
S18, Dehydration Station #1	24093, 25275
S19, Dehydration Station #2	24093, 25275
S22, Convault Aboveground Tank	25274, 25275
A18, Thermal Oxidizer #1	24093, 25275
A19, Thermal Oxidizer #2	24093, 25275

Final Emissions

Below is a summary of the facility's potential emissions under the Synthetic Minor Operating Permit.

	Single HAP tpy	Total HAPs tpy	POC tpy	PM10 tpy	NOx tpy	CO tpy	SO2 tpy	CO2 tpy
Total	7.892	11.785	29.746	1.932	53.158	94.74	0.132	27,991

Other Issues

The following tanks, S22, S23, S24, S25, and S26, will be permitted in this action. The emissions are shown in the table on page 6. Each tank will emit less than 0.1 tpy POC. Therefore, the tanks are not subject to BACT. A risk assessment was performed assuming that 4.55% of the emissions were benzene. This assumption is based on an analysis of the head space by PG&E. The maximum cancer risk is 0.7 in a million, the chronic hazard index is 0.0002, and the acute hazard index is 0.004. In accordance with Regulations 2-5-301 and 302, these are acceptable risks. The tanks comply with Regulation 8, Rule 5, Storage of Organic Liquids, because they have submerged fill lines.

Statement of Compliance

This facility will be in compliance with the necessary requirements in Regulation 2, Rule 6 to obtain a Synthetic Minor Operating Permit. PG&E has voluntarily accepted practically enforceable permit conditions that will limit its potential to emit to no more than 95 tpy of any regulated air pollutant (except for CO2e), 9 tpy of any hazardous air pollutant, and 23 tpy of any combination of hazardous air pollutants.

_____ _____

Brenda Cabral Date
Supervising Air Quality Engineer

Existing permit conditions:

Condition 6463:
PACIFIC GAS AND ELECTRIC; PLANT 541
S-11, S-12, S-13, S-14, S-15, S-16 (revised 10/1/97 i.a.w. request dated 9/22/97)

1. Total throughput at condensate storage tanks S-11, S-12, S-13, S-14, S-15 and S-16 shall not exceed 160,000 gallons (combined) during any consecutive 12 month period.

2. Only natural gas condensate mixed in water shall be stored in S-11, S-12, S-14, S-15 and S-16.

3. S-11 and S-12 shall be maintained in an air-tight condition and shall be equipped with properly operated and maintained pressure-vacuum valves or equivalent devices at all times.

4. S-13, S-14, S-15 and S-16 shall be covered at all times.

5. In order to demonstrate compliance with the above conditions, records of material removed from S-11, S-12, S-13, S-14, S-15, and S-16 shall be maintained in a District-approved log. These records shall be ~~totalled~~totaled on a monthly basis, kept on site, and made available to the District upon request for at least two years.

Condition 19533:
CONDITIONS FOR NON "ESSENTIAL" EMERGENCY ENGINES:

Stationary Equipment Requirements
1. Hours of Operation: The owner/operator shall operate the emergency standby engine(s) only to mitigate emergency conditions or for reliability-related activities. Operating while mitigating emergency conditions is unlimited. Operating for reliability-related activities is limited to ~~100~~50 hours per any calendar year. [Basis: Regulation 9-8-330]

"Emergency Conditions" is defined as any of the following:
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.
[Basis: Regulation 9-8-231]

"Reliability-related activities" is defined as any of the following:

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.
[Basis: Regulation 9-8-232]

2. The owner/operator shall equip the emergency standby engine(s) with either:
a. non-resettable totalizing meter that measures the hours of operation for the engine; or
b. non-resettable fuel usage meter, the maximum hourly fuel rate shall be used to convert fuel usage to hours of operation.
[Basis: Regulation 9-8-530]

3. Records: The owner/operator shall maintain the following monthly records in a District-approved log for at least 2 years and shall make the log available for District inspection upon request:
a. Hours of operation (total).
b. Hours of operation (emergency).
c. For each emergency, the nature of the emergency condition.
d. Fuel usage for engine(s) if a non-resettable fuel usage meter is utilized.
[Basis: Regulations 9-8-530 and 1-441]

