SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION *REFINERY & WASTE MANAGEMENT PERMITTING* **ENGINEERING EVALUATION REPORT**	Page 1 of 44 Appl. number (see Table 1) Processed by knguyen Reviewed by Date 2/18/11

PIER 400 PROJECT
NEW CONSTRUCTION OF A MARINE BULK UNLOADING TERMINAL

Facility Information	**PACIFIC LA MARINE TERMINAL, LLC** **ID# 146546** **TITLE V: YES** **RECLAIM: N/A** **CYCLE: N/A** **ZONE: COASTAL**
Mailing Address	**5900 CHERRY AVENUE** **LONG BEACH, CA 90805-4408**
Equipment Address	**3000 NAVY WAY** **SAN PEDRO, CA 90731**
Contact Information	**THOMAS J. MCLANE** **DIRECTOR, ENVIRONMENTAL & REGULATORY COMPLIANCE** **(562) 728 – 2064**

EQUIPMENT DESCRIPTION

APPLICATION A/N 451893

MARINE BULK UNLOADING SYSTEM CONSISTING OF:

1. FOUR UNLOADING ARMS, 16-INCH DIAMTER, CHICKSAN DCM TYPE, WITH FOUR 20-INCH MOTOR OPERATED VALVES
2. SURGE TANK T1000-S1, CRUDE OIL, PARTIALLY REFINED/INTERMEDIATE PETROLEUM FEEDSTOCKS, 124'-0" DIA. X 50'-0" H., 80,000 BBL. CAPACITY, INTERNAL FLOATING ROOF, WELDED SHELL, WITH METALLIC SHOE PRIMARY SEAL AND RIM-MOUNTED MULTIPLE WIPER TYPE SECONDARY SEAL
3. FOUR SHORESIDE OFFLOADING PUMPS, ELECTRIC, CENTRIFUGAL, WITH DUAL MECHANICAL SEAL, 3500 H.P. EACH

APPLICATION A/N 512041

INTERNAL COMBUSTION ENGINE, CUMMINS, MODEL NO. 2000DQKA OR EQUIVALENT, DIESEL FUELED, FOUR CYCLES, TURBOCHARGED, AFTERCOOLED, RATED AT 2922 BHP, DRIVING AN EMERGENCY ELECTRICAL GENERATOR

APPLICATION A/N 512791

IN-LINE AIR ELIMINATOR SYSTEM CONSISTING OF:

1. DRUM WITH A DETONATION ARRESTOR, 12'-0" DIA. X 24'-0" L., EQUIPPED WITH PRESSURE-CONTROL VALVE, CONNECTED TO AN ACTIVATED CARBON ADSORPTION SYSTEM.

2. KNOCK-OUT DRUM WITH FIBER MESH MIST ELIMINATOR
3. TWO ACTIVATED CARBON ADSORBERS, CALGON, MODEL HFVS-3000, 3000 LBS EACH, CONNECTED IN SERIES

APPLICATION A/N 513781

STORAGE TANK, CONTACT STORM WATER, DIAMETER: 10.5 FT, LENGTH: 38.75 FT, 20,000 GALLON CAPACITY, TWO CARBON ADSORPTION CANISTERS IN SERIES, EACH 55 GALLON DRUM OF GRANULAR ACTIVATED CARBON

APPLICATION INFORMATION

TABLE 1 -- Applications Submitted for Marine Terminal Facility T1000

Appl No.	Equipment Tag Name	Application for
451893	Marine Bulk Unloading Facility Berth 408	(1) New construction of a marine bulk unloading facility at Berth 408 on Pier 400 in the Port of Los Angeles. (2) New construction of an 80,000-barrel internal floating roof tank. This tank will function as a surge tank to stabilize the different flow rates between the ship offload pumps and shore side assisted pumps.
512041	Emergency ICE	New construction of a 2922 bhp IC engine that will power an emergency generator. (Engineering evaluation for this application is found in Attachment I)
512791	In-line Air Eliminator System	New construction of an air eliminator drum located upstream of the shore side offloading pumps. The drum will vent two activated carbon adsorbers connected in series
513781	Storage Tank	New construction of a fixed roof storage tank that will be used to collect and store contact storm water from various areas within the facility. (Engineering evaluation for this application is found in Attachment I)

