

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS	PAGES 5	PAGE NO. 1
	APPL. NO. 519465	DATE 11/4/2011
	PROCESSED BY M SAULIS	CHECKED BY

ENGINEERING EVALUATION

COMPANY NAME AND ADDRESS

University of California Irvine
4600 Bison Ave.
Irvine, CA 92697

CONTACT(S): Kirk Matin, Manager Environmental Programs, (949) 824-4578

EQUIPMENT LOCATION

AQMD ID 800288
4600 Bison Ave.
Irvine, CA 92697

EQUIPMENT DESCRIPTION

MODIFICATION OF AIR POLLUTION CONTROL SYSTEM CONSISTING OF:

1. REACTOR, ENGELHARD, SELECTIVE CATALYTIC REDUCTION, 15'-5" W. x 9'-5" H., WITH 278.3 CU. FT. OF DNX 930 TYPE CATALYST.
2. REACTOR, ENGELHARD, CARBON MONOXIDE OXIDATION CATALYST, 16'-11 1/2" W. x 11'-0" H., WITH 39 CU. FT. OF ADCAT CO CATALYST.
3. AMMONIA GENERATION AND INJECTION SYSTEM, HALDOR TOPSOE, UREA CONVERSION, FUEL TECH (ID).
4. UREA STORAGE TANK, 6000-GALLON CAPACITY.
5. CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS) AT THE OUTLET OF THE SCR.

WITH THE REPLACEMENT OF THE ENGLEHARD CARBON MONOXIDE OXIDATION CATALYST WITH THE FOLLOWING:

1. REACTOR, EMERACHEM, CARBON MONOXIDE OXIDATION CATALYST, 15'-8 1/2" W. x 9'-10 3/4" H., WITH 38.9 CU. FT. OF ADCAT CO CATALYST.

BACKGROUND

The University of California Irvine (UCI) submitted an application, as well as a TV permit amendment application (519464), to modify their existing air pollution control system for their combustion turbine. UCI is proposing to replace their oxidation catalyst with another make and model. There is no increase in emissions associated with this project. The modification is considered a minor permit revision and subject to a 45 day EPA review period. Table 1 summarizes the information on the applications submitted for this evaluation.

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Table 1 Applications Summary

A/N	BCAT/CCAT	Equipment Description	Received in PAATS	Accepted in PAATS	Filing Fee
519464	555007	TV Permit Revision	3/4/11	4/26/11	\$3,315.05
519465	81	SCR	3/4/11	4/26/11	\$861.52
TOTAL					\$4,174.57

COMPLIANCE REVIEW

A review of the District Enforcement database reveals that the facility was inspected on 7/27/11 and was issued a NOV (P53695) for exceeding the 4.2 hours allowed for ICE testing and maintenance, not having an operational timer for an emergency ICE, and not maintaining an emergency ICE operating log.

EMISSION CALCULATIONS

There is no change in emissions associated with this project.

RULES EVALUATION

RULE 212-STANDARDS FOR APPROVING PERMITS AND ISSUING PUBLIC NOTICES

Rule 212 requires that a person shall not build, erect, install, alter, or replace any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce, or control the issuance of air contaminants without first obtaining written authorization for such construction from the Executive Officer. Rule 212(c) states that a project requires written notification if there is an emission increase for ANY criteria pollutant in excess of the daily maximums specified in Rule 212(g), if the equipment is located within 1,000 feet of the outer boundary of a school, or if the MICR is equal to or greater than one in a million (1×10^6) during a lifetime (70 years) for facilities with more than one permitted unit, source under Regulation XX, or equipment under Regulation XXX, unless the applicant demonstrates to the satisfaction of the Executive Officer that the total facility-wide maximum individual cancer risk is below ten in a million (10×10^6) using the risk assessment procedures and toxic air contaminants specified under Rule 1402; or, ten in a million (10×10^6) during a lifetime (70 years) for facilities with a single permitted unit, source under Regulation XX, or equipment under Regulation XXX.

The modification of the air pollution control equipment will not result in any increase in emissions that will result in triggering a Rule 212 public notice.

RULE 401 - VISIBLE EMISSIONS

This rule limits visible emissions to opacity of less than 20 percent (Ringlemann No.1), as published by the United States Bureau of Mines. It is unlikely, that there will be visible emissions from the air pollution control equipment. However, in the unlikely event that visible emissions do occur, anything greater than 20 percent opacity is not expected to last for greater than 3 minutes. During normal operation, no visible emissions are expected from the combustion equipment at this facility.

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RULE 402 - NUISANCE

This rule requires that a person not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which cause, or have a natural tendency to cause injury or damage to business or property. A review of the District database reveals that there have not been any complaints received by the District within the last two years in regards to this facility. Inspections are conducted on an annual basis at this facility and it is expected that UCI will continue to comply with Rule 402.

RULE 407 – LIQUID AND GASEOUS AIR CONTAMINANTS

This rule limits CO emissions to 2,000 ppmvd and SO₂ emissions to 500 ppmvd, averaged over 15 minutes. The equipment is subject to the requirements of this rule. The turbine is subject to 3 ppmvd-CO. Continued compliance with this rule is required. The unit also must comply with Rule 431.1, thus it is exempt from the SO₂ limit in Rule 407. The applicant will be required to comply with Rule 431.1 and thus the SO₂ limit in Rule 407 will not apply.

RULE 409 – COMBUSTION CONTAMINANTS

This rule restricts the discharge of contaminants from the combustion of fuel to 0.1 grain per cubic foot of gas, calculated to 12% CO₂, averaged over 15 minutes. Continued compliance with this rule is expected.

