

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION PERMIT APPLICATION EVALUATION AND CALCULATIONS	PAGES 7	PAGE 1
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PERMIT TO OPERATE

APPLICANT'S NAME: ORANGE COUNTY WASTE & RECYCLING, SANTIAGO
(Previously Orange Co.- Integrated Waste Mgmt- Santiago Cyn.)

MAILING ADDRESS: 300 N. FLOWER STREET, SUITE 400
SANTA ANA, CA 92703
ATTN: MOHAMMAD ABDUL SALAM, CIVIL ENGINEER

EQUIPMENT ADDRESS: 3099 SANTIAGO CANYON ROAD (SANTIAGO CANYON LANDFILL)
ORANGE, CA 92862

FACILITY ID #: 52743

EQUIPMENT DESCRIPTION:

LANDFILL GAS FLARING SYSTEM CONSISTING OF:

1. ONE (1) CONDENSATE SEPARATOR WITH FILTER, ENDUSTRA, 3750 SCFM CAPACITY, 6'-8" HIGH BY 4'-6" DIAM.
2. ONE (1) FLOW METER WITH RECORDER, FOR TOTAL INLET LANDFILL GAS.
3. THREE (3) BLOWERS, LOCATED IN PARALLEL, EACH 40 HP, EACH 1250 SCFM.
4. THREE (3) SHUT-OFF VALVES, EACH 12-INCH CONNECTIONS, PNEUMATIC, LOCATED IN PARALLEL.
5. THREE (3) FLAME ARRESTORS, 12-INCH CONNECTIONS.
6. TWO (2) PUMPS (P-102A & P-102B), CONDENSATE/GROUNDWATER INJECTION, EACH 7.5 GPM MAX CAPACITY, PNEUMATIC, ALTERNATING OPERATION.
7. TWO (2) FILTERS (F-102A & F-102B).
8. THREE (3) SPRAY NOZZLES, CONDENSATE/GROUNDWATER INJECTION, ONE TO EACH FLARE, LOCATED IN MIDDLE OF BURNERS.
9. THREE (3) FLARES, EACH 8'-4.5" W. BY 8'-4" D. BY 30'-0" H., WITH PROPANE PILOT, PERRENIAL BURNERS, TEN 4-INCH SOURCE TEST PORTS, 41.25 MMBTU/HR, 1250 SCFM, SIX AUTOMATIC AIR LOUVERS, ELECTRIC IGNITER, UV FLAME SCANNER, AND THERMOCOUPLE WITH TEMPERATURE INDICATOR AND RECORDER, FLARES OPERATED IN PARALLEL.
10. TWO (2) TANKS, EACH 5 GALLON CAPACITY CONTAINING PROPANE GAS FOR FLARE PILOTS.

