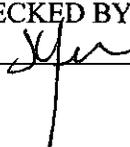


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**PERMIT TO OPERATE**

**COMPANY NAME AND ADDRESS**

LAC/USC Medical Center  
1200 North State Street  
Los Angeles, CA 90033

FACILITY ID # 20197

CONTACT: Mr. Roy P. Pierce, (323) 267-2307

**EQUIPMENT LOCATION**

Same as Above

**EQUIPMENT DESCRIPTION:**

A/N 556643  
INTERNAL COMBUSTION ENGINE, DETROIT DIESEL, 635 BHP, MODEL 6063HV35, DIESEL FUELED, TURBOCHARGED, AFTERCOOLED, EQUIPPED WITH A JOHNSON MATTHEY CRT(+) DIESEL PARTICULATE FILTER, DRIVING AN 474 KW EMERGENCY ELECTRICAL GENERATOR.

**BACKGROUND**

LAC/USC Medical Center is a medical research facility which is associated with the University of Southern California (USC). The facility is in Title V and does not participate in the RECLAIM program. LAC/USC Medical Center submitted A/N 556653 for a Permit to Construct/Operate for the addition of a new diesel fueled emergency ic engine. The engine will supply necessary back-up power to the facility in the event of unexpected power interruption. The engine rated at 635 bhp will be installed at 1200 North State Street, Los Angeles, CA 90033. LAC/USC Medical Center also submitted A/N 556645 for a Significant Revision to their Title V Permit. The application details are shown below:

A/N	Equipment	Processing Fee	XPP Fee
556643	Emergency IC Engine, 635 bhp	\$2,218.39	\$3,327.59
556645	Title V Significant Revision	\$912.44	\$912.44
Total Processing Fee			\$4,240.03

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### COMPLIANCE REVIEW

A review of the District compliance database indicates that the following two Notices to Comply (NC) were issued to LAC/USC Medical Center as described in the table below:

Notice to Comply	Issue Date	Details	Status
NC E12397	2/9/2012	Provide compliance information for two fleet vehicles	In Compliance
NC E14579	2/21/2012	Submit Appendix G for Rule 2202 for 2010 and 2011	In Compliance

No additional compliance activity is noted for this facility.

### EMISSIONS

The emergency ic engine will be equipped with a diesel particulate filter (DPF) to control emissions of PM10. The DPF, manufactured by Johnson Matthey, model no. CRT(+) will reduce PM10 emissions by >93%. Therefore the PM10 emissions will be  $0.133 \text{ gm/bhp-hr} * (1-0.93) = 0.0093 \text{ gm/bhp-hr}$ . The emissions from the new emergency ic engine are shown in the table below:

#### A/N 550614 – Emergency IC Engine Mass Emission Rates

Pollutant	EF Value	EF Unit	BHP	lb/hr	lb/year	lb/month	30DA
NOx	2.66	gm/bhp-hr	635	3.72	186.02	15.50	<b>0.517</b>
CO	0.98	gm/bhp-hr	635	1.37	68.54	5.71	<b>0.190</b>
VOC	0.122	gm/bhp-hr	635	0.17	8.53	0.71	<b>0.024</b>
PM10	0.0093	gm/bhp-hr	635	0.01	0.65	0.05	<b>0.002</b>
SOx <sup>1</sup>	0.0014	gm/bhp-hr	635	0.00	0.10	0.01	<b>0.00</b>

<sup>1</sup> AP-42 SOx emissions factor for diesel fueled ic engines =  $2.05\text{E-}03 * 0.0015 * 454 \text{ gm/lb} = 0.0014 \text{ gm/bhp-hr}$

### GHG Emissions

GHG Pollutant	Emissions (lb/hr)	Emissions (lb/day)	Emissions (lb/year)
CO2	716.16	716.16	143,231.00
CH4	0.02871	0.02871	5.74
N2O	0.00574	0.00574	1.15

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## **RULE EVALUATION**

### **Rule 212 – Standards for Approving Permits and Issuing Public Notice**

The MICR from this engine is less than 1-in-a-million for both the commercial and residential receptors. The facility is not located within 1,000 feet of the boundary of a school. As such, a Rule 212 public notice is not required.

### **Rule 401 – Visible Emissions**

Compliance with this rule is expected under normal operation.

### **Rule 402 – Nuisance**

Compliance with this rule is expected under normal operation.

### **Rule 404 – Particulate Matter – Concentration**

This rule limits the PM emissions. Compliance is anticipated.