Condition 19800:
APPLICATION 2658; PACIFIC GAS & ELECTRIC; PLANT 541
CONDITIONS FOR S-1

1. The owner/operator of the S-1 compressor engine shall not exceed the following limits:

NOx as specified in Regulation 9, Rule 8
CO 600 lb/day; 91.25 ton/yr
NMHC 150 lb/day (non-methane hydrocarbons)
[BACT (CO, NMHC); RACT (NOx)]

2. The owner/operator of the S-1 engine shall maintain annual records of the natural gas consumption at S-1 in a District-approved log for at least 2 years and shall make these records available to the District upon request.
[Regulation 1-441]

Condition 24093:

1. S-18 and S-19 Reboilers shall be fired shall be fired exclusively on natural gas. [Basis: Cumulative Increase]

2. The total usage of natural gas at each S-18 and S-19 shall not exceed 11 million standard cubic feet during any consecutive twelve-month period. [Basis: Cumulative Increase, Regulation 2-5]

3. In order to demonstrate compliance with part 2, the Permit Holder shall install a District approved flow meter to measure natural gas consumption at each S-18 and S-19. [Basis: Cumulative Increase, Regulation 2-5]

4. NMHC emissions from the triethylene glycol dehydration process (consisting of TEG absorber, filter-separator flash tank, and glycol reboiler) at S-18 shall be abated by the properly operated and maintained A-8 Thermal Oxidizer. [Basis: Cumulative Increase, Regulation 2-5]

5. NMHC emissions from the triethylene glycol dehydration process (consisting of TEG absorber, filter-separator flash tank, and glycol reboiler) at S-19 shall be abated by the properly operated and maintained A-9 Thermal Oxidizer. [Basis: Cumulative Increase, Regulation 2-5]

6. Within 60 days of startup, The owner/operator shall conduct a District approved source test of A-8 and A-9 Thermal Oxidizers to verify that that it complies with with the following emission factors when using natural gas as a fuel:
a. NOx = 0.16 lb/MMBtu
b. CO = 0.10 lb/MMBtu
c. POC = 0.33 lb/MMBtu
(basis: Cumulative Increase, RACT)

7. Monthly records of natural gas consumption at S-18 and S19 shall be maintained in a District approved logbook. All records shall be retained on site for at least two years from the date of entry, and made available for inspection by District staff upon request. These record keeping requirements shall not replace the record keeping requirements contained in any applicable District Regulations. [Basis: Cumulative Increase, Regulation 2-5]

Condition 25274:

1. The owner/operator of S22 shall ensure that the tank is equipped with a submerged fill pipe. (Basis: 8-5-301, 8-5-302)

2. The owner/operator of S22 shall ensure that the throughput of pipeline liquids does not exceed 1,600 gallons during any consecutive twelve-month period:
(Basis: Cumulative Increase)

3. The owner/operator may store alternate liquid(s) other than the materials specified in Part 1 and/or usages in excess of those specified in Part 1, provided that the owner/operator can demonstrate that all of the following are satisfied:

a. No gasoline is stored in the tank.
b. Total POC emissions from S22 do not exceed 121 pounds in any consecutive twelve month period.
c. No NPOC is emitted.
d. Emissions of benzene do not exceed 10.6 lb in any consecutive twelve month period
e. The use of these materials does not increase toxic emissions of materials other than benzene above any risk screening trigger level of Table 2-5-1 in Regulation 2-5. (Basis: Cumulative Increase; Toxics, 8-5-301)

4. To determine compliance with the above parts, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above parts, including the following information:
a. Quantities of each type of liquid stored at this source on a monthly basis.
b. If a material other than those specified in Part 1 is stored, POC/NPOC and toxic component contents of each material used; and mass emission calculations to demonstrate compliance with Part 2, on a monthly basis;
c. Monthly throughput and/or emission calculations shall be totaled for each consecutive twelve-month period.
All records shall be retained on-site for five years, from the date of entry, and made available for inspection by District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable District Regulations.
(Basis: Cumulative Increase; Toxics, 8-5-501)

Condition 25275:

1. Notwithstanding any other limits in PGE's permit for Plant 541, facility-wide POC emissions, including fugitive emissions, shall be less than 35 ton/yr in any consecutive 12-month period (beginning 6/1/12). This limit is imposed because POC offsets were provided by the District in accordance with Regulation 2-2-302 for emission increases in Applications 10285. 17680, and 21581. [Regulation 2-2-302]