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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 EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]
4. TEN (10) SAMPLING PORTS SHALL BE PROVIDED IN EACH FLARE STACK AT LEAST FIVE (5) FEET UPSTREAM OF THE FLARE OUTLET. FIVE OF THE PORTS SHALL BE LOCATED IN A LINEAR, HORIZONTAL POSITION ACROSS ONE SIDE OF THE FLARE STACK, AND THE REMAINING FIVE SHALL BE LOCATED IN A LINEAR, HORIZONTAL POSITION DIRECTLY OPPOSITE THE FIRST FIVE. EACH SAMPLING PORT SHALL CONSIST OF A FOUR-INCH COUPLING WITH PLUG. ALL PORTS SHALL BE PROPERLY CENTERED. AN EQUIVALENT METHOD OF EMISSION SAMPLING MAY BE USED UPON APPROVAL BY THE EXECUTIVE OFFICER. ADEQUATE AND SAFE ACCESS TO ALL SOURCE TEST PORTS SHALL BE PROVIDED.
[RULE 217]
5. A SAMPLING PORT SHALL BE INSTALLED AND MAINTAINED AT THE INLET GAS LINE TO THE FLARES TO ALLOW THE COLLECTION OF A LANDFILL GAS SAMPLE.
[RULE 217, 431.1, 1150.1, 1303(b)(2)-OFFSET]
6. EACH FLARE SHALL BE EQUIPPED WITH A TEMPERATURE INDICATOR AND RECORDER WHICH MEASURES AND RECORDS THE GAS TEMPERATURE IN THE FLARE STACK. THE TEMPERATURE INDICATOR AND RECORDER SHALL OPERATE WHENEVER ITS CORRESPONDING FLARE IS IN OPERATION. THE TEMPERATURE SHALL BE MEASURED AT A LOCATION ABOVE THE FLAME ZONE, AT LEAST 0.6 SECOND DOWNSTREAM OF THE BURNER AND NOT LESS THAN FIVE (5) FEET FROM THE TOP OF THE STACK.
[RULE 1303(a)(1)-BACT]
7. WHENEVER A FLARE IS IN OPERATION, A TEMPERATURE OF NOT LESS THAN 1500 DEGREES F, AS MEASURED BY THE TEMPERATURE INDICATOR AND RECORDER, SHALL BE MAINTAINED IN ITS FLARE STACK.
[RULE 1303(a)(1)-BACT]
8. EACH FLARE SHALL BE EQUIPPED WITH AN AUTOMATIC SHUT-DOWN SYSTEM WITH A FAILURE ALARM, WHICH HAS BEEN APPROVED BY THE EXECUTIVE OFFICER, TO AUTOMATICALLY ISOLATE THE FLARE FROM THE LANDFILL GAS SUPPLY LINE, SHUT OFF THE BLOWERS AND IMMEDIATELY NOTIFY A RESPONSIBLE PARTY OF THE SHUT-DOWN.
[RULE 1303(a)(1)-BACT]

9. THE AUTOMATIC SHUT-DOWN SAFETY SYSTEM SHALL BE TESTED MONTHLY FOR PROPER OPERATION AND THE RESULTS RECORDED. [RULE 1303(a)(1)-BACT]
10. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE LANDFILL GAS SUPPLY LINE TO THE FLARE STATION TO MEASURE AND RECORD THE TOTAL QUANTITY OF LANDFILL GAS (IN SCFM) BEING BURNED IN THE FLARE STATION. THE FLOW INDICATING AND RECORDING DEVICE SHALL OPERATE CONTINUOUSLY WHENEVER THE FLARE(S) IS(ARE) IN OPERATION. [RULE 1303(b)(2)-OFFSET]
11. THE PRESSURE DROP ACROSS EACH FLAME ARRESTOR SHALL BE MEASURED AND RECORDED MONTHLY. [RULE 1303(b)(2)-OFFSET]
12. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE CONDENSATE LINE TO MEASURE AND RECORD THE CONDENSATE INJECTION RATE INTO THE FLARE. [RULE 1303(b)(2)-OFFSET]
13. THE VOLUME OF LANDFILL GAS BURNED IN EACH FLARE SHALL NOT EXCEED 1224 STANDARD CUBIC FEET PER MINUTE. [RULE 1303(b)(2)-OFFSET]
14. THE TOTAL COMBINED VOLUME OF LANDFILL GAS BURNED IN THE FLARE STATION SHALL NOT EXCEED 3672 STANDARD CUBIC FEET PER MINUTE. [RULE 1303(b)(2)-OFFSET]
15. THE HEAT INPUT THROUGH EACH FLARE SHALL NOT EXCEED 41.25 MILLION BTU'S PER HOUR. [RULE 1303(b)(2)-OFFSET]
16. THE TOTAL HEAT INPUT THROUGH THE FLARE STATION SHALL NOT EXCEED 112.5 MILLION BTU'S PER HOUR. [RULE 1303(b)(2)-OFFSET]
17. THE VOLUME OF LIQUID INJECTED INTO EACH FLARE SHALL NOT EXCEED 1.9 GALLONS PER MINUTE (GPM). [RULE 1303(b)(2)-OFFSET, 1401]
18. THE TOTAL VOLUME OF LIQUID INJECTED INTO THE FLARE STATION SHALL NOT EXCEED 2.46 GALLONS PER MINUTE (GPM). [RULE 1303(b)(2)-OFFSET, 1401]
19. WEEKLY READINGS OF THE COMPOSITION OF THE LANDFILL GAS AT THE INLET TO THE FLARE(S) SHALL BE RECORDED USING AN INSTRUMENT APPROVED BY THE SCAQMD. [RULE 1303(b)(2)-OFFSET]
20. ALL LANDFILL GAS COLLECTED SHALL BE DIRECTED EITHER TO THE FLARE(S) FOR COMBUSTION OR TO A TREATMENT FACILITY WHICH HAS A VALID PERMIT FROM THE SCAQMD. [RULE 1150.1, 1303(a)(1)-BACT]

