

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING DIVISION

APPLICATION PROCESSING AND CALCULATIONS

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PROCESSED BY	CHECKED BY
A.KING	COT

APPLICANT: SFPP, L.P.
1100 Town & Country Rd.
Orange, Ca 92868

EQUIPMENT LOCATION: 20410 S. Wilmington Ave.
Carson, Ca. 90810

EQUIPMENT DESCRIPTION:

APPLICATION NO. 472642

ALTER EXISTING VAPOR COLLECTION AND DISPOSAL SYSTEM (OPERATING UNDER A/N 458593) CONSISTING OF:

1. VAPOR COMBUSTION UNIT, 168 MM BTU/HR, ONE JOHN ZINK GAS BURNER, WITH FOUR PILOTS FIRED WITH LPG ONLY, AND AN 11'-6" DIA. x 60'-0" H. STACK.
2. SATURATOR TANK, ABOVE GROUND, 1,600 BBL CAPACITY, 15'-0" DIA. x 50'-0" L., VENTED TO THE VAPOR HOLDER.
3. ONE VAPOR HOLDER, 24,000 BBL CAPACITY, 60'-0" DIA. x 48'-0" H., WITH AN EXPANDABLE BLADDER.
4. THREE SATURATOR GASOLINE PUMPS, CENTRIFUGAL, EACH WITH DOUBLE MECHANICAL SEALS, AND A 25 H.P. MOTOR EACH.
5. BURNER BLOWER, MAXIMUM CAPACITY 2000 CFM, WITH A 15 H.P. MOTOR.
6. TWO BLOWERS(PARALLEL), EACH WITH A MAXIMUM CAPACITY OF 2000 CFM, AND A 50 H.P. MOTOR.
7. TWO SURGE TUBES, 2'-6" DIA. X 140'0" L., VENTED TO THE SATURATOR TANK.

AND SERVING TANK NUMBERS W-1, W-2, W-3, W-4, W-5, W-6, W-7, W-8, W-9, W-10, W-11, W-12, W-13, W-14, AND W-15 (FOR DRAIN-DRY AND DEGASSING PURPOSES)

BY THE ADDITION OF:

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1. TWO SURGE TUBES (FOR A TOTAL OF FOUR), EACH 2'-6" DIA. X 140'-0" L.
2. TWO SURGE TANKS, EACH WITH A 60 BBL CAPACITY
3. ONE SURGE TANK WITH A 90 BBL CAPACITY

HISTORY:

Application No. 472642 was submitted on 8/16/07 for a modification to SFPP's vapor collection and recovery system. An application (A/N 226645) for the vapor collection and recovery system was originally submitted for permit to construct on 4/6/90 and proposed to vent 12 storage tanks for drain-dry and degassing purposes. A permit to construct was issued and subsequently, a permit to operate (D78181). The permit is still active and is in Section D of the facility's current Title V permit.

A/N 346021 was subsequently submitted on 10/13/98 as a modification to the vapor collection and recovery system to vent three additional new storage tanks (again, for drain-dry and degassing purposes). This application eventually received a permit to construct on 7/1/99, and is in Section H of the facility's current Title V permit.

In 2006, SFPP filed A/N 458593 (PO no PC) for connecting two existing surge tubes to the vapor recovery system, but a permit was never issued. Then, in 2007, SFPP filed A/N 472642 which was to include two additional existing surge tubes, a surge tank to be connected to the vapor recovery system. A/N 472642 will be a modification to the Permit to Construct currently in the Title V permit (A/N 346021). A/N 502202 has been submitted as a Title V revision.

PROCESS DESCRIPTION

The existing APC system consists of a saturator, a vapor holder, and a thermal oxidizer. Also included are the necessary connecting ductwork, blowers, control and safety equipment. It is now proposed to connect two existing surge tubes (for a total of four) and three existing surge tanks. The surge tubes and surge tanks will be vented to the saturator, which is in turn vented to the vapor holder, and is then routed to the vapor collection and recovery system. The addition of the surge tubes and surge tanks is designed in such a way to provide a vapor balance system and minimizes VOC emissions to the atmosphere and produces no additional load on the oxidation system. The APC system currently serves 15 floating roof tanks. The system is typical for floating roof tank drain-dry or degassing operations. When the vapor mixture in the vapor holder reaches a preset limit, it is then sent to the vapor control system.

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The saturator tank provides a rich hydrocarbon vapor mixture, above the upper explosive limit, before the vapor holder. This is achieved by passing the collected vapors from the storage tanks through a spray of gasoline inside the saturator. One of the three gasoline pumps is used to pump gasoline from a storage tank into the saturator tank and to pump out spent gasoline to a slop tank. The other two pumps are used to re-circulate the gasoline inside the saturator through high pressure spray nozzles in order to atomize the liquid and to saturate the vapor stream passing through the tank. Because of the size of the saturator tank, three pumps would be necessary to fulfill its operation.

CALCULATIONS

The surge tubes and surge tanks are a closed loop system and vent directly to the vapor holder. There are only minor fugitive emissions (0.28 lb/day) from the components and fittings due to construction of the additional vapor piping (see table in applicant's submittal). The facility will tag the appropriate components and fittings and include them in SFPP's Rule 1173 inspection and maintenance program. The addition of three new saturator pumps to replace the old pump also has no impact on emissions. The loading to the oxidizer will not change, therefore the emissions will not change.

A source test shows a 99% VOC emission destruction.

RULE 212

The equipment is not located within 1000 feet of a school. Also, there will not be an increase in emissions. Therefore, this rule does not apply.

RULE 401

Operation of the thermal oxidizer is not expected to result in visible emissions.

RULE 402

The equipment is located in an industrial area and is not expected to create a public nuisance.

RULE 1149

The equipment is expected to meet the degassing requirements of this rule.

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REG XIII

The proposed equipment changes and corrections in the permit description do not result in any emissions increases. BACT and offsets are not required.

RULE 1401

The project, as evaluated, will not result in a net increase in emissions. Therefore, this rule does not apply.

REG. XX

This is not a RECLAIM facility.

REG. XXX

The Title V permit has been issued. Therefore, this revised permit will be issued as a minor revision following the EPA 45-Day review.

40 CFR 63

Subpart R:

This facility is a minor source of hazardous air pollutants and will require recordkeeping as reporting as stated in Section J of the Title V permit(Minor Source R).

Subpart BBBBBB:

This facility will be required to comply with the provisions of this rule.

RECOMMENDATION

Application No. 472642 : Issue permit to construct subject to the following conditions.

PERMIT CONDITIONS

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1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED, UNLESS OTHERWISE NOTED BELOW.
2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD CONDITION AT ALL TIMES.
3. THE OPERATOR SHALL USE THIS EQUIPMENT IN SUCH A MANNER THAT THE TEMPERATURE BEING MONITORED, AS INDICATED BELOW, IS NOT LESS THAN 1400 DEG. F.
4. THE OPERATOR SHALL SUBMIT A TEST PROTOCOL TO THE DISTRICT FOR APPROVAL FOR A LOWER TEMPERATURE TO ACHIEVE AT LEAST 95% EFFICIENCY.
5. THE OPERATOR SHALL CONDUCT A SOURCE TEST(S) FOR VOC EMISSIONS BY AN APPROVED DISTRICT METHOD FROM THE INLET AND THE OUTLET OF THE STACK. THE TEST(S) SHALL BE CONDUCTED ONCE EVERY THREE YEARS.
6. THE OPERATOR SHALL NOT OPERATE THIS EQUIPMENT TO PROCESS MORE THAN 2000 SCFM OF HYDROCARBON-CONTAINING VAPORS.
7. THE OPERATOR SHALL INSTALL AND MAINTAIN A(N) TEMPERATURE GAUGE TO ACCURATELY INDICATE THE TEMPERATURE IN THE COMBUSTION CHAMBER.
8. THE OPERATOR SHALL ALSO INSTALL AND MAINTAIN A DEVICE TO CONTINUOUSLY RECORD THE OPERATING TEMPERATURE OF THE COMBUSTION CHAMBER IN DEGREES FAHRENHEIT.
9. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: 2000 PPMV, RULE 407

PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS

PM: 0.1 GRAINS/SCF, RULE 409

VOC: RULE 1149

VOC: 95% DESTRUCTION EFFICIENCY, RULE 1303(a)(1)-BACT

Table 1
Fugitive Component Count & Emission Estimate – Watson Surge

Source Unit	Service	No. Of Existing Components (1)	No. of Existing Components to be Removed (2)	No. of New Components to be Installed (3)	Correlation Equation Factor 500 ppm Screening Value	Current Emissions Based on Correlation 500 ppm Screening Value (lbs/year)	Post Modifications Emissions based on 500 ppm Correlation Equation Factor (lbs/year)	
Valves	Sealed Bellows	All	0	0	0.00	-	-	
	SCAQMD Approved I&M Program	Gas / Vapor	0	0	3	4.55	-	13.64
		Light Liquid (4)	0	0	5	4.55	-	22.73
		Heavy Liquid (5)				4.55	-	-
		> 8 inches					-	-
Pumps	Sealless Type	Light Liquid (4)	0	0	46.83	-	-	
	Double Mechanical Seals or Equivalent Seals	Light Liquid (4)	0	0	46.83	-	-	
	Single Mechanical Seals	Heavy Liquid (5)	0	0	46.83	-	-	
Compressors	Gas / Vapor	0	0		9.09	-	-	
Flanges (ANSI 16.5-1988)	All	0	2	7	6.99	-	34.95	
Connectors	All	0	0	7	2.86	-	20.03	
Pressure Relief Valves	All	0	0	0		-	-	
Process Drains with P-Trap or Seal Pot	All	0	0	0	9.09	-	-	
Other (including fittings, hatches, sight-glasses, and meters)	All	0	0	1	9.09	-	9.09	
Total Emissions	lbs/year					-	100.44	
	lbs/day					-	0.28	
Emission Increase	lbs/year						100.44	
	lbs/day						0.28	

Notes:

- 1 Any component currently installed prior to the modification
- 2 Any component to be removed due to modification.
- 3 Any new component proposed to be installed due to the modification; this also includes new components to be
- 4 Light liquid and gas/liquid streams: Liquid or gas/liquid stream with a vapor pressure greater than that of kerosene (>0.1 psia @ 100°F or 689 Pa @ 38°C), based on the most volatile class present at 20% by volume - used single mechanical seal EF
- 5 Heavy Liquid: streams with a vapor pressure equal to or less than that of kerosene (<= 0.1 psia @ 100°F or 689 Pa @ 38°C), based on the most volatile class present at 20% by volume