2. Monthly records (beginning 6/1/12) of facility-wide POC emissions shall be kept in a District-approved log for at least 5 years and shall be made available to the District upon request. [Regulation 2-2-302]

--- SYNTHETIC MINOR OPERATING PERMIT ---

PG&E
4690 Evora Road
Concord, CA 94520
Plant #541
Application #23856

~~Conditions~~ Parts #1 ~~—~~ 4~~3~~1 ~~of~~ this condition establish the practically enforceable permit terms that ensure this plant is classified as a Synthetic Minor Facility under BAAQMD Regulation 2, Rule 6 - Major Facility Review and ensure it is not subject to the permitting requirements of Title V of the Federal Clean Air Act as amended in 1990 and 40 CFR Part 70. Any revision to a condition establishing this plant's status as a Synthetic Minor Facility or any new permit term that would limit emissions of a new or modified source for the purpose of maintaining the facility as a Synthetic Minor must undergo the procedures specified by Rule 2-6, Section 423[JO1].

After issuance of a synthetic minor permit, facilities must have emissions that are below the following thresholds, which are set forth in BAAQMD Regulation 2-6-423.2.1:

-95 tons per year of any regulated air pollutant except CO2e, as defined in 40 CFR 98;
-90,000 tons per year of CO2e, as defined in 40 CFR 98;
-9 tons per year of any individual hazardous air pollutant, as defined in section 112(b) of the federal Clean Air Act; and
-23 tons per year of any combination of hazardous air pollutants as defined in section 112(b) of the federal Clean Air Act.

The permit conditions below acknowledge that the current potential to emit for all pollutants except CO is below these thresholds. No additional explicit limits have been placed on pollutants other than CO and POC. Additional limits have been placed on POC to ensure that the facility complies with BAAQMD Regulation 2-2-302. Nonetheless, by accepting the synthetic minor permit, the facility accepts the obligation to limit the emissions in every consecutive 12-month period to no more than the thresholds above.

This operating permit covers all sources and abatement devices at the facility. The current sources are listed below:

S1, Natural Gas Compressor Engine, Spark Ignition Reciprocating engine, 4000 hp, 118843 cu in, Natural gas
S11, Condensate Tank #16, Fixed Roof, 8,000 gal
S12, Condensate Tank #21, Fixed Roof, 8,000 gal
S17, Natural Gas Engine, Caterpillar model G398, emergency standby, 435 hp, 1649 cu in

S18, Dehydration Station #1, Natural gas, 2.5 MMbtu/hr max
S19, Dehydration Station #2, Natural gas, 2.5 MMbtu /hr max
S22, Convault Aboveground Tank, 1,000 gal, White, Condensate
S~~1~~23, Convault Aboveground Tank, 500 gal, White, Condensate
S~~1~~34, Convault Aboveground Tank, 500 gal, White, Condensate
S~~1~~25, Convault Aboveground Tank, 500 gal, White, Condensate
S~~1~~26, Convault Aboveground Tank, 500 gal, White, Condensate
S27, Condensate Storage Tank, Horizontal, 1,700 gal, White, Condensate

The current abatement devices are listed below:

A18, Thermal Oxidizer #1, Direct Flame Afterburner, 10.9 MMbtu/hr max, Natural gas
A19, Thermal Oxidizer #2, Direct Flame Afterburner, 10.9 MMbtu /hr max, Natural gas

1. The owner/ operator shall ensure that facility-wide emissions of carbon monoxide (CO) from all sources do not exceed 95 tons in any consecutive 12-month period. (Basis: Regulation 2-6-423)

2. Notwithstanding any other limits in PGE's permit for Plant 541, facility-wide POC emissions, including fugitive emissions, shall be less than 35 tons in any consecutive 12-month period (beginning 6/1/12). This limit is imposed because POC offsets were provided by the District in accordance with Regulation 2-2-302 for emission increases in Applications 10285, 17680, and 21581. (Basis: Regulation 2-2-302)

3. The owner/ operator shall ensure that facility-wide emissions of any single hazardous air pollutant (HAP) from all sources shall not exceed 18,000 pounds in any consecutive 12-month period. (Basis: Regulation 2-6-423)

4. Facility-wide emissions of total HAPs from all sources shall not exceed 46,000 pounds in any consecutive 12-month period. (Basis: Regulation 2-6-423)

5. The owner/ operator shall ensure that the following sources shall be fueled exclusively with natural gas: S1, S17, S18, and S19. (Basis: Cumulative Increase)