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21. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF DAY.
[RULE 1303(b)(2)-OFFSET]
22. EACH FLARE SHALL BE EQUIPPED WITH AT LEAST ONE VIEW PORT TO ALLOW VISUAL INSPECTION OF THE FLAME WITHIN THE FLARE AT ALL TIMES. SAFE AND ADEQUATE ACCESS SHALL BE PROVIDED FOR ALL VIEW PORTS UPON REQUEST BY SCAQMD PERSONNEL.
[RULE 217, 1303(a)(1)-BACT]
23. EACH FLARE SHALL BE DESIGNED AND OPERATED SO THAT THE FLAME IN THE FLARE REMAINS BELOW THE HEIGHT OF THE FLARE'S OPERATING THERMOCOUPLE AT ALL TIMES.
[RULE 1303(a)(1)-BACT]
24. THE MAXIMUM FLARE SKIN TEMPERATURE AT ANY LOCATION SHALL NOT EXCEED 250 DEGREES F.
[RULE 217]
25. OPERATION OF THIS EQUIPMENT SHALL NOT RESULT IN THE RELEASE OF RAW LANDFILL GAS INTO THE ATMOSPHERE. ANY BREAKDOWN OR MALFUNCTION WHICH RESULTS IN EMISSIONS OF RAW LANDFILL GAS SHALL BE REPORTED TO THE SCAQMD MANAGER OF TOXICS AND WASTE MANAGEMENT TEAM WITHIN ONE HOUR AFTER OCCURRENCE, OR WITHIN ONE HOUR OF THE TIME ORANGE COUNTY PERSONNEL KNEW OR REASONABLY SHOULD HAVE KNOWN OF ITS OCCURRENCE, AND IMMEDIATE REMEDIAL MEASURES SHALL BE UNDERTAKEN TO CORRECT THE PROBLEM AND PREVENT FURTHER EMISSIONS INTO THE ATMOSPHERE.
[RULE 402, 430, 1150.1]
26. THE APPLICANT SHALL CONDUCT ANNUAL SOURCE TESTS AND SUBMIT WRITTEN RESULTS OF PERFORMANCE TESTS PERFORMED IN ACCORDANCE WITH SCAQMD RULE 1150.1. WRITTEN NOTICE OF THE PERFORMANCE TESTS SHALL BE PROVIDED TO THE SCAQMD 10 DAYS PRIOR TO THE TESTING SO THAT AN OBSERVER MAY BE PRESENT. ALL SOURCE TESTING AND ANALYTICAL METHODS SHALL BE SUBMITTED TO THE SCAQMD FOR APPROVAL AT LEAST 30 DAYS PRIOR TO START OF TESTS. THE TESTS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO, A TEST OF THE INLET GAS TO THE FLARE AND THE FLARE EXHAUST FOR:
 - A. METHANE
 - B. TOTAL NON-METHANE ORGANICS (WITH AND WITHOUT INJECTION)
 - C. OXIDES OF NITROGEN (EXHAUST ONLY)(WITH AND WITHOUT INJECTION)
 - D. CARBON MONOXIDE (EXHAUST ONLY)(WITH AND WITHOUT INJECTION)
 - E. TOTAL PARTICULATES (EXHAUST ONLY)(WITH AND WITHOUT INJECTION)
 - F. HYDROGEN SULFIDE (INLET ONLY)
 - G. C1 THROUGH C3 SULFUR COMPOUNDS (SPECIATED)(INLET ONLY)
 - H. CARBON DIOXIDE
 - I. RULE 1150.1 TABLE 1 COMPOUNDS
 - J. OXYGEN
 - K. NITROGEN
 - L. MOISTURE CONTENT
 - M. TEMPERATURE
 - N. FLOW RATE
 - O. NMOC DESTRUCTION EFFICIENCY

