ENGINEERING DIVISION
PERMIT EVALUATION REPORT

Applicant: University of California, Berkeley	**Application #: 9872**
	Plant #: A0059

UC Berkeley, Plant #59, has a synthetic minor operating permit. This operating permit covers all sources at the facility.

The following conditions establish the federally enforceable permit terms that ensure this plant is classified as a Synthetic Minor Facility under District 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. All applications submitted by the applicant and all modifications to the plant's equipment after issuance of the synthetic minor permit must be evaluated to ensure that the facility will not exceed the synthetic minor general limits below, and that sufficient monitoring, recordkeeping, and reporting requirements are imposed to ensure enforceability of the limits.

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 pursuant to Regulation 2, Rule 6, section 423. The basis for the synthetic minor conditions is an emission limit for regulated air pollutants of less than 95 tons per year, an emission limit for a single hazardous air pollutant of less than 9 tons per year, and an emission limit for a combination of hazardous air pollutants of less than 23 tons per year.

Synthetic Minor Conditions:

1. The owner/operator of UC Berkeley shall not emit more than 9 tons of any single hazardous air pollutant (HAP) or 23 tons of any combination of HAPs in any consecutive 12-month period. (basis: Synthetic Minor)

2. The owner/operator shall not emit more than 95 tons of any regulated air pollutant into the atmosphere during any consecutive 12-month period. (basis: Synthetic Minor)

3. Boilers:
   a. In addition to the times of operation allowed in Permit Condition 14330, boilers S-2, 3, and 4 may also run for a period of up to four hours prior to expected winter operations for the purpose of ensuring boiler operational reliability and to test for their CO emissions. This will start the 168-hour clock for CO monitoring.
   b. Within each 168 hours of operation at each boiler, the owner/operator shall monitor the boiler's CO readings. The 168-hour clock will restart at the end of each test.
   c. The owner/operator shall maintain records of the CO monitoring data.
   d. All records must be kept on site and made available for District inspection for at least 5 years.
   e. The owner/operator shall use each CO reading to ensure that the CO emission factor is 0.084 lb/mmbtu or less if burning natural gas and 0.036 lb/mmbtu or less when burning fuel oil. If the reading exceeds these values then the higher value shall be used in the monthly calculations for the following month or months, until the next 168 hr reading is performed.
   f. If the CO emission exceeds the 400 ppmv (0.29 lb/mmbtu) limit in BAAQMD Regulation 9-7, the exceedance shall be considered a violation and shall be reported to the Director of Enforcement within 10 days of the reading.
   (basis: Synthetic Minor and recordkeeping)

4. Stationary Emergency Diesel Engine Generators:
   a. The owner/operator shall ensure each stationary emergency diesel engine generator will for no more than their respective permitted hours in maintenance mode.
   b. The owner/operator shall record and maintain the number of hours of operation and the hp rating for each generator on a monthly basis and whether the engine operation is maintenance or production.

c. Fuel oil sulfur content shall not exceed 0.5% by weight.
d. All records must be kept on site and made available for District inspection for at least 5 years.

(basis: Synthetic Minor)

5. Plant Wide Coating Operations:

a. The total amount of non-water based coating used at Source 100, miscellaneous painting operations, shall not exceed 80 gallons during any consecutive twelve-month period. The total amount of water based coating used at Source 100 shall not exceed 250 gallons during any consecutive twelve-month period. All coating usage must meet the requirements of the Districts Regulation 8 coatings rules.

b. The net amount of cleanup and surface preparation solvent used at Source 100 shall not exceed 10 gallons during any consecutive twelve-month period. The net amount of organic thinner used at Source 100 shall not exceed 10 gallons during any consecutive twelve-month period.

c. The owner/operator shall maintain the following records in a District-approved log:

i. net clean-up solvent used at Source 100, in gallons/day
ii. total surface preparation solvent used at Source 100, in gallons/day
iii. cumulative monthly totals of above daily usage rates, in gallons/month
iv. all applicable coating and thinner usages as specified in Regulation 8 rules

These records shall be kept on site and made available for District inspection for a period of 5 years from the date on which a record is made.