TABLE 2 -- Pre-screening Information

A/N	Appl Status	Deem Complete Date	Fee Paid	Fee Req'd	Net Fee Balance
451893	10	3/03/06	$3,364.77	$5,047.16	$1,682.39
512041	10	8/04/10	$2,051.52	$1,971.38	-$80.14
512791	10	8/26/10	$3,244.91	$4,969.58	$1,724.67
513781	10	8/20/10	$1,971.38	$1,971.38	$0.00

Note: Expedited processing fees have not been not paid for A/N 451893 & 512791

PROJECT DESCRIPTION

Pacific LA Marine Terminal LLC (PLAMT), a wholly owned subsidiary of PLAINS All American Pipeline, L.P. (PLAINS), proposes to build a deep-water bulk crude oil/petroleum liquids offloading marine terminal at Berth 408 on Pier 400 in the Port of Los Angeles, and a storage tank farm on Terminal Island, California. This project is developed in anticipation of continued decreases in Alaska and California crude oil supplies and projected increases in foreign crude imports in the next several years. Imported crude supplies will increasingly be brought into California using very large marine tanker vessels. Currently, there is no berth in the state with sufficient water depth to accommodate large size marine vessels such as Very Large Crude Carrier (ULCC) and Ultra Large Crude Carrier (ULCC) class tankers that can transport millions of barrels at a time. The growing demand for foreign crude oils is also expected to put a strain on existing facilities in the Port of Los Angeles and Port of Long Beach. The proposed deep-water berth will serve the increased demand for imported crude oils in Southern California.

The new Berth 408 proposed by PLAMT is designed to receive, store and transfer an average of 250,000 barrels per day of crude oil and petroleum feedstock to local refineries and storage facilities. The proposed project includes new construction of a deep-water berth and a tank farm. The new berth is called Facility T1000, which will be located at 3000 Navy Way on San Pedro, California. The tank farm is called Facility T2000 and will be located at 750 Eldridge Street on Terminal Island, California. Figure 1 on the page 5 on shows the locations of the two new facilities to be constructed for this project.

The proposed marine terminal will only offload liquid cargo from ocean-going marine tanker vessels. The liquid cargo will be limited to crude oil and partially refined/intermediate petroleum feedstock (e.g. gas oil, black oil, bunker oil, residual oil and other petroleum middle distillates). The new terminal will not load petroleum liquids nor load or unload finished petroleum products. After completion, the new marine terminal would have the following capabilities:

- Average daily throughput of 250,000 barrels
- Offload 5-10 marine tanker vessels per month
- Complete offloading a vessel in 24-28 hours with expected offloading rate between 50,000 to 125,000 barrels per hour

- Capable to accommodate ships up to 325,000 deadweight tonnage (dwt) including Very Large Crude Carrier (VLCC) and smaller Ultra Large Crude Carrier (ULCC) class tanker ships.

- "Partial" cold ironing by using shore side electric pumps to assist on-board ship offloading pumps during offloading liquid cargo. The use of shore side electric pumps reduces the loads on the steam-turbine-driven ship offloading pumps, and thereby decreases the emissions from ship boilers. The use of shore side electric pumps will not be required by permit. However, the shore side electric pumps are expected to be utilized regularly in preventing exceedance of the proposed NRS emissions cap limits for the marine terminal facility.