6. The owner/ operator shall ensure that the following abatement devices, A18 and A19, shall be fueled exclusively with natural gas, recognizing that the abatement devices will also burn the effluent from the S18 and S19 flash drums and reboilers. (Basis: Cumulative Increase)

Conditions for S1:

7. The owner/operator shall ensure that the hourly natural gas throughput at S1 does not exceed ~~26.52~~31 Mscf~~Mbtu~~/hr. (Basis: Regulation 2-6-423)

8. The owner/operator shall ensure that the emissions of carbon monoxide from S1, Natural Gas Compressor Engine, do not exceed 86.35 tons in any consecutive 12-month period. (Basis: Regulation 2-6-423)

9. The owner/operator shall ensure that the emissions of carbon monoxide from S1, Natural Gas Compressor Engine, do not exceed 600 lb/day. (Basis: BACT)

10. The owner/operator of the S-1 compressor engine shall not exceed the following limits in BAAQMD Regulation 9-8-301: 65 ppmv NOx and 2000 ppmv CO, corrected to 15% O2, dry. (Basis: Regulation 9-8-301)

11. The owner/operator shall ensure that the emissions of NMHC from S1, Natural Gas Compressor Engine, do not exceed 150 lb/day. (Basis: BACT)

12. Within one year of issuance of the synthetic minor permit, the owner/operator shall conduct a District-approved source test at S1 to determine mass emission rates of CO, NOx, NMHC, and formaldehyde in lb/hr and lb/Mscf. The test shall be conducted within 90% of maximum capacity. The owner/operator shall ensure that gas flow rates and temperature are recorded, as well as concentration. NMOC shall be recorded in place of NMHC. (Basis: 2-6-503)

Conditions for S17

13~~2~~. The owner/operator shall ensure that the hourly natural gas throughput at S17 does not exceed 2.76 MMbtu/hr. (Basis: Regulation 2-6-423)

14~~3~~. The owner/operator shall ensure that the emissions of carbon monoxide from S17, Natural Gas Engine, do not exceed 2.57 tons in any consecutive 12-month period including use of the engine during emergencies. (Basis: Regulation 2-6-423)

Conditions for S18, S19, A18, and A19

15~~4~~. NMHC emissions from the triethylene glycol dehydration process (consisting of TEG absorber, filter-separator flash tank, and glycol reboiler) at S-18 shall be abated by the properly operated and maintained A-8 Thermal Oxidizer. (Basis: Cumulative Increase, Regulation 2-5)

16~~5~~. NMHC emissions from the triethylene glycol dehydration process (consisting of TEG absorber, filter-separator flash tank, and glycol reboiler) at S-19 shall be abated by the properly operated and maintained A-9 Thermal Oxidizer. (Basis: Cumulative Increase, Regulation 2-5)

17~~6~~. The total usage of natural gas at each of the reboilers at S-18 and S-19 shall not exceed 11 million standard cubic feet during any consecutive twelve-month period. (Basis: Cumulative Increase, Regulation 2-5)

1~~7~~8. The owner/operator shall ensure that the hourly natural gas throughput at A18 and A19 does not exceed 10.9 MMbtu/hr each. (Basis: Regulation 2-6-423)

1~~9~~8. The owner/operator shall ensure that the emissions of carbon monoxide from the reboilers at S18 and S19, Dehydration Stations, do not exceed 0.93 tons in any consecutive 12-month period. (Basis: Regulation 2-6-423)

20~~19~~. The owner/operator shall ensure that the emissions of carbon monoxide from A18 and A19, Thermal Oxidizers, do not exceed 4.90 tons in any consecutive 12-month period. (Basis: Regulation 2-6-423)

2~~1~~0. The owner/operator shall comply with the following emission limits at A-8 and A-9, Thermal Oxidizers:

NOx = 0.16 lb/~~MMBtu~~MMbtu
CO = 0.10 lb/~~MMBtu~~MMbtu
POC = 0.33 lb/~~MMBtu~~MMbtu

(Basis: Cumulative Increase, RACT) (Amended Application 23856)

2~~2~~1. Starting on the date of issuance of the synthetic minor permit pursuant to Application 23856, the owner/operator shall ensure that the daily emission rate of NMOC at A-18 and A-19, Thermal Oxidizers, does not exceed 10 lb/day each.
(Basis: Cumulative Increase)

