

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <b>ENGINEERING AND COMPLIANCE DIVISION</b>  <b>PERMIT APPLICATION EVALUATION AND CALCULATIONS</b>	PAGES 6	PAGE 1
	APPL NO 547634 rev	DATE 05/02/2013
	PROCESSED BY GCR	CHECKED BY

**PERMIT TO CONSTRUCT / OPERATE**

(Modification to F96618, / A/N 457092)

**APPLICANT'S NAME:** OC WASTE & RECYCLING, FRB

**MAILING ADDRESS:** 300 NORTH FLOWER STREET, SUITE 400  
SANTA ANA, CA 92703-5000

**EQUIPMENT ADDRESS:** 11002 BEE CANYON ACCESS ROAD  
(Frank R. Bowerman Landfill)  
IRVINE, CA 92602

**FACILITY ID.:** **069646**

**CONTACT:**

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**Equipment Description:**

MODIFICATIONS TO LANDFILL CONDENSATE/LEACHATE/GROUNDWATER COLLECTION AND STORAGE SYSTEM (F96618), CONSISTING OF:

CONDENSATE:

1. CONDENSATE TRAP, 48" DIAMETER BY 84" HIGH, POLYETHYLENE PIPE, VENTED TO 21-INCH DIA. HEADER LINE.
2. PUMP, 25 GPM, PUMPING CONDENSATE FROM CONDENSATE TRAP TO CONDENSATE TANK.
3. CONDENSATE TRAP (CPS-1), 18" HDPE PIPE, VENTED TO 18-INCH DIA. HEADER, GRAVITY DRAIN.
4. PUMP, 2 GPM, PUMPING CONDENSATE FROM CONDENSATE TANKS TO LEACHATE TANKS.
5. TANK (C-1), CONDENSATE, ABOVEGROUND, POLYETHYLENE, 12'-0" DIA. BY 14'-4" HIGH, 11,000 GALLON CAPACITY, WITH PRESSURE RELIEF VALVE, WITH VAPOR BALANCE LINE TO TANK C-2.
6. TANK (C-2), CONDENSATE, ABOVEGROUND, POLYETHYLENE, 11'-0" DIA. BY 13'-8" HIGH, 10,500 GALLON CAPACITY, WITH PRESSURE RELIEF VALVE, FLAME ARRESTOR, VENTED TO CARBON DRUM.
7. CARBON ADSORBER, NIXTOX OR EQUIVALENT, CONTAINING 150 POUNDS OF ACTIVATED CHARCOAL, VENTING TANK C-2.
8. ASSOCIATED PIPING TRANSPORTING CONDENSATE/LEACHATE/GROUNDWATER

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <b>ENGINEERING AND COMPLIANCE DIVISION</b>  <b>PERMIT APPLICATION EVALUATION AND CALCULATIONS</b>	PAGES 6	PAGE 2
	APPL NO 547634 rev	DATE 05/02/2013
	PROCESSED BY GCR	CHECKED BY

**BY THE ADDITION OF:**

9. INSTALLATION OF AN ELECTRIC TRANSFER PUMP, DOUBLE WALLED CONDENSATE TRANSFER PIPING FROM THE BOTTOM TANK FARM TO A NEW TANK (C-3).
10. TANK (C-3), CONDENSATE, ABOVEGROUND, LOCATED AT THE FLARE STATION, POLY PROCESSING SAFE-TANK, 5'- 11" DIA. X 2'-10" HIGH, 540 GALLON CAPACITY, AND VENTED TO 55- GALLON CARBON DRUM CONTAINING 200 LBS OF GRANULAR ACTIVATED CARBON.
11. CONDENSATE FEED PIPE FROM TANK (C-3) TO EXISTING PNEUMATIC INJECTOR PUMPS AND ASSOCIATED PIPING TO EXISTING INJECTION LANCE AND NOZZLES ( FLARES NO. 3, 4 & 5).

LEACHATE/GROUNDWATER (EXISTING):

1. SIX (6) STORAGE TANKS, CENTRAL CALIFORNIA CONTAINER MFG. INC., MODEL 12 HCT 13K, HDPE, 13000 GALLON CAPACITY.
2. SIX (6) FLAME ARRESTORS, GROTH OR EQUIVALENT, MODEL 7618-02-15-F00, LOCATED AT VENT VALVES.
3. SIX (6) TANK VENT VALVES, GROTH OR EQUIVALENT, MODEL 1220-02-115-TOO.
4. SIX (6) CARBON ADSORBERS, CALGON CARBON OR EQUIVALENT, EACH CONTAINING 200 POUNDS OF ACTIVATED CARBON.