### **Rule 431.2 – Sulfur Content of Liquid Fuels**

The emergency ic engine will use CARB-certified diesel fuel that will comply with the requirements of this rule. Compliance is expected.

### **Regulation XIII – New Source Review**

The engine is located at a major source. Therefore, major source BACT/LAER applies. BACT/LAER requires the use of a DPF to control PM emissions. The equipment will be constructed with a Johnson Matthey model CRT(+) DPF. Therefore BACT/LAER for PM is satisfied.

BACT/LAER (achieved in practice) for the remaining pollutants is shown in the table below:

IC Engine, 635 bhp	NOx +VOC gm/bhp-hr	CO gm/bhp-hr
BACT limit	3.0	2.6
Emissions	2.6	0.98
Comply (Y/N)	Yes	Yes

SOx BACT will be satisfied with the use of CARB-certified diesel fuel. Therefore, BACT/LAER for the proposed emergency ic engine is satisfied.

### **Modeling/Offsets**

Emergency equipment is exempt under Rule 1304(a)(4)

### **Rule 1401 – New Source Review of Toxic Air Contaminants**

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Emergency ic engine are exempt per Rule 1401(g)(1)(F).

Rule 1470 – Requirements For Stationary Diesel Fueled Internal Combustion and Other Compression Ignition Engines

1470(c)(1)(B) – Fuel and Fuel Additive Requirements for New and In-Use Stationary Diesel Engines

The proposed engine will comply with the fuel requirements by using CARB certified diesel fuel. compliance is expected.

1470(c)(2)(C)(iv)(I) – PM Emission Standards for New Stationary Emergency Standby Diesel Fueled Engines

The proposed engine must comply with a PM emission limit of 0.01 gm/bhp-hr because the engine is located within 50 meters of a sensitive receptor (the medical center is the sensitive receptor). The engine is expected to comply with the PM emission limit with the installation of the Diesel Particulate Filter (DPF).

1470(c)(viii) – NMHC+NOx and CO Emission Standards for New Stationary Emergency Standby Engines

The rule requires new stationary emergency standby engines to comply with the following emission limits for engines with maximum power  $175 < \text{BHP} \leq 750$

Pollutant	Emission Limit (gm/bhp-hr)	Emissions (gm/bhp-hr)	Comply (Y/N)
NMHC+NOx	3.0	2.66	Yes
CO	2.6	0.98	Yes

Therefore, the proposed engines will comply with the emission limits of 1470(c)(viii)

1470(c)(2)(F) – The applicant will be required to comply with the diesel particulate cleaning options. Compliance is expected.

Compliance with the applicable provisions of Rule 1470 is expected.

NSPS

Title 40 Part 60 Subpart IIII

Emergency compression ignition (CI) engines constructed after July 11, 2005 and manufactured after April 1, 2006 are subject to the NSPS performance standards for such engines. Engines with a total displacement of between 10 and 30 liters/cylinder must comply with Tier 3 emission standards. The proposed 635 bhp engine is a 2005 model manufactured after 2006 and will comply with the Tier 3 emission standards as shown in the table below.

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Pollutant	Engine Emissions gm/bhp-hr	Tier 3 Standards gm/bhp-hr	Comply (Y/N)
NOx+VOC	2.66	3.0	Yes
CO	0.98	2.6	Yes
PM	0.15	0.0093	Yes

### NESHAPS

#### Title 40 Part 63, Subpart ZZZZ

The engine proposed for construction at LAC/USC Medical Center is a new compression ignition (CI) reciprocating internal combustion engines (RICE) located at an area source. Per the requirements of 40 CFR 63 Subpart ZZZZ, the emission standards for new RICE located at area sources must meet the requirements of 40 CFR 60 Subpart IIII. The proposed engine will comply with 40 CFR 60 Subpart IIII. Therefore, the proposed engines will comply with 40 CFR 63 Subpart ZZZZ.

#### Regulation XXX – Title V

LAC/USC Medical Center is in the Title V program. The installation of the emergency ic engine constitutes a significant permit revision to the Title V permit and is subject to the Title V requirements. Therefore, this permit revision is subject to a 45-day EPA review and comment period.

### RECOMMENDATION

Issue a Permit to Operate for the emergency ic engine with the following conditions.

### CONDITIONS

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.  
[RULE 204]
2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.  
[RULE 204]
3. THIS ENGINE SHALL NOT OPERATE MORE THAN 200 HOURS IN ANY ONE YEAR, WHICH INCLUDES NO MORE THAN 50 HOURS IN ANY ONE YEAR FOR MAINTENANCE AND TESTING AND NO MORE THAN 4.2 HOURS IN ANY ONE MONTH FOR MAINTENANCE AND TESTING.  
[RULE 1303(b)(2)-Offset, RULE 1470]
4. AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER SHALL BE INSTALLED AND MAINTAINED TO INDICATE THE ENGINE ELAPSED OPERATING TIME.  
[RULE 1303(b)(2)-Offset, RULE 1470]

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5. THE OPERATION OF ENGINE BEYOND THE 50 HOURS PER YEAR ALLOTTED FOR ENGINE MAINTENANCE AND TESTING SHALL BE ALLOWED ONLY IN THE EVENT OF A LOSS OF GRID POWER OR UP TO 30 MINUTES PRIOR TO A ROTATING OUTAGE, PROVIDED THAT THE ELECTRICAL GRID OPERATOR OR ELECTRIC UTILITY HAS ORDERED ROTATING OUTAGES IN THE CONTROL AREA WHERE THE ENGINE IS LOCATED OR HAS INDICATED THAT IT EXPECTS TO ISSUE SUCH AN ORDER AT A CERTAIN TIME, AND THE ENGINE IS LOCATED IN A UTILITY SERVICE BLOCK THAT IS SUBJECT TO THE ROTATING OUTAGE. ENGINE OPERATION SHALL BE TERMINATED IMMEDIATELY AFTER THE UTILITY DISTRIBUTION COMPANY ADVISES THAT A ROTATING OUTAGE IS NO LONGER IMMINENT OR IN EFFECT.  
[RULE 1303(b)(2)-Offset, RULE 1470]

6. AN ENGINE OPERATING LOG SHALL BE KEPT AND SHALL DOCUMENT THE TOTAL TIME THE ENGINE IS OPERATED EACH MONTH AND SPECIFIC REASON FOR OPERATION AS:

- A. EMERGENCY USE.
- B. MAINTENANCE AND TESTING.
- C. OTHER (DESCRIBE THE REASON FOR OPERATING).

IN ADDITION, EACH TIME THE ENGINE IS MANUALLY STARTED, THE LOG SHALL INCLUDE THE DATE OF OPERATION, THE SPECIFIC REASON FOR OPERATION, AND THE TIME METER READING (IN HOURS AND TENTHS OF HOURS) AT THE BEGINNING AND END OF OPERATION.  
[RULE 1303(b)(2)-Offset, RULE 1470]

7. ON OR BEFORE JANUARY 15TH OF EACH YEAR, THE OPERATOR SHALL RECORD IN THE ENGINE OPERATING LOG THE FOLLOWING:

- A. THE TOTAL HOURS OF OPERATION FOR THE PREVIOUS CALENDAR YEAR, AND
- B. THE TOTAL HOURS OF ENGINE OPERATION FOR MAINTENANCE AND TESTING FOR THE PREVIOUS CALENDAR YEAR.

ENGINE OPERATING LOG SHALL BE RETAINED ON SITE FOR A MINIMUM OF FIVE CALENDAR YEARS AND SHALL BE MADE AVAILABLE TO THE EXECUTIVE OFFICER OR REPRESENTATIVE UPON REQUEST.  
[RULE 1303(b)(2)-Offset, RULE 1470]

8. THIS OPERATOR SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF RULE 431.2 AND RULE 1470.  
[RULE 431.2, RULE 1470]

9. THIS EQUIPMENT SHALL NOT BE OPERATED UNLESS ITS EXHAUST IS VENTED TO A DIESEL PARTICULATE FILTER SYSTEM WHICH IS IN FULL OPERATION AND IS IN GOOD OPERATING CONDITION AT ALL TIMES.  
[RULE 1470]

10. THE OPERATOR SHALL OPERATE THE DIESEL PARTICULATE FILTER ONLY WITH AN OPERATIONAL CRT DIAGNOSTIC MODULE (CRTDM) EQUIPPED WITH EXHAUST

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TEMPERATURE AND PRESSURE MONITORS. THE CRT DIAGNOSTIC MODULE SHALL BE PROGRAMMED TO PROVIDE AN AUDIBLE ALARM WHENEVER THE ENGINE BACKPRESSURE REACHES THE MAXIMUM ALLOWABLE BACKPRESSURE OF 40.8 INCHES OF WATER.  
 [RULE 1470]

