

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT STATIONARY SOURCE COMPLIANCE DIVISION PERMIT APPLICATION PROCESSING AND CALCULATIONS	PAGES 7	PAGE 1
	APPL NO 504110 & 504112	DATE 10/7/2010
	PROCESSED BY TWW	CHECKED BY

EVALUATION REPORT FOR PERMIT TO OPERATE

APPLICANT'S NAME:

ARCO TERMINAL SERVICES CORP.

ID NO. 800051

MAILING ADDRESS

1300 PIER B STREET
LONG BEACH, CALIFORNIA 90813

EQUIPMENT ADDRESS

5905 PARAMONT BLVD.
LONG BEACH, CA 90805

EQUIPMENT DESCRIPTION:

AN504110

STORAGE TANK NO. 791, FIXED CONE ROOF TANK, 117' DIA. X 41' H., 79,000 BBL SHELL CAPACITY, WITH A CLOSEABLE VENT LINE CONNECTION TO THE TERMINAL'S VAPOR RECOVERY SYSTEM.

AN504112

STORAGE TANK NO. 797, FIXED CONE ROOF TANK, 146' DIA. X 41' H., 122,950 BBL SHELL CAPACITY, WITH A CLOSEABLE VENT LINE CONNECTION TO THE TERMINAL'S VAPOR RECOVERY SYSTEM.

HISTORY

In 1991, Arco Terminal Services Corporation (ATSC) submitted applications to build a bulk terminal for gasoline distribution at the East Hynes Crude Storage and Transfer Facility. Seven existing fixed cone roof crude oil storage tanks and one slops tank were modified for gasoline storage to supply the newly constructed truck loading racks. Venting the tanks to a new vapor recovery unit (VRU) was required to comply with Rule 463. When the facility began loading diesel in addition to gasoline, Tank 791 and Tank 797 were used for diesel storage. The operator assumed the tanks were no longer subject to Rule 463 (since the diesel vapor pressure is less than 0.5 psia) and closed the VRU vent lines to prevent gasoline vapor contamination of the diesel. The operator was correct regarding Rule 463 applicability however they neglect to modify the tanks' operating permits that required these tanks vent to the VRU without regard to content. By closing the vent lines on Tanks 791 & 797, the operator violated Rule 203. The exact date when these tanks were isolated from the VRU is unknown.

When the operator discovered the Rule 203 violation, they informed the District and submitted these applications to modify the Facility Title V Permit such that the tanks may be isolated from the VRU whenever they are used to store low vapor pressure product (such as diesel or Jet A kerosene). Subsequently, the operator has requested that the throughput for these tanks be combined in a "bubble" that allows more flexible storage activities.

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Compliance History:

A review of the compliance history indicates 2 Notice to Comply and 2 Notice of Violation Citations in the past 10 years.

- Notice to Comply: C59232 Issued on 5/2/2007 for failure to provide a Rule 1173 quarterly monitoring report.
C93899 Issued on 3/6/2006 required submission of application to modify a vapor recovery flare
- Notice of Violation: P51960 Issued on 10/23/2009 for failure to operate tanks 791 & 797 in compliance with permit conditions
P51964 Issued on 3/24/2010 for failure to submit semiannual monitoring report and annual compliance certification report by reporting deadline.
- Order of Abatement: Case No. 4545-13 The facility is currently operating Tanks 791 and 797 under an Order of Abatement that is scheduled to expire on 1/15/2011.

PROCESS DESCRIPTION

The East Hynes Terminal located at 5905 Paramount Blvd. in Long Beach, CA stores crude oil and petroleum products such as gasoline ethanol, diesel, jet fuel, and transmix in a tank farm containing external floating roof tanks, internal floating roof tanks, geodesic dome retrofits on external floating roof tanks, and cone type fixed roof tanks connected to vapor recovery. Crude oil and other petroleum products are delivered to and shipped from the Terminal by pipeline and tanker truck loading rack. Displaced vapors generated from loading and unloading tanker trucks and fixed roof storage tanks are collected in a common manifold and routed to a vapor holding bladder tank. Vapors generated when the fixed or floating roof storage tanks are degassed prior to maintenance activities are also routed to the bladder tank. The bladder tank serves as a surge vessel for excess vapors that cannot be fed directly into the VRU, and which are not returned to the headspace of the cargo and/or storage tanks by vapor balancing. The VRU processes the vapors through one or more of three, 2-stage compression-absorption units that compress and cool the vapors and recover the condensed liquids. The compressors turn on sequentially depending on the vapor load from pipeline receipts, truck rack activity, tank degassing, and vapor growth from diurnal temperature effects. Leftover vapors from the condensation process are routed to an enclosed, 7.5 MMBtu/hr, ground level flare. In addition to vapors processed through the bladder tank/compressor equipment, a soil and groundwater remediation system generates VOC-laden vapor which is continuously fed directly into the flare. The vapor recovery system flare was tested in 1998 by the California Air Resources Board (CARB) and in 1997 by a private source testing company. Control of VOC emissions of greater than 99% has been demonstrated (Testing by Air Kinetics Inc. on March 5, 1997). The source tests reports can be viewed in the Liberty File for AN 333960.

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CALCULATIONS/EMISSIONS

In order to allow closing off the vent lines between the tanks and the VRU when storing non-Rule 463 (TVP < 0.5psia) products, the emissions that result from the bubble throughput cannot exceed the NSR baseline emissions for either tank that were calculated when the tanks were previously permitted. For the purpose of these applications, the baseline emission for each tank was re-calculated using the historical throughput from the previous applications and EPA Tanks 4.09d program. The maximum baseline PTE is calculated by assuming RVP 15 gasoline as the storage product. The VRU efficiency is assumed to be 99% (from the Air Kinetics Source Test). The storage commodities will be limited to diesel (including biodiesel) and Jet A kerosene when the vapor recovery lines are closed and the tanks vent directly to atmosphere. The emissions for each tank is calculated for diesel and Jet A kerosene and assuming the combined “bubble” throughput for either tank. The resulting PTE increase cannot exceed 1 lb/day or BACT will be triggered and the tanks will required connection to vapor recovery regardless of the commodity stored. The results of the Tanks 4.09d runs are summarized in Tables 1 & 2 (below). The 4.09d spreadsheets are attached to this evaluation. As can be seen, the PTE increase for either tank for uncontrolled storage of diesel and/or Jet A kerosene is well below the PTE when used to store gasoline and vented to vapor recovery.

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Calculation Parameters:

Tank Capacity:

Tank 791 78,400 BBL

Tank 797 122,950 BBL

Throughput: 72 Turnovers/yr (each tank) - this throughput is used to calculate emissions from gasoline storage

Bubble Throughput 201,350 BBL x 72 Turnovers/yr – this throughput is used to calculate emissions from each tank when storing Diesel and Jet A kerosene

VRU Control Eff. 99%

Products:

Gasoline VP = 11psia (RVP-15)

Distillate Fuel Oil #2 RVP ≈ 0.02 psia (EPA surrogate for Diesel)

Jet Kerosene (Jet A) RVP ≈ 0.03psia

Table 1 - Emission Comparison – Tank 791

Storage Product	Avg. V.P. ⁴	RVP	Emiss Rate (uncontrolled)		Emission Rate (controlled ⁵)	
	(psia)		(psia)	(lb/yr)	(lb/day)	(lb/yr)
Gasoline ¹	11	15	2,069,985	5,750	20,700	57.5
Dist. fuel oil #2 ²	0.008	0.02	4,155	11.5	n/a	n/a
Jet kerosene ³	0.0097	0.03	7,047	19.6	n/a	n/a

1. Gasoline RVP 15. Throughput equivalent to 72 turnovers per year.

2. EPA Tanks program surrogate entry for diesel #2. Uncontrolled emissions assuming all “bubble” throughput.

3. Jet kerosene (Jet A) Uncontrolled emissions assuming all “bubble” throughput.

4. Avg. annual surface temperature ~65° . VP taken from Tanks program database.

5. Vented to vapor recovery with 99% destruction efficiency.

Table 2 - Emission Comparison – Tank 797

Storage Product	MW	Avg. V.P. ⁴	RVP	Emiss Rate (uncontrolled)		Emission Rate (controlled ⁵)	
		(psia)		(psia)	(lb/yr)	(lb/day)	(lb/yr)
Gasoline ¹	105	11	15	3,243,817	9,011	32,438	90.1
Dist. fuel oil #2 ²	230	0.008	0.02	7,404	20.6	n/a	n/a
Jet kerosene ³	165	0.0097	0.03	9,248	25.7	n/a	n/a

1. Gasoline RVP 15. Throughput equivalent to 72 turnovers per year.

2. EPA Tanks program surrogate entry for diesel #2. Uncontrolled emissions assuming all “bubble” throughput.

3. Jet kerosene (Jet A) Uncontrolled emissions assuming all “bubble” throughput.

4. Avg. annual surface temperature ~65° . VP taken from Tanks program database.

5. Vented to vapor recovery with 99% destruction efficiency.

NSR Emissions Update

Maximum PTE (ROG):

Tank 791 R1 = 5750 lb/day ≈ 239.6 lb/hr Tank 797 R1 = 9,011lb/day ≈375.5lb/hr
R2 = 57.50 lb/day ≈ 2.4 lb/hr R2= 90.11lb/day ≈ 3.76lb/hr

RISK:

There is no increase in baseline PTE as a result of the changes. Consequently there is no increase in risk.

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RULES EVALUATION:

CEQA: The modification of the VRU is not a significant project requiring a CEQA analysis.

Rule 212 The modifications requested by these applications do not trigger any Public Noticing criteria. There is no increase in risk or PTE over and above the baseline levels established previously for these tanks.

Rule 401 Rule 401(b)(1) limits visible emissions to a shade as dark as No. 1 on the Ringelmann Chart for a period of three minutes in any hour. Historically there have been no visible emissions from operation of the VRU. None are expected as a result of this modification.

Rule 402 Operation of the equipment is not expected to result in a public nuisance. Compliance is expected.

Reg IX 40 CFR 60 Subpart Kb Standards of Performance for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced after July 23, 1984 (Amended May 11, 2001). Tanks 791 & 797 have capacities > 19,800 gallons (75 m³) and may store organic liquids with vapor pressures of greater than 0.5 psia (3.5 kPa). The tanks are in compliance with the regulatory requirements since they are vented to a vapor control device which has an efficiency greater than 95% and the vent line will remain open when the vapor pressure of stored products is greater than 0.5psi.

Rule 1173 This rule specifies leak control, identification, operator inspection, maintenance, and recordkeeping requirements for valves, pumps, compressors, pressure relief valves, and other components from which fugitive VOC emissions may emanate. The facility continues to conduct quarterly and annual inspection and testing of any components which may have fugitive VOC emissions.

Rule 1303 There is no increase in PTE resulting from modifications to the permit to operate these tanks. Rule 1303 is not applicable.

Rule 1401 Rule 1401 (d) specifies limits for Maximum Individual Cancer Risk (MICR), cancer burden, non-cancer acute and chronic Hazard Index (HI) from new, relocated and modified sources of Toxic Air Contaminants (TAC). There is no increase in PTE as a result of the operating modifications and throughput changes requested in these applications. Per 1401(g)(B), a modification which results in no increase in Risk is exempt from the requirements of this rule.

Reg XVII No net increase in PTE, further evaluation is not required.

Reg XX The facility is not a RECLAIM facility and therefore is not subject to Reg XX.

Reg XXX This facility is subject to Reg. XXX and the Initial Title V Permit has been issued. These permits are considered minor modifications and will be submitted to EPA for 45 day review upon completion. As a minor revision of the Title V Permit, Public Notice will not be required.

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DISCUSSION

The applicant wants to store diesel and jet kerosene without vapor recovery control and to “bubble the combined throughput for both tanks for operational flexibility. The uncontrolled emissions from the storage of diesel and jet kerosene (as shown in Tables 1 & 2) assuming all bubble throughput is run through a either tank were determined to be well below the controlled emissions from RVP 15 gasoline storage and baseline throughput for each respective tank. Therefore BACT is not triggered and the tanks may have a bubble throughput for diesel and Jet A and be disconnected from vapor recovery when storing these products.

The “bubble” was not extended to include other commodities because each commodity has a distinct vapor pressure and molecular weight and would have to be individually evaluated to determine if the uncontrolled storage of that product would result in an increase of more than 1 lb/day, thereby triggering BACT. BACT for fixed roof tanks is connection to Vapor Recovery, regardless of storage commodity, and if triggered the tanks could not be disconnected from vapor recovery, even when storing diesel and Jet A.

The throughput limits for the tanks is determined by using the maximum throughput on the Tank Summary forms submitted with the previous permit applications. These same throughputs were used to establish NSR baseline emissions in the evaluations for the previous permits. The products to be stored in these tanks when they are disconnected from vapor recovery are limited to diesel (including biodiesel) and Jet A kerosene. These are organic liquids with vapor pressures less than 0.01psia at actual storage conditions. As such, they are non-Rule 463 products and venting to vapor recovery is not required by Rule. The “bubble” throughput will be limited by permit condition to storage of diesel and Jet A only. When storing all other products, throughput will be limited to the previous permit baseline, and the vent lines for the tanks will remain open. The EPA Tanks 4.09d program is used for emissions calculations.

RECOMMENDATION

Issue a permit to construct/operate subject to conditions listed below.

CONDITIONS (AN504110 & 504112):

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. THE VENT LINE TO THE VAPOR RECOVERY SYSTEM SHALL REMAIN OPEN WHEN THE TANK IS IN SERVICE EXCEPT THAT THE VENT LINE MAY BE CLOSED WHEN THE TANK IS USED TO STORE THE FOLLOWING COMMODITIES:

DIESEL FUEL (INCLUDING BIODIESEL)
JET A KEROSENE

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[RULE 463, 1303(A)(1)-BACT, 1303(B)(2)-OFFSETS, RULE 1401, 40 CFR 63 SUBPART R]

4. THE OPERATOR SHALL KEEP A RECORD OF ALL PRODUCTS STORED IN THIS TANK. THE RECORD SHALL IDENTIFY EACH PRODUCT AND INCLUDE THROUGHPUT, RIED VAPOR PRESSURE, DATES OF STORAGE, AND STATUS OF THE VENT LINE TO THE VAPOR RECOVERY SYSTEM (OPEN OR CLOSED).

[RULE 463, 1303(A)(1)-BACT, 1303(B)(2)-OFFSETS, RULE 1401, 40 CFR 63 SUBPART R]

5. THE COMBINED THROUGHPUT FOR TANKS 791 AND 797 SHALL NOT EXCEED 50,740,200 GALLONS IN ANY ONE CALENDAR MONTH. THE MAXIMIUM CALENDAR MONTHLY THROUGHPUT FOR PRODUCTS OTHER THAN DIESEL AND JET A KEROSENE SHALL NOT EXCEED:

TANK NO. 791	19,756,800 GALLONS
TANK NO. 797	30, 983, 400 GALLONS

[RULE 463, 1303(A)(1)-BACT, 1303(B)(2)-OFFSETS, RULE 1401, 40 CFR 63 SUBPART R]

6. THIS TANK SHALL NOT BE USED TO STORE ORGAINC LIQUIDS WITH A RIED VAPOR PRESSURE GREATER THAN RVP 15 PSI.

[RULE 1303(A)(1)-BACT, RULE 1303(B)(2)-OFFSETS]

7. ALL RECORDS REQUIRED BY THE CONDITIONS OF THE IS PERMIT INCLUDING THOSE RECORDS REQUIRED BY RULE 463, SHALL BE MAINTAINED FOR A FIVE YEAR PERIOD AND BE AVAILABLE FOR INSPECTION BY AUTHORIZED DISTRICT PERSONNEL.

[RULE 463]

PERIODIC MONITORING: NONE

EMISSIONS AND REQUIREMENTS:

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

VOC:	RULE 463
VOC:	RULE 1149
HAP/TOC:	40 CFR 63 SUBPART R (MAJOR SOURCE)