[RULE 1150.1, 1303(a)(1)-BACT, 1303(b)(2)-OFFSET, 1401, 40 CFR 63 SUBPART AAAA]

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27. APPLICANT SHALL SUBMIT ANALYSES OF CONDENSATE AND GROUNDWATER WITH ANNUAL SOURCE TEST RESULTS.
[RULE 1303(b)(2)-OFFSET, 1401]

28. EMISSIONS RESULTING FROM EACH FLARE SHALL NOT EXCEED THE FOLLOWING:

POLLUTANT	LBS./HOUR
NOX, AS NO2	2.50
SOX, AS SO2	0.50
CO	12.0
PM	1.4
NMHC, AS METHANE	0.65
[RULE 1303(b)(2)-OFFSET]	

29. TOTAL EMISSIONS RESULTING FROM THE FLARE STATION SHALL NOT EXCEED THE FOLLOWING:

POLLUTANT	LBS./HOUR	LBS./DAY
NOX, AS NO2	6.8	162
SOX, AS SO2	1.12	27
CO	32.6	783
PM	4.1	99
NMHC, AS METHANE	1.91	46
[RULE 1303(b)(2)-OFFSET]		

30. NO MORE THAN TWO FLARES OF THE FLARE STATION SHALL BE OPERATED AT THE SAME TIME.

31. EMISSIONS OF HEXAVALENT CHROME FROM THE FLARE STATION SHALL NOT EXCEED 0.03005 LB/YR. UNLESS OTHERWISE ANALYZED, ALL CHROME EMITTED SHALL BE ASSUMED TO BE HEXAVALENT.
[RULE 1401]

32. APPLICANT SHALL SAMPLE FOR TOTAL CHROME FROM A WELL-MIXED, COMPOSITE GROUNDWATER/CONDENSATE SAMPLE ON A WEEKLY BASIS WHENEVER GROUNDWATER IS BEING COLLECTED AT THE SITE FOR INJECTION INTO THE FLARE(S).
[RULE 1401]

33. OXIDES OF NITROGEN EMISSIONS SHALL NOT EXCEED 0.06 POUNDS PER MILLION BTU'S INLET GAS.
[RULE 1303(a)(1)-BACT]

34. CARBON MONOXIDE EMISSIONS SHALL NOT EXCEED 0.29 POUNDS PER MILLION BTU'S INLET GAS.
[RULE 1303(b)(2)-OFFSET]

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35. PARTICULATE EMISSIONS SHALL NOT EXCEED 18.5 POUNDS PER MILLION CUBIC FEET INLET GAS.
[RULE 1303(b)(2)-OFFSET]

Emissions and Requirements:

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

NMOC: 20 PPMV OR 98 WEIGHT PERCENT REDUCTION, RULE 1150.1
 NMOC: 20 PPMV OR 98 WEIGHT PERCENT REDUCTION, 40 CFR 63 SUBPART AAAA
 CO: 2000 PPM, RULE 407
 PM: 0.1 GR/SCF, RULE 409
 PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS

BACKGROUND:

On December 24, 2008, OC Waste & Recycling, Santiago (previously known as Orange Co.—Integrated Waste Mgmt., Santiago) filed this A/N 494357 for change of condition to the existing Landfill Gas Firing System, permitted under F55351 / A/N 370774. A Notice of Violation (NOV) No. P 46773 was issued on 7/31/08 for increased SOx emission (F55351- Condition No. 28).