11. THE OPERATOR SHALL REGENERATE THE DIESEL PARTICULATE FILTER AFTER EVERY 24 CONSECUTIVE COLD START-UPS AND 30 MINUTE IDLE SESSIONS, OR WHENEVER AN AUDIBLE ALARM INDICATING THE BACKPRESSURE IS 40.8 INCHES OF WATER IS RECEIVED FROM THE CRT DIAGNOSTIC MODULE, WHICHEVER OCCURS FIRST. FILTER REGENERATION IS COMPLETE WHEN THE BACKPRESSURE MONITORING SYSTEM INDICATES A NORMAL BACKPRESSURE READING.  
 [RULE 1470]
12. THE ENGINE SHALL BE SHUT DOWN AND THE DIESEL PARTICULATE FILTER CLEANED AFTER 150 HALF-HOUR COLD STARTS WITH ASSOCIATED REGENERATIONS, OR 1,000 HOURS OF EMERGENCY/STANDBY USE, WHICHEVER COMES FIRST. CLEANING SHALL BE PERFORMED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.  
 [RULE 1470]
13. THE ENGINE SHALL BE OPERATED AT THE LOAD LEVEL REQUIRED TO ACHIEVE A MINIMUM EXHAUST TEMPERATURE OF 240 DEGREES C FOR PASSIVE REGENERATION OF THE DIESEL PARTICULATE FILTER FOR A MINIMUM OF 40 PERCENT OF THE ENGINE'S OPERATING TIME AND AN OXIDES OF NITROGEN (NOX)/PM RATIO OF 15 AT GREATER THAN OR EQUAL TO 300 DEGREES C AND 20 AT LESS THAN OR EQUAL TO 300 DEGREES C. THE ENGINE SHALL NOT BE OPERATED BELOW THE PASSIVE REGENERATION TEMPERATURE OF 240 DEGREES C FOR MORE THAN 720 CONSECUTIVE MINUTES.  
 [RULE 1470]
14. THE OPERATOR SHALL KEEP RECORDS OF DIESEL PARTICULATE FILTER INSPECTIONS, CLEANING, AND REPLACEMENTS. THE OPERATOR SHALL MAINTAIN THESE RECORDS FOR A MINIMUM OF FIVE YEARS AND MAKE THEM AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.  
 [RULE 1470]
15. REMOVAL OF THE DIESEL PARTICULATE FILTER'S FILTER MEDIA FOR CLEANING MAY ONLY OCCUR UNDER THE FOLLOWING CONDITIONS:

THE INTERNAL COMBUSTION ENGINE SHALL NOT BE OPERATED FOR MAINTENANCE AND TESTING OR ANY OTHER NON-EMERGENCY USE WHILE THE DIESEL PARTICULATE FILTER MEDIA IS REMOVED; AND

THE DIESEL PARTICULATE FILTER'S FILTER MEDIA SHALL BE RETURNED AND RE-INSTALLED WITHIN 10 WORKING DAYS FROM THE DATE OF REMOVAL; AND

THE OWNER OR OPERATOR SHALL MAINTAIN RECORDS INDICATING THE DATE(S) THE DIESEL PARTICULATE FILTER'S FILTER MEDIA WAS REMOVED FOR CLEANING

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AND THE DATE(S) THE FILTER MEDIA WAS RE-INSTALLED. RECORDS SHALL BE RETAINED FOR A MINIMUM PERIOD OF 5 YEARS.

[RULE 1470]

16. THE EMISSIONS FROM THIS EQUIPMENT SHALL COMPLY WITH THE FOLLOWING LIMITS:

CONTAMINANT	EMISSION LIMIT (GM/BHP-HR)
NITROGEN OXIDES+VOLATILE ORGANIC COMPOUNDS (NO <sub>x</sub> +VOC)	3.0
CARBON MONOXIDE (CO)	2.6
PATICULATE MATTER (PM10)	0.01

[RULE 1303-BACT, RULE 1470]

17. THIS EQUIPMENT SHALL BE FIRED EXCLUSIVELY WITH DIESEL FUEL WITH LESS THAN OR EQUAL TO 15 PPM SULFUR BY WEIGHT.

[RULE 431.2]

18. THE OPERATOR SHALL COMPLY WITH THE REQUIREMENTS OF THE STATE OF CALIFORNIA AIR RESOURCES BOARD (CARB) EXECUTIVE ORDER DE-08-009-06.

[RULE 1470]