RULE 431.1-SULFUR CONTENT OF GASEOUS FUELS

The turbine uses natural gas that will comply with the 16 ppm sulfur limit, calculated as H₂S, specified in this rule. Natural gas will be supplied by the Southern California Gas Company which has a H₂S content of less 0.25 gr/100scf, which is equivalent to a concentration of about 4 ppm. It is also much less than the 1 gr/100scf limit typical of pipeline quality natural gas. Continued compliance is expected.

40 CFR PART 60 SUBPART KKKK – STANDARDS OF PERFORMANCE FOR STATIONARY GAS TURBINES

The turbine is subject to the requirements of this subpart. The replacement of the catalyst will result in no change in emissions; therefore, the subpart is not triggered and continued compliance is expected.

REGULATION XXX – TITLE V

UCI is a Title V facility with a Title V permit.

RULE 3003 – APPLICATIONS

The “permit revision” is expected to comply with all applicable requirements of this rule.

(i)(4) The permit revision will be issued only after the permit revision application has been found to comply with all conditions of this rule.

(j) The proposed revision will be reviewed by EPA prior to issuance.

RULE 3005 – PERMIT REVISION

(c) The proposed Title V permit revision satisfies all the applicable conditions listed in this rule. The modification constitutes a “minor permit revision” as defined in Rule 3000(b)(15).

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RULE 3006 – PUBLIC PARTICIPATION

(b) The proposed revision is exempt from public participation.

RECOMMENDATION

It is recommended that the permit be issued with the conditions shown below following the completion of EPA’s 45 day review period.

PERMIT 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]
1. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]
3. THIS EQUIPMENT SHALL BE IN OPERATION WHENEVER THE EQUIPMENT IT SERVES IS OPERATING, EXCEPT AS OTHERWISE NOTED IN THIS PERMIT.
[RULE 1303(a)(1)-BACT]
4. THE HOURLY AVERAGE AMMONIA CONCENTRATION AT THE EXIT OF THE SCR UNIT SHALL NOT EXCEED 5 PPMV CORRECTED TO 15 PERCENT OXYGEN WHEN THE SCR INLET TEMPERATURE EXCEEDS 500 DEGREES FAHRENHEIT.
[RULE 1303(a)(1)-BACT]
5. THE OPERATOR SHALL INSTALL AND MAINTAIN A TEMPERATURE GAUGE TO ACCURATELY INDICATE THE TEMPERATURE OF THE EXHAUST AT THE INLET TO THE SCR REACTOR. THE OPERATOR SHALL CONTINUOUSLY RECORD THE TEMPERATURE WITH A MEASURING DEVICE OR GAUGE ACCURATE TO +/- 5 PERCENT OF THE DEVICE FULL SPAN, CALIBRATED ONCE EVERY 12 MONTHS.
[RULE 1303(a)(1)-BACT]
6. THE OPERATOR SHALL CONDUCT SOURCE TESTS FOR THE POLLUTANTS IDENTIFIED BELOW:

POLLUTANTS	REQUIRED TEST METHOD	AVERAGING TIME	TEST LOCATION
NH ₃	DISTRICT METHOD 5.3 AND 207.1 OR EPA METHOD 17	1 HOUR	OUTLET OF THE SCR

THE TEST SHALL BE CONDUCTED AND THE RESULTS SUBMITTED TO THE AQMD WITHIN 60 DAYS AFTER THE TEST DATE. THE AQMD SHALL BE NOTIFIED OF THE DATE AND TIME OF THE TEST AT LEAST 10 DAYS PRIOR TO THE TEST.

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THE TEST SHALL BE CONDUCTED AT LEAST QUARTERLY DURING THE FIRST 12 MONTHS OF OPERATION OF THE SCR, AND AT LEAST ANNUALLY THEREAFTER. THE NO_x CONCENTRATION, AS DETERMINED BY THE CEMS, SHALL BE SIMULTANEOUSLY RECORDED DURING THE AMMONIA SLIP TEST. IF THE CEMS IS INOPERABLE, A TEST SHALL BE CONDUCTED TO DETERMINE THE NOX EMISSIONS USING DISTRICT METHOD 100.1, MEASURED OVER A 60 MINUTE AVERAGING TIME PERIOD.

THE TEST SHALL BE CONDUCTED TO DEMONSTRATE COMPLIANCE WITH THE RULE 1303 CONCENTRATION LIMIT.

[RULE 1303(a)(1)-BACT]

7. THE SCR REACTOR SHALL BE OPERATED WITHIN THE TEMPERATURE RANGE OF 500-757°F, EXCEPT DURING START-UP, SHUTDOWN AND INITIAL PLANT COMMISSIONING PERIODS.
[RULE 1303(a)(1)-BACT]
8. THE OPERATOR MAY, AT HIS DISCRETION, CHOOSE NOT TO USE AMMONIA INJECTION WHEN THE INLET EXHAUST TEMPERATURE TO THE SCR REACTOR IS 500 °F OR LESS, NOT TO EXCEED 3 HOURS DURING START-UPS WITHIN THE COMMISSIONING PERIOD AND 2 HOURS DURING START-UPS IN NORMAL OPERATION.
[RULE 1303(a)(1)-BACT]
9. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE RETAINED AT THE FACILITY FOR AT LEAST FIVE YEARS AND MADE AVAILABLE TO ANY DISTRICT REPRESENTATIVE UPON REQUEST.
[RULE 1303(a)(1)-BACT]

Emissions And Requirements:

10. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

NH₃: 5 PPMV, RULE 1303(a)(1)-BACT