**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. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THE EQUIPMENT, DESCRBED UNDER; BY THE ADDITION OF: ITEM NO. 9, 10 AND 11, IS NOT COMPLETED WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXECUTIVE OFFICER.
5. ALL CONDENSATE AND/OR LEACHATE/GROUNDWATER COLLECTED SHALL BE DISPOSED OF OR TREATED PROPERLY.  
[RULE 402]
6. THE CONDENSATE STORAGE TANK(S) AND THE LEACHATE/GROUNDWATER STORAGE TANK(S) SHALL BE VENTED THROUGH A CARBON AIR FILTER/CANISTER OR CARBON DRUM (TANK C3).  
[RULE 402, 1303(a) (1)-BACT]

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <b>ENGINEERING AND COMPLIANCE DIVISION</b>  <b>PERMIT APPLICATION EVALUATION AND CALCULATIONS</b>	PAGES	PAGE
	6	3
	APPL NO 547634 rev	DATE 05/02/2013
	PROCESSED BY GCR	CHECKED BY

7. THE OUTLET(S) OF THE CARBON FILTER(S)/CANISTER(S) SHALL BE TESTED FOR TOTAL ORGANIC COMPOUNDS AS METHANE WITH AN ORGANIC VAPOR ANALYZER (OVA) OR EQUIVALENT AND THE RESULTS RECORDED. THESE TESTS SHALL BE PERFORMED MONTHLY DURING THE FILLING OPERATION OF THE TANK(S).  
[RULE 402]
8. EMISSIONS FROM THE OUTLET OF EACH CARBON CANISTER SHALL NOT, AT ANY TIME, EXCEED 50 PPM TOTAL ORGANIC COMPOUNDS MEASURED AS METHANE.  
[RULE 402, 1303(b) (2)-OFFSET]
9. ALL CONNECTIONS, VALVES AND OPENINGS SHALL BE PROPERLY SEALED OR CLOSED SO AS TO PREVENT RAW LANDFILL GAS AND/OR CONDENSATE/LEACHATE VAPORS FROM ENTERING INTO THE ATMOSPHERE.  
[RULE 402, 1303(a) (1)-BACT]
10. RECORDS REQUIRED BY THIS PERMIT SHALL BE KEPT AND MAINTAINED FOR AT LEAST FIVE YEARS AND MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.  
[RULE 204]

**BACKGROUND:**

On 2/22/2013, Orange County Waste & Recycling-FRB submitted this application for a modifications to the existing permit F96618, A/N 457092 (included under Title V facility permit, Section D), for landfill condensate/leachate/groundwater collection and storage system. The proposed modification is for installation of a new aboveground condensate storage tank (540 gallons capacity) with associated condensate transfer piping, pump and condensate feed lines to existing injection lance and nozzles for Flares #3, 4 & 5.

OCWR-FRB has requested for an expedited permit processing per Rule 301 (v) and has paid additional fees.

This is a Title V facility. A/N 5547635 is also filed for the TV Revision to include above described permit modifications. TV Renewal was issued October 6, 2011.

(Note: On 3/1/13 proposed De Minimus revision to Title V permit was sent for EPA's review- A/N 509109).

Inspector's facility inspection on 5/23/12 and report (included in file) states compliance with permit and R1150.1 condition. (During inspection, instantaneous monitoring revealed exceedance of 500 ppmv TOC readings at north side of grids C45, E39 and F37. The facility was planning for horizontal collectors installation. This was confirmed in the following visit that installation of horizontal collectors was in progress).

**PROCESS DESCRIPTION:**

Proposed modification is described under equipment description- BY THE ADDITION OF: Item # 9,10 & 11.

Landfill condensate, leachate and groundwater collection and storage system is operated at the facility under PO F96618, A/N 457092. Proposed modification is to install new 540 gallon condensate storage tank (C-3), to be located near the flares station, to provide for the disposal of

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <b>ENGINEERING AND COMPLIANCE DIVISION</b>  <b>PERMIT APPLICATION EVALUATION AND CALCULATIONS</b>	PAGES 6	PAGE 4
	APPL NO 547634 rev	DATE 05/02/2013
	PROCESSED BY GCR	CHECKED BY

condensate by injections into the existing Flares # 3, 4 & 5. These flare are permitted with LF condensate injection provision and injection lance and nozzles are installed, however, associated piping, supply tank and pump installations are addressed under this modification permit. The existing permitted storage tanks are located at the bottom tank farm. New double walled transfer piping, from the bottom tanks, will be installed and connected to the new tank (C-3) that will be located near the flares station, install an electrical pump and condensate discharge piping to the existing injection lance and nozzles for flare #3, 4 & 5. The storage tank will be venting through a 55-gallon carbon drum containing GAC (passive system) to control VOC emissions.

**EMISSIONS:**

VOC emission for the current permit = 0 (NSR)

VOC emission from the new 540 gallon tank is estimated as shown below,

Tank capacity = 540 gallon, LF condensate.

Net throughput for the tank = 1,825,000 gal/yr (this is equivalent to 3.5 gpm condensate injection for flares #3,4 & 5)

2/3/12 condensate sample's analysis (EPA method 8260B),

2-butanol (MEK)	38000 µg/L
MIBK	1000 µg/L
Acetone	28000 µg/L (Exempt VOC)
2-butanol (MEK)	38000 µg/L
Ethyl benzene	45 µg/L
Naphthalene	30 µg/L
Toluene	170 µg/L
Xylenes (Total)	130 µg/L

Total TOC (VOC) = 67,375 µg/L (including acetone, exempt compound)  
= ~6.7% VOCs in tank

**Working loss:**

Throughput rate: 1,825,000 gal/yr x 1/365 days = 5000 gal/day

$$L_w = (F)(1 \text{ cft}/7.48 \text{ gal})(1 \text{ lb-mole}/380 \text{ cf})(M_v)(P/14.7 \text{ psia})$$

$$= 2.4 \times 10^{-5} \times F \times P \times M_v$$

- L<sub>w</sub> = working loss (lb/day)
- F = filling rate (gal/day), 5000 gal/day
- P = true vapor pressure (psia), Assume water v.p.  
= 205 mm Hg @ 17 deg C

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <b>ENGINEERING AND COMPLIANCE DIVISION</b>  <b>PERMIT APPLICATION EVALUATION AND CALCULATIONS</b>	PAGES 6	PAGE 5
	APPL NO 547634 rev	DATE 05/02/2013
	PROCESSED BY GCR	CHECKED BY

$$= 205 / 760 \times 14.7 = 3.96 \text{ psia}$$

$M_V$  = molecular weight of vapor (lb/lb-mole) = 18 assuming 93% water

$$\begin{aligned} L_W &= 2.4 \text{ E-}05 \times 5000 \times 3.96 \times 18 \\ &= 8.55 \text{ lbs/day} \times 6.7\% \text{ VOC in tank} \\ &= 0.57 \text{ lbs VOC/day} \\ &= \underline{0.024 \text{ lbs VOC/hr (R1)}} \end{aligned}$$

**Breathing loss:**

$$L_B = (V_O)(\Delta T/T_{avg})(1/v) (P/14.7) (M_V)$$

$L_B$  = breathing loss (lb/day)

$V_O$  = volume of vapor above liquid surface (cf)  
= 50% of max tank vol of 73.4 cf = 36.7 cf

$\Delta T$  = average daily temperature change (deg R or F) = 25 deg R

$T_{avg}$  = average daily temperature (deg R) = 63 + 460 = 523 deg R

$(V_O)(\Delta T/T_{avg})$  = Vol of vapor expelled from the tank due to avg. temp. change (cft)

$P$  = true vapor pressure (Psia) = 3.96 psia @ 17 deg C

$$\begin{aligned} V &= 10.73 (FT^3 \text{ Psia/ lbmole } ^\circ R) T_{AV} (^\circ R) (1/14.7 \text{ psia}) \\ &= (10.73) (523)/14.7 \\ &= 381.75 \end{aligned}$$

$$(1/v) = 1/381.75 = 0.0026$$

$M_V$  = molecular weight of vapor (lb/lb-mole) = 18 assumed water

$$\begin{aligned} L_B &= (36.7) (25/523) (0.0026) (3.96/14.7) (18) \\ &= 0.022 \text{ lbs/day} \times 6.7\% \text{ VOC in tank} \\ &= 0.0015 \text{ lbs/day} \\ &= \underline{6.25 \text{ 1E-}05 \text{ lbs VOC/hr (R1)}} \end{aligned}$$

$$\begin{aligned} \text{Total uncontrolled VOC (TOC) emission} &= (0.024 + 6.25 \text{ 1E-}05) \text{ lbs/hr} \\ &= \underline{\underline{0.024 \text{ lbs/hr, VOC (TOC) (R1)}}} \end{aligned}$$

Assuming 90% VOC control efficiency for the GAC = 0.024 (1.0- 0.9) = **0.0024 lbs VOC/hr (R2)**

Total VOC (TOC) after modification = 0 (existing PO) + 0 (modfn) = 0 lbs/hr (R2)

**RULES EVALUATION:**

**Rule 212:**

There are no schools within 1/4 mile of the emission source.

Estimated VOC (TOC) emission is 0.29 lbs/day.

Cancer risk is expected to be < one in a million.

No public notice required. Compliance is expected.

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>  <b>ENGINEERING AND COMPLIANCE DIVISION</b>  <b>PERMIT APPLICATION EVALUATION AND CALCULATIONS</b>	PAGES 6	PAGE 6
	APPL NO 547634 rev	DATE 05/02/2013
	PROCESSED BY GCR	CHECKED BY

**Rule 401 (Visible Emissions):**

With proper operation, maintenance and control of equipment compliance is expected.

**Rule 402 (Nuisance):**

With proper operation, maintenance and control of equipment compliance is expected.

**Regulation XIII:**

Storage tank will be venting through a passive GAC which is considered BACT for VOC control. No modeling or offsets is required. Compliance is expected.

**Rule 1401:**

Considering small amount of VOC emission 0.06 lb/day and other permitted LF condensate storage/leachate tank, cancer risk is expected to be below threshold, one in a million and HIC, HIA <1, each. Compliance is expected.

**Rule 1401.1:**

Not applicable as this is an existing facility.

**REG. XXX:**

Compliance is expected. Title V revision A/N 547635 is filed to include this permit under TV revision, upon completion of EPA's 45-day review/commenting period. Compliance is expected.

**Recommendations:**

A permit to construct/operate is recommended with the proposed conditions.

Upon approval of this permit, it should be included under TV Revision, A/N 547635, Section D.