2~~3~~2. Within 90 days of issuance of the synthetic minor permit pursuant to Application 23856, the owner/operator shall conduct a District-approved source test at S18 and S19 to determine compliance with the emission limits in parts ~~6~~ 19, 20, 21 and ~~part 7~~22 of this condition. The owner/operator shall ensure that flow rates, temperature, and hourly mass emission rates of CO, NOx, CO2, and NMOC are recorded, as well as concentration. NMOC shall be recorded in place of POC. Hourly rates of CO, NOx, and NMOC shall be determined. For the purposes of determining compliance with the daily limit in part 2~~2~~1, an hourly NMOC rate of 0.4 lb/hr shall be considered to indicate compliance with the daily limit.
(Basis: Cumulative Increase) (Added Application 23856)

2~~4~~3. In order to demonstrate compliance with part 1~~8~~6, the owner/operator shall install a District approved flow meter to measure natural gas consumption at each of S-18 and S-19. (Basis: Cumulative Increase, Regulation 2-5)

2~~5~~4. Monthly records of natural gas consumption at S-18, S19, A18, and A19 shall be maintained in a District approved logbook. All records shall be retained on site for at least five years from the date of entry, and made available for inspection by District staff upon request. These record keeping

requirements shall not replace the record keeping requirements contained in any applicable District Regulations. (Basis: Cumulative Increase, Regulation 2-5)

Tanks

2~~5~~6. The owner/operator of S22, S23, S24, S25, ~~and~~ S26, and S27 shall ensure that each tank is equipped with a submerged fill pipe. (Basis: 8-5-301, 8-5-302)

2~~6~~7. The owner/operator of S11 and S12 shall ensure that the throughput of pipeline liquids does not exceed 80,000 gallons during any consecutive twelve-month period. (Basis: Cumulative Increase)

2~~7~~8. The owner/operator of S22 shall ensure that the throughput of pipeline liquids does not exceed 1,600 gallons during any consecutive twelve-month period. (Basis: Cumulative Increase)

2~~8~~9. The owner/operator of S23, S24, S25, and S26 shall ensure that the throughput of pipeline liquids does not exceed 80,000 gallons during any consecutive twelve-month period. (Basis: Cumulative Increase)

30. The owner/operator of S27 shall ensure that the throughput of pipeline liquids does not exceed 170,000 gallons during any consecutive twelve-month period. (Basis: Cumulative Increase)

31~~29~~. Only natural gas condensate mixed in water shall be stored in S-11, S-12, S22, S23, S24, S25, ~~and~~ S26, and S27. (Basis: Cumulative Increase)

32~~30~~. S-11 and S-12 shall be maintained in an air-tight condition and shall be equipped with properly operated and maintained pressure-vacuum valves or equivalent devices at all times. (Basis: Cumulative Increase, 8-5-301, 8-5-303.2, 8-5-307.1, 8-5-307.2)

3~~1~~. In order to demonstrate compliance with the above conditions, records of material removed from S-11, S-12, S22, S23, S24, S25, ~~and~~ S26, and S27 shall be maintained in a District-approved log. These records shall be totaled on a monthly basis, kept on site, and made available to the District upon request for at least five years, from the date of entry. (Basis: Cumulative Increase)

3~~2~~. The owner/operator may store alternate liquid(s) in the tanks S11, S12, and S22-S2~~6~~7 other than the materials specified in Parts ~~1~~27 through 30 and/or usages in excess of those specified in Parts 27 through 30~~1~~, provided that the owner/operator can demonstrate that all of the following are satisfied:

a. No gasoline is stored in the tanks.

b. Total POC emissions from S22 do not exceed 121 pounds in any consecutive twelve month period.

c. Total POC emissions from Tanks S23, S24, S25, ~~and~~ S26, and S27 do not exceed ~~596~~974 pounds in any consecutive twelve month period.

c. No NPOC is emitted.

d. Emissions of benzene from S22-S27 do not exceed ~~10.6~~49.4 lb in any consecutive twelve month period.

e. The use of these materials does not increase toxic emissions of materials other than benzene above any risk screening trigger level of Table 2-5-1 in Regulation 2-5. (Basis: Cumulative Increase; Toxics, 8-5-301)

3~~5~~3. To determine compliance with the above parts, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above parts, including the following information:

a. Quantities of each type of liquid stored at this source on a monthly basis.

b. If a material other than those specified in Parts 27 through 30~~1~~ is stored, POC/NPOC and toxic component contents of each material used; and mass emission calculations to demonstrate compliance with Part ~~2~~34, on a monthly basis;

c. Monthly throughput and/or emission calculations shall be totaled for each consecutive twelve-month period.