For storage, PLAMT proposes to construct ten above ground storage tanks with a total capacity of approximately four million barrels. The tank locations within the facility are shown in Figure 3 on page 6. PLAMT has proposed to complete the tank farm in three phases with the first phase scheduled to start shortly after Permit to Construct issuance. Phase 2 and 3 is not anticipated to begin until 2012 but no later than 2015. PLAMT will connect the terminal and tank farm with a new 42-inch diameter underground pipeline. The existing pipelines will also be extended to allow transferring of crude oil and feedstock to ExxonMobil Southwest Terminal, Valero Refinery as well as to other existing pipelines.

Figure 1: Proposed New Facilities for Pier 400 Project

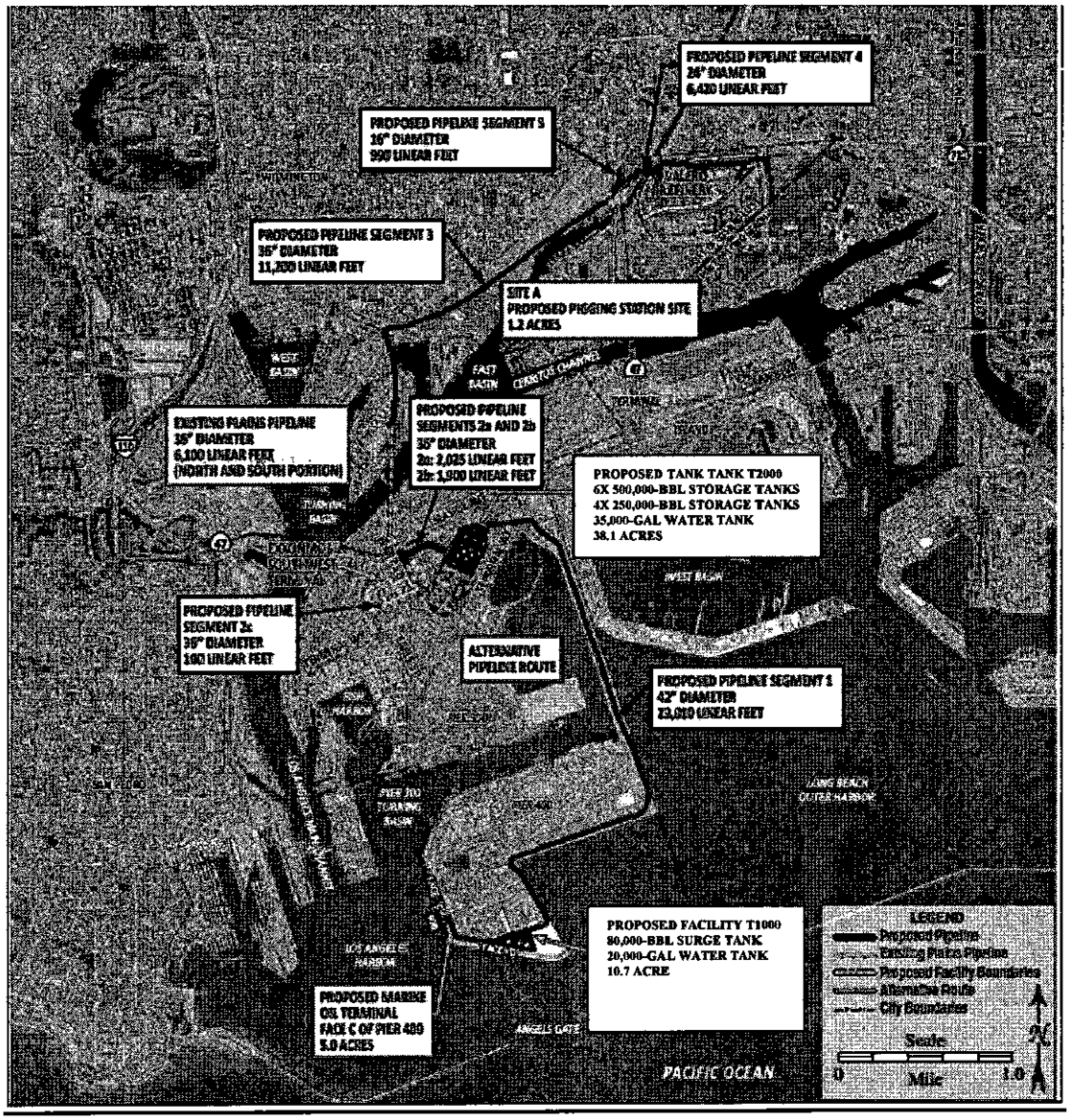


Figure 2: Proposed Marine Terminal T1000 Equipment Layout

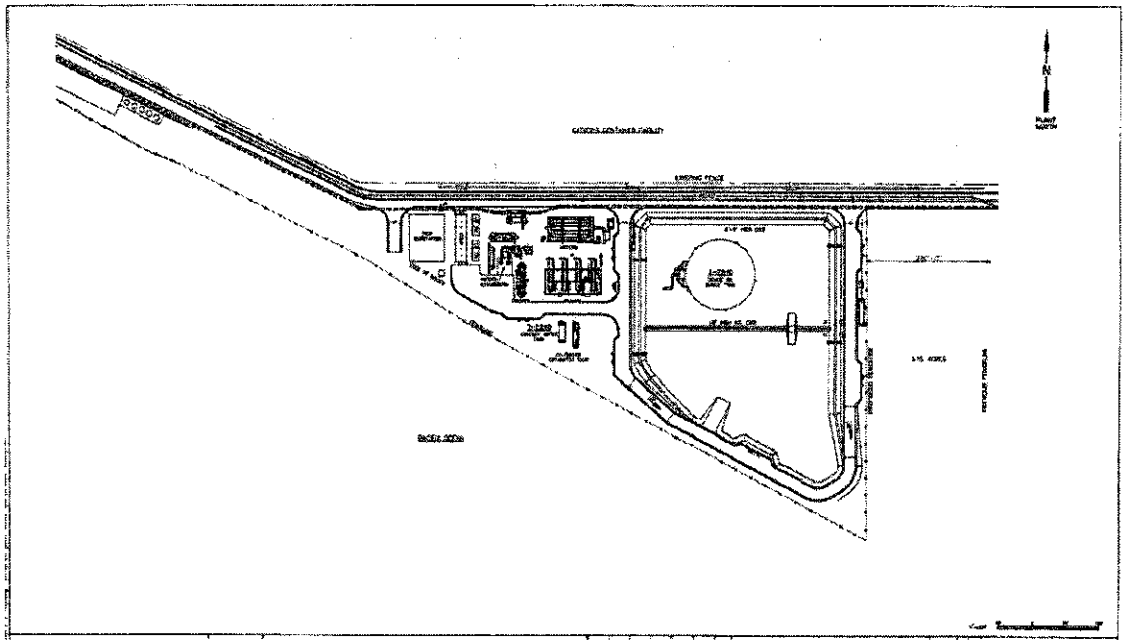
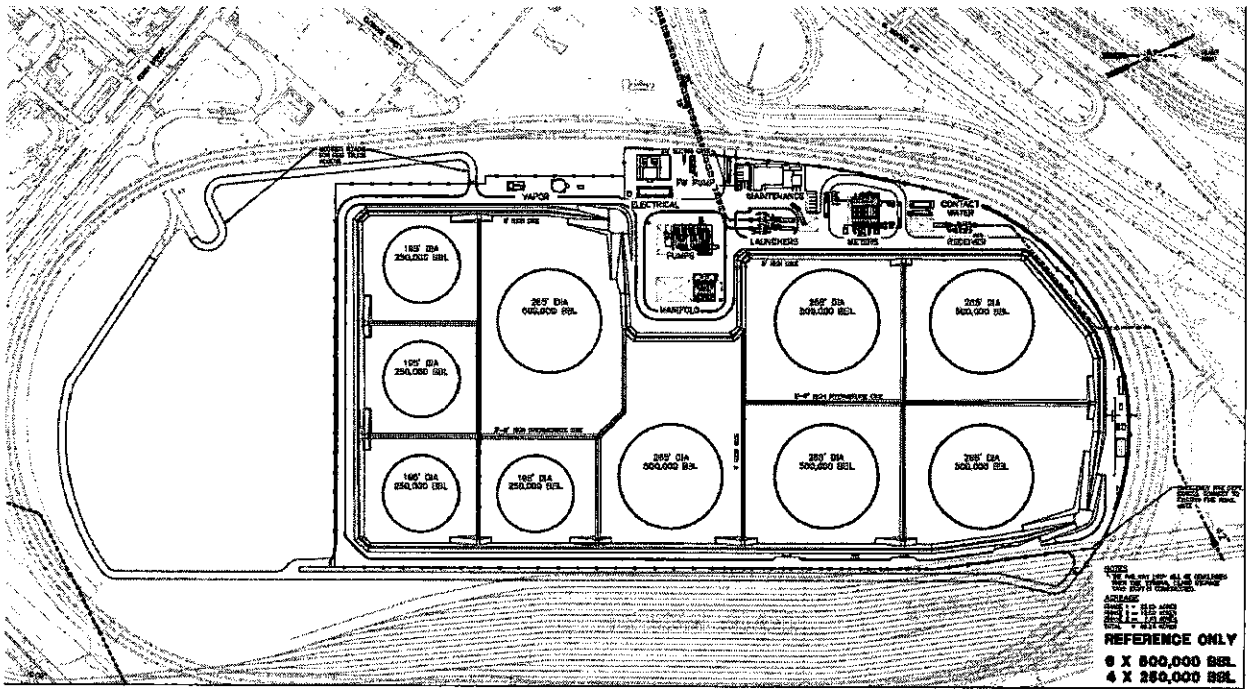


Figure 3: Proposed Tank Farm T2000 Layout



FACILITY/EQUIPMENT AND SCHOOL LOCATIONS

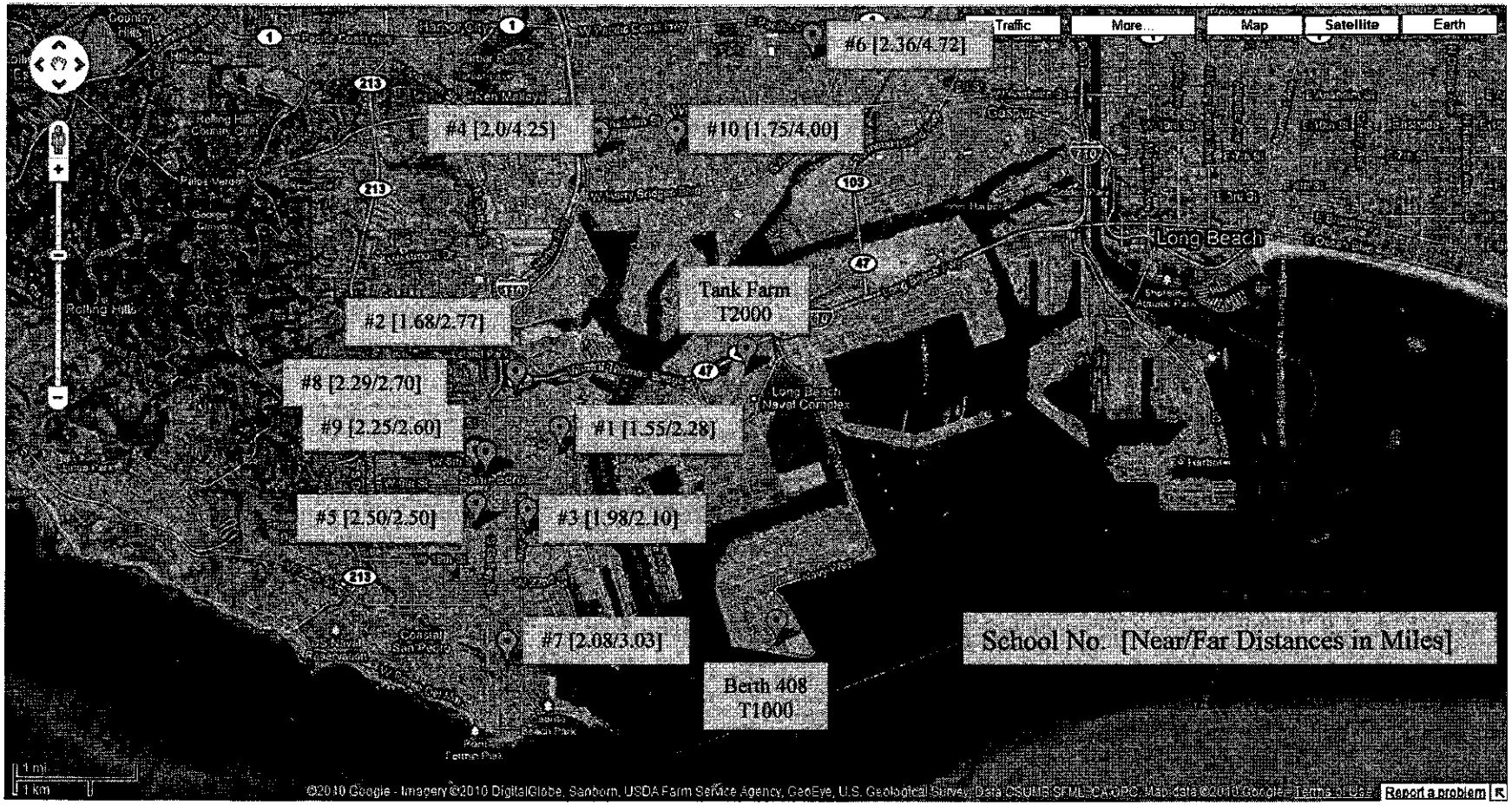
PLAMT' Facility T1000 is located at Berth 408 in the Port of Los Angeles and has the address of 3000 Navy Way, Terminal Island, California 97031. The facility occupies the southern side (Face D) of Pier 400. Facility T1000 is bounded by APM Containerized Cargo Terminals (Berths 401-406) on the north and west, California least tern nesting preserve to the east and the Los Angeles Harbor to the south and west. Facility T1000 is approximately 10.7 acres in size.

Land uses of the areas surrounding the project site include a ship container yard, dry and liquid bulk terminal, passenger ship terminal, break bulk terminal, automobile ship terminal, container transfer, warehousing and distribution, shipping services and a US naval station. As shown in Figure 4 on the next page, the proposed project is not located within 1000 feet from the outer boundary of a school. Schools located nearest to the facility include Point Fermin Elementary School, 15th Street Elementary School and Dana Middle School. Additional schools located nearby the facility but further are listed in Table 3 below.

TABLE 3 -- Information of Schools Nearest to Project Sites

School No.	Name of School & Telephone No.	School Address
1.	Port of Los Angeles High School (310) 832 – 9201	250 W 5th Street San Pedro, CA 90731
2.	Barton Hill Elementary School (310) 547 – 2471	423 N. Pacific Avenue San Pedro, CA 90731
3.	15th Street Elementary School (310) 547 – 3323	1527 S. Mesa Street San Pedro, CA 90731
4.	Hawaiian Elementary School (310) 830 – 1151	540 Hawaiian Ave. Wilmington, CA 90744
5.	Dana Middle School (310) 833 – 5235	1501 S. Cabrillo Ave San Pedro, CA 90731
6.	Wilmington Park Elementary (310) 830 – 8404	1140 Mahar Ave. Wilmington, CA 90744
7.	Point Fermin Elementary School (310) 832- 2849	3333 South Kerckhoff Avenue San Pedro, