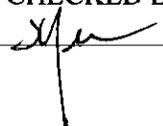


<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 8	PAGE 1
	APPL. NO. 558397	DATE 1/14/2014
	PROCESSED BY KEN COATS	CHECKED BY 

**PERMIT TO OPERATE**

**COMPANY NAME AND ADDRESS**

University of Southern California, University Park  
3434 South Grand Avenue, CDF  
Los Angeles, CA 90089-3161  
FACILITY ID # 800265

CONTACT: Mr. Angel Burgos, (626) 318-7475

**EQUIPMENT LOCATION**

McClintock W 34<sup>th</sup> Childs Street  
Los Angeles, CA 90089

**EQUIPMENT DESCRIPTION:**

A/N 558397  
INTERNAL COMBUSTION ENGINE, CUMMINS MODEL NO. QSX15-G9, DIESEL FUELED, 755 BHP, 6 CYLINDER, TURBOCHARGED, AFTERCOOLED, EQUIPPED WITH A RYPOS ACTIVE DPF/C3+, MODEL RH-410-L DIESEL PARTICULATE FILTER, DRIVING AN EMERGENCY ELECTRICAL GENERATOR.

**BACKGROUND**

The University of Southern California – University Park (USC) is the main campus of the USC system of colleges and medical facilities. The facility is in Title V and does not participate in the RECLAIM program. USC submitted an application for Permit to Construct/Operate for a new diesel fueled emergency ic engine on 11/20/2013. The engine is rated at 755 bhp and will be installed at the Seeley G. Mudd Building. USC also submitted an accompanying application for a Significant Revision to their Title V Permit, along with a signed Form 400 XPP for expedited permit processing under Rule 301(u). As such, the expedited permit processing fees in the table below apply:

A/N	Equipment	Standard Processing Fees	Expedited Processing Fees
558397	Emergency IC Engine, 755 bhp	\$2,218.39	\$3,327.59
558395	Title V Significant Revision	\$912.44	\$912.44
<b>Total Permit Processing Fee</b>			<b>\$4,240.03</b>

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	<b>PAGES</b> 8	<b>PAGE</b> 2
	<b>APPL. NO.</b> 558397	<b>DATE</b> 1/14/2014
	<b>PROCESSED BY</b> KEN COATS	<b>CHECKED BY</b>

**COMPLIANCE REVIEW**

A review of the District compliance database indicates that there were two Notices to Comply (NC) issued to USC between July 2011 and July 2013. The first NC (NC E14420) was issued on 4/25/2012 for a violation which occurred on 4/4/2012 for failure to perform timing certifications for all required ic engines. The second NC (NC E17977) was issued on 9/25/2012 for a violation which occurred on 9/25/2012 for failure to submit Form 500-RO to match the responsible official with the Title V Permit. The status of both NCs is closed and PAATS database indicates that the facility is in compliance as of the date of this evaluation. There are no additional compliance activity for this facility.

**EMISSIONS**

The emissions from the new emergency ic engine are shown in the table below:

A/N 558397

Emergency IC Engine Mass Emission Rates

Pollutant	EF Value	EF Unit	BHP	lb/hr	lb/year	lb/month	30DA
NOx	4.59	gm/bhp-hr	755	7.63	381.66	31.80	<b>1.0602</b>
CO	0.45	gm/bhp-hr	755	0.75	37.42	3.12	<b>0.1039</b>
VOC	0.11	gm/bhp-hr	755	0.18	9.15	0.76	<b>0.0254</b>
PM10	0.01	gm/bhp-hr	755	0.02	0.83	0.07	<b>0.0023</b>
SOx <sup>1</sup>	0.0014	gm/bhp-hr	755	0.00	0.12	0.01	<b>0.0003</b>

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

GHG Emissions

GHG Pollutant	Emissions (lb/hr)	Emissions (lb/day)	Emissions (lb/year)
CO2	772.28	772.28	154,456.00
CH4	0.0309	0.0309	6.19
N2O	0.0062	0.0062	1.24

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	PAGES 8	PAGE 3
	APPL. NO. 558397	DATE 1/14/2014
	PROCESSED BY KEN COATS	CHECKED BY

**RULE EVALUATION**

Rule 212 – Standards for Approving Permits and Issuing Public Notice

The emission increases from this engine are less than the thresholds in Rule 212(g). The MICR from this engine is less than 1-in-a-million for both the commercial and residential receptors. The engine stack is located greater than 1,000 feet from the outer boundary of the school. Therefore, a Rule 212 Public Notice is not required for this engine.

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

Each of the emergency ic engines will use low-sulfur diesel fuel that will comply with the requirements of this rule. Compliance is expected.

Regulation XIII – New Source Review

There is an increase in emissions for NOx from the installation of the new emergency ic engine as shown in the table below.

IC Engine, 755 bhp	NOx	CO	VOC	PM10	SOx
30 DA	1.06	0.104	0.025	0.002	0.0003
Increase (Yes/No)	Yes	No	No	No	No

Therefore NSR applies to this engine. BACT for this engine will be compliance with the LAER requirements for Major Sources.

BACT/LAER Requirements

IC Engine, 755 bhp	NOx +VOC gm/bhp-hr	CO gm/bhp-hr
BACT limit	4.8	2.6
Emissions	4.59	0.45
Comply (Y/N)	Yes	Yes

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	<b>PAGES</b> 8	<b>PAGE</b> 4
	<b>APPL. NO.</b> 558397	<b>DATE</b> 1/14/2014
	<b>PROCESSED BY</b> KEN COATS	<b>CHECKED BY</b>

Major Source BACT/LAER for PM10 is the use of a diesel particulate filter (DPF) to control emissions of PM10. The engine will be equipped with a Rypos Model RH-410-L DPF which will reduce PM10 emissions by 85% to a level of 0.01 gm/bhp-hr.

Major Source BACT/LAER for SOx emissions will be the use of a low-sulfur diesel fuel with a sulfur content of less than 15% by weight.

Compliance with Major Source BACT/LAER is expected.

MODELING/OFFSETS

The engine is exempt from modeling and offsets under Rule 1304(a)(4) – Emergency Equipment operating not more than 200 hours per year.

Rule 1401 – New Source Review of Toxic Air Contaminants

Emergency ic engines 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)(iii) – PM Emission Standards for New Stationary Emergency Standby Diesel Fueled Engines

The proposed engine will comply with the PM emission limit of 0.15 gm/bhp-hr 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 > 750 bhp:

	Emission Limit (gm/bhp-hr)	Emissions (gm/bhp-hr)	Comply (Y/N)
NOx+VOC	4.8	4.59	Yes
CO	2.6	0.45	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.

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	<b>PAGES</b> <b>8</b>	<b>PAGE</b> <b>5</b>
	<b>APPL. NO.</b> 558397	<b>DATE</b> 1/14/2014
	<b>PROCESSED BY</b> <b>KEN COATS</b>	<b>CHECKED BY</b>

**NSPS**

**40 CFR 60 Subpart IIII**

Emergency compression ignition (CI) engines of model year 2007 or later must comply with Tier 3 emissions standards (or Tier 2 standards if no Tier 3 standards exist for that engine). The proposed emergency ic engine will comply with the following Tier 2 emissions limits.

Pollutant	Emission Limit gm/bhp-hr	Engine Emissions gm/kw-hr	Comply (Y/N)
NOx+VOC	4.8	4.59	Yes
CO	2.6	0.45	Yes
PM	0.15	0.01 w/ DPF	Yes

Therefore the proposed emergency ic engine will comply with 40 CFR 60 Subpart IIII

**NESHAPS**

**Title 40 Part 63, Subpart ZZZZ**

The engine proposed for construction at USC University Park 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 engine will comply with 40 CFR 60 Subpart IIII. Therefore, the proposed engine will comply with 40 CFR 63 Subpart ZZZZ.

**Regulation XXX – Title V**

USC University Park is in the Title V program. The installation of the new 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 and a Rule 3006 30-Day Public Notice.

**RECOMMENDATION**

Issue a Permits 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]

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	<b>PAGES</b> <b>8</b>	<b>PAGE</b> <b>6</b>
	<b>APPL. NO.</b> 558397	<b>DATE</b> 1/14/2014
	<b>PROCESSED BY</b> KEN COATS	<b>CHECKED BY</b>

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]
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.

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	<b>PAGES</b> 8	<b>PAGE</b> 7
	<b>APPL. NO.</b> 558397	<b>DATE</b> 1/14/2014
	<b>PROCESSED BY</b> KEN COATS	<b>CHECKED BY</b>

[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 DIESEL PARTICULATE FILTER SHALL BE INSPECTED AND CLEANED IF NECESSARY AFTER EVERY 1,000 HOURS OF OPERATION. CLEANING SHALL BE PERFORMED ACCORDING TO THE MANUFACTURER'S RECOMMENDED FILTER MAINTENANCE AND CLEANING PROCEDURES AS SPECIFIED IN THE OPERATIONS AND MAINTENANCE MANUAL.  
[RULE 1470]
  11. THE OPERATOR SHALL INSPECT THE INTEGRITY OF THE FILTER AFTER EVERY SIX (6) MONTHS AND IF NECESSARY, REPLACE IT.  
[RULE 1470]
  12. 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]
  13. 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 AND THE DATE(S) THE FILTER MEDIA WAS RE-INSTALLED. RECORDS SHALL BE RETAINED FOR A MINIMUM PERIOD OF 5 YEARS.
- [RULE 1470]

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <i>ENGINEERING DIVISION</i>  <b>APPLICATION PROCESSING AND CALCULATIONS</b>	<b>PAGES</b> 8	<b>PAGE</b> 8
	<b>APPL. NO.</b> 558397	<b>DATE</b> 1/14/2014
	<b>PROCESSED BY</b> KEN COATS	<b>CHECKED BY</b>

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

CONTAMINANT	EMISSION LIMIT (GM/BHP-HR)
NITROGEN OXIDES (NO <sub>x</sub> )+VOLATILE ORGANIC COMPOUNDS(VOC)	4.8
CARBON MONOXIDE (CO)	2.6
PATICULATE MATTER (PM10)	0.01
[RULE 1470]	