All records shall be retained on-site for five years, from the date of entry, and made available for inspection by District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable District Regulations. (Basis: Cumulative Increase; Toxics, 8-5-501)

Monitoring

3~~6~~4. Within 30 days of issuance of the synthetic minor permit pursuant to Application 23856, the owner/operator shall determine the flow rate, temperature, and oxygen content of the gases exiting A18 and A19, Thermal Oxidizers. Within one year of issuance of the synthetic minor permit pursuant to Application 23856, the owner/operator shall determine the flow rate, temperature, and oxygen content of the gases existing A18 and A19, Thermal Oxidizers when A18 and A19 are operating at maximum capacity. (Basis: Regulation 2-6-503)

3~~7~~5. The owner/operator shall maintain the temperature of A18 and A19 at 1500 degrees F. whenever S18 and S19 are operating. The owner/operator will start S18 and S19, Dehydration Stations, after the corresponding

abatement device, A18 or A19, has reached 1500 degrees F. (Basis: Regulation 2-2-409)

386. The owner/operator shall keep the following records:

a. The monthly natural gas usage at each of the following sources: S1, S18, S19, A18, and A19
b. The monthly hours of operation at S17
c. On a monthly basis, the CO concentration and the oxygen concentration at S1 using the procedure in BAAQMD Regulation 9-8-503. In any calendar month that the engine does not operate, CO and oxygen content monitoring are not required.
d. On a monthly basis, the CO concentration and the oxygen concentration at S17 using the procedure in BAAQMD Regulation 9-8-503. In any calendar month that the engine does not operate, CO and oxygen content monitoring are not required.
e. On a monthly basis, the CO concentration and the oxygen concentration at A18 and A19 using the procedure in BAAQMD Regulation 9-8-503. In any calendar month that S18 and S19 do not operate, CO and oxygen content monitoring are not required.
f. The owner/operator shall monitor and record the operating temperature of A18 and A19 with a District approved temperature monitor. The temperature monitoring and recording shall be subject to District approval as parametric monitoring. The owner/operator shall record the abatement device temperature during any emissions testing.

(Basis: Regulation 2-6-503)

397. In order to demonstrate compliance with part 1, the owner/operator shall estimate the monthly emissions of CO in the following manner:

a. The owner/operator shall calculate the mass emissions of CO in tons for each calendar month at S1 using the total cubic feet of gas burned at the engine during the month and the measured concentration of CO in the gas corrected to 0% O2. The owner/operator shall calculate the mass emissions of CO in pounds for any calendar day at S1 that a CO and oxygen measurement has been taken using the total cubic feet of gas burned at the engine during the calendar day and the measured concentration of CO in the gas to determine compliance with part 9 on that day.
b. The owner/operator shall estimate the emissions of CO from S17 for each calendar month using the total cubic feet of gas burned at the engine during the month and the measured concentration of CO in the gas corrected to 0% O2.
c. The owner/operator shall estimate the emissions of CO from the reboilers at S18 and S19 for each calendar month using the monthly

natural gas flow rate and the AP-42 emission factor of 84 lb/MMscf of natural gas.

d. The owner/operator shall estimate the emissions of CO from A18 and A19, Thermal Oxidizers, for each calendar month using the measured CO concentration and the maximum flow rate measured as required in part 34.

e. The owner/operator shall sum the estimates for S1, S17, S18, S19, A18, and A19 for each calendar month by the 15th day of the following month. The owner/operator shall calculate consecutive 12-month rolling totals of CO emissions for each calendar month by the 15th day of the following month. The owner/operator shall maintain the emissions calculations and rolling consecutive 12 month rolling totals in a District approved log to be maintained onsite for at least five years from the last date of entry and shall make them available for review by District staff upon request.

(Basis: Regulations 2-6-423, 2-6-503)

~~38~~40. In order to demonstrate compliance with part 2, the owner/operator shall estimate the monthly emissions of POC in the following manner:

a. The owner/operator will assume 150 lb POC/day for each day that S1 operates.

b. The owner/operator shall estimate the POC emissions of S17, by multiplying the monthly fuel usage in MMbtu by the following emission factor from AP-42 Table 3.2-3: 0.00296 lb POC/MMbtu.

c. The owner/operator shall estimate the POC emissions of the reboilers at S18 and S19 by multiplying the monthly fuel usage in MMscf by the following emission factor from AP-42 Table 1.4-1: 5.5 lb POC/MMbtu.

d. The owner/operator shall estimate the POC emissions of A18 and A19, Thermal Oxidizers, by multiplying the hours of operation by the hourly emissions determined in the last source test.

e. The owner/operator shall estimate the monthly POC emissions of the tanks by dividing the annual potential to emit (0.49 tpy) by 12.

f. The owner/operator shall sum the estimates for all sources for each calendar month by the 15th day of the following month. The owner/operator shall calculate consecutive 12-month rolling totals of POC emissions for each calendar month by the 15th day of the following month. The owner/operator shall maintain the emissions calculations and rolling consecutive 12 month rolling totals in a District approved log to be maintained onsite for at least five years from the last date of entry and shall make them available for review by District staff upon request.

g. After the survey required by part 40h of this condition is complete, the owner/operator will use the results of the survey to estimate fugitive POC emissions from pipelines and components.

h. Within 6 months of issuance of the synthetic minor permit pursuant to Application 23856, the owner/operator shall determine and report the fugitive emissions of POC from pipelines and components handling natural gas. The owner/operator shall count and monitor all components using the methods in 40 CFR 98, Subpart W. The owner/operator shall calculate the losses of natural gas using the methods in 40 CFR 98, Subpart W. The owner/operator shall determine the fugitive POC emissions by multiplying the weight of natural gas lost by the weight fraction of POC. The report shall be submitted to the District Compliance and Enforcement Division and to the District Engineering Division. If the fugitive POC emissions and the emissions calculated in accordance with parts 40a through 40f of this condition are less than 35 tpy, no further monitoring of fugitive POC is necessary. If the fugitive POC emissions and the emissions calculated in accordance with parts 40a through 40f of this condition are greater than 35 tpy, the owner/operator shall either:

i. Submit 1.207 tons of POC offsets to the District or

ii. Submit a plan for approval to the District to reduce the POC emissions from the facility to less than 35 tpy. The facility shall implement the plan within 6 months of approval.

If the facility submits the POC offsets, the District will delete part 2 of this permit condition limiting the facility to 35 tpy of POC and the recordkeeping and reporting in part 40 of this condition.

(Basis: Regulations 2-6-423, 2-6-503)

41. In order to demonstrate compliance with part 3, the owner/operator shall estimate the monthly emissions of formaldehyde in the following manner:

a. The owner/operator shall estimate the formaldehyde emissions of S1, by multiplying the monthly fuel usage in Mscf by the emission rate developed during the last source test.

b. The owner/operator shall calculate consecutive 12-month rolling totals of formaldehyde emissions for each calendar month by the 15th day of the following month. The owner/operator shall maintain the emissions calculations and rolling consecutive 12 month rolling totals in a District approved log to be maintained onsite for at least five years from the last date of entry and shall make them available for review by District staff upon request.

c. In any year that the owner/operator estimates that the formaldehyde emissions are over 5 tpy, the owner/operator shall conduct a District-approved source test at S1 to determine the formaldehyde emission rate at S1 in lb/Mscf and lb/hr. The source test shall be conducted within 9 months of the determination.

(Basis: Regulations 2-6-423, 2-6-503)

~~39~~42. The owner/operator shall submit a facility-wide annual CO, ~~and~~ POC and formaldehyde emissions summary and supporting calculations for each calendar year to the District's Director of Compliance & Enforcement by the end of February of the following year. (Basis: Regulation 2-6-423)

4~~3~~0. Monthly records (beginning 6/1/12) of facility-wide POC emissions shall be kept in a District-approved log for at least 5 years and shall be made available to the District upon request. (Basis: Regulation 2-2-302)

4~~4~~1. The owner/operator shall report any non-compliance with the conditions of the synthetic minor permit within 10 days of discovery of the non-compliance to the District's Director of Compliance & Enforcement. (Basis: Regulation 2-6-423)

Appendix A

Tank Calculations