The application is filed and accepted as permit modification with \$5,148.93 fee (Form 400A states change of condition) for increased SOx limit for a single flare (Condition No. 28), however, with no change in flare system SOx emission (Condition No. 29).

This is a Title V facility, for which Revision 01 was issued November 1, 2005 (Under previous name-Orange County, IWMD, Santiago).

On October 28, 2008, the facility also submitted Title V Renewal A/N 491764.

PROCESS DESCRIPTION:

This is a closed landfill (No MSW accepted after 7/31/96) and LFG collected is directed to the flaring system consisting of three (3) flares. Due to the age of the landfill, LFG generation and collection rate is reduced, there is inadequate LFG to allow operation of three flares simultaneously. SOx emission in Flare No. 1 exhaust gas was determined higher than permitted (Flare No. 1, S/T w/o condensate on 7/31/07). The result was 0.41 Vs 0.37 lbs SOx/hr. A NOV, P 46773, was issued on 7/31/08 to address this SOx mass emission increase.

The facility has asked to increase the SOx lbs/hr from 0.37 to 0.50 lbs/hr from a single flare operation, however, to keep the total SOx emission from the flare station to be the same at 1.12 lbs/hr. As a result, the facility has agreed to restrict the flare station operation limiting to no more than two flares at any time.

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AEIS / NSR -Emissions:

Flare station, consisting of three flares, is permitted as a single emission source. Since there is no increase in total Sox emission for the flaring system, AEIS and NSR emissions are kept same as before. A permit condition limiting operation of two flares in any day is imposed.

Although SOx emission for each flare show an increase in hourly emission, from 0.37 lb/hr (F55351 Condition #28) to 0.50 lbs/hr, there is no net increase for the permitted flaring system (condition #29) that is 1.12 lbs SOx /hr, same as under F55351.

RULES EVALUATION: (PC2PO)

RULE 212: For the proposed change of permit condition there is an increase in SOx emission (0.37 to 0.50 lbs/hr), however, for the permitted flaring system there is no net increase for SOx emission (Condition is imposed that only 2 flares, out of 3, shall be operated at the same time. As there is no change in risk and no public notice is required, compliance with this rule is expected.

RULE 401: With proper operation and maintenance, equipment is expected to comply with this rule.

RULE 402: With proper operation, maintenance and monitoring of equipment, compliance is expected.

RULE 404: Compliance with this rule is expected for the proposed change in permit condition.

RULE 407: No change in CO emission for the proposed change of permit condition.

Flare is exempt from 500 ppmv SOx limit per Rule 401 (c) (2), as it is subject to gaseous fuel sulfur content limits of Rule 43 1.1, and Regulation XI (1150.1).

RULE 409: Combustion contaminants emissions are expected to be < 0.1 grains/cubic feet of gas based on the other large size flares permitted in the SCAQMD region. Compliance is expected.

RULE 431.1: LFG for this facility is expected to have well below allowable 150 ppmv H2S levels. July 31, 2007 S/T indicated 36 ppmv H2S in LFG inlet gas. Compliance is expected.

RULE 1150.1: No change in VOC emission for the C/C. Compliance is expected.

REG. XIII: No net increase in SOx for the permitted flaring system (individual flare SOx emission increase from 0.37 to 0.50 lbs/hr, with permit condition that only 2 flares shall be operated at the same time). No change in emissions for other pollutants. NO modeling or offsets required. Compliance is expected.

RULE 1401: No change in expected risk for the proposed C/C. Compliance is expected.

RULE 1401.1: Exempt. This is an existing facility.

RECOMMENDATION:

Issue a permit to operate, with revised Condition 28 for SOx hourly emission, and addition of new Condition 30, for the LFG flaring permit.

Upon approval, this permit will be included under Title V renewal A/N 491764.