(basis: cumulative increase and recordkeeping)

6. The owner/operator shall calculate and maintain records on a monthly basis of each regulated air pollutant emitted into the atmosphere for all sources at the facility. Each regulated air pollutant must be totaled on a consecutive twelve-month period to ensure compliance with part #2 of this condition. The following factors shall be used:

a. Boilers

The owner/operator shall use the AP-42 emission factors for the following pollutants, *except for the Regulation 9-7 limit for NOx

AP-42 Factors for burning natural Gas

Pollutant	**Emission Factor (lb/MM Btu)**
CO	*Higher of 0.084 or measured value from previous CO reading conducted every 168 hours*
*NOx	0.036

POC	0.0055

AP-42 Factors for burning fuel oil

Pollutant	**Emission Factor (lb/MM Btu)**
CO	*0.036*
*NOx	0.048
POC	0.0025

b. For Engines S-129,128,126,125,124,123,122,121,120,119,118,117,116,115, 114,113,112,111,110, 64

1. Records of operation for each source shall be totaled monthly to determine emissions of NOx and CO. Records shall be retained on site and made available for inspection by District personnel for a period of *5 years* from the date on which a record is made.
2. Monthly NOx and CO emissions shall be calculated using the following emission factors: NOx- 0.031 lb/hp-hr, CO- 0.0067 lb/hp-hr.

c. For Engines S-109,108, 107, 106, 105

1. Records of operation for each source shall be totaled monthly to determine emissions of NOx and CO. Records shall be retained on site and made available for inspection by District personnel for a period of *5 years* from the date on which a record is made.
2. Monthly NOx and CO emissions shall be calculated using the following emission factors: NOx- 0.024 lb/hp-hr, CO- 0.0055 lb/hp-hr.

d. For Engines S-65, 63, 62, 133, 132, 131, 130

1. Records of operation for each source shall be totaled monthly to determine emissions of NOx and CO. Records shall be retained on site and made available for inspection by District personnel for a period of *5 years* from the date on which a record is made.
2. Monthly NOx and CO emissions shall be calculated using the following emission factors: NOx- 0.015 lb/hp-hr, CO- 0.0019 lb/hp-hr.

e. For Engines S-140, 139, 138, 137,136, 135, 134

1. Records of operation for each source shall be totaled monthly to determine emissions of NOx and CO. Records shall be retained on site and made available for inspection by District personnel for a period of *5 years* from the date on which a record is made.
2. Monthly NOx and CO emissions shall be calculated using the following emission factors: NOx- 0.002 lb/hp-hr, CO- 0.0014 lb/hp-hr.

f. For Engines S-143, 142, 141

1. Records of operation for each source shall be totaled monthly to determine emissions of NOx and CO. Records shall be retained on site and made available for inspection by District personnel for a period of *5 years* from the date on which a record is made.
2. Monthly NOx and CO emissions shall be calculated using the following emission factors: NOx- 0.0113 lb/hp-hr, CO- 0.0015 lb/hp-hr.

g. For Engine S-144

1. Records of operation for each source shall be totaled monthly to determine emissions of NOx and CO. Records shall be retained on site and made available for inspection by District personnel for a period of *5 years* from the date on which a record is made.
2. Monthly NOx and CO emissions shall be calculated using the following emission factors: NOx- 0.0128 lb/hp-hr, CO- 0.0013 lb/hp-hr.

h. Other Internal Combustion Engines
In the absence of actual source test data or District approved emission factors, the owner/operator shall use the AP-42 emission factors for the following pollutants:

Pollutant	Emission Factor (lb/hp-hr)
CO	0.00668
NOx	0.031
POC	0.0027

*(Note: This factor is derived from maximum sulfur content of fuel.)

i. Surface Coating and Solvent Cleaning
For surface coatings and cold cleaner solvents, the owner/operator shall use the manufacturers chemical speciation data or the MSDS information to calculate VOC.

(basis: Synthetic Minor and recordkeeping)

7. The owner/operator shall calculate and maintain records on a monthly basis of the quantity of each hazardous air pollutant (HAP) emitted into the atmosphere from all sources at the facility. The HAPs must be totaled on a consecutive twelve-month period to ensure compliance with part #1. In the absence of actual source test data or District approved emissions factors, the owner/operator shall use the California Air Resources Board CATEF database emission factors or AP-42 factors for the following pollutants.

Boilers burning natural Gas (CATEF)

Pollutant	Emission Factor (lb/MM cf)
Benzene	0.00215
Acetaldehyde	0.00847
Formaldehyde	0.0696
Benzaldehyde	0.0157

Boilers burning fuel oil (CATEF)

Pollutant	Emission Factor (lb/1000 gallons)
Benzene	0.00262
Formaldehyde	0.0533
Hexane	0.00126
Toluene	0.00143
Xylene	0.00155

Diesel Firing Internal Combustion Engines (AP-42)

Pollutant	**Emission Factor (lb/mmBtu/hr)**
Benzene	0.00000876
Toluene	0.00000384
Xylene	0.00000267

For surface coatings and cold cleaner solvents, the owner/operator shall use the manufacturers chemical speciation data or the MSDS information to calculate HAPs.
(basis: Synthetic Minor and recordkeeping)

8. The owner/operator shall keep records of other unpermitted, temporary, or portable sources (except emissions from non-road engines as defined by 40 CFR 89) if the total emissions from these sources exceed 2 tons per year of any single regulated air pollutant or 400 pounds per year of a combination of hazardous air pollutants.
   (basis: Synthetic Minor and recordkeeping)

9. The Owner/Operator shall prepare an annual emissions report. The report shall contain the following items for the year ending Feb 28:
   a. Total HAP emissions for the year.
   b. Emissions of each HAP for the year
   c. Total NOX, CO, and VOC emissions.
   d. Usage of fuel oil and natural gas at boilers
   e. Usage of fuel at engines
   f. Any regulated air pollutant required by part 7 of this condition

   This report shall be submitted to the Director of Compliance and Enforcement by February 28 of each year.
   (basis: Synthetic Minor and recordkeeping)

The owner/operator shall report non-compliance with any of the above conditions in writing to the Director of Compliance and Enforcement within 10 calendar days of discovery of non-compliance.
Enforcement within 10 calendar days of discovery of non-compliance.

Current Sources

S2 Boiler No. 2
S3 Boiler No. 3
S4 Boiler No. 4
S62 Diesel Powered Gen.Set,Central Dinning(764 bhp)
S63 Diesel Powered Generator Set (765 bhp)
S64 Diesel-fired emergency gen set 117 bhp
S65 Emergency Genset
S100 Facility-wide Painting Operations
S105 Haas Pavillion/Rec. Sprt. CEV Standby Gen-Set 75kw
S106 Mulford CEV Standby Gen-Set, 75 kw
S107 Diesel Engine, Cummins model 37116828, emergency standby
S108 Diesel Engine, Cummins model VTA28G2, emergency standby
S109 Diesel Engine, Detroit Diesel model 500ROZD71, emergency standby
S110 Diesel Engine, Volvo model TAD1030GE, emergency standby
S111 Diesel Engine, Ford model CID 300, emergency standby
S112 Diesel Engine, Caterpillar model 3208, emergency standby
S113 Diesel Engine, Caterpillar model 3208, emergency standby
S114 Diesel Engine, Caterpillar model 3208, emergency standby
S115 Diesel Engine, Caterpillar model 3208, emergency standby
S116 Diesel Engine, Detroit Diesel model 80637405, emergency standby
S117 Diesel Engine, Detroit Diesel model 80637405, emergency standby
S118 Diesel Engine, Allis Chalmer model 3119-0955, emergency standby
S119 Diesel Engine, Allis Chalmer model DES 200, emergency standby
S120 Diesel Engine, John Deere model C5PG 6005-A, emergency standby
S121 Diesel Engine, Allis Chalmer model 12ST6, emergency standby
S122 Diesel Engine, John Deere model 6059TF003, emergency standby
S123 Diesel Engine, Cummins model GCT8.3-G207HP, emergency standby
S124 Diesel Engine, Cummins model N-55-G, emergency standby
S125 Diesel Engine, Caterpillar model 27D6, emergency standby
S126 Diesel Engine, Cummins model 6BT5.9-GC, emergency standby
S127 Diesel Engine, Allis Chalmer model 11000 MK11, emergency standby
S128 Diesel Engine, John Deere model 4030TF001, emergency standby
S129 Diesel Engine, Cummins model KW50, emergency standby
S130 Diesel-fired emergency gen set;Hildebrand;277 bhp
S131 CEV Standby Genset, Haas Pavilion
S132 CEV Standby Gen Set, Mulford
S133 Generator Set
S134 Standby Generator - LHS Dock
S135 Standby Generator - Calvin
S136 Standby Generator - Etcheverry
S137 Standby Generator - Silver Space Sciences
S138 Standby Generator - Art Museum
S139 Standby Generator - Doe Annex/Moffitt
S140 Standby Generator - University Hall
S141 Bowles Hall Stand By Genset, 244 kW
S142 Stand By Genset 250 kW, Residence Halls
S143 Standby Genset, 250 kW, Residence Halls
S144 Emergency Generator 2000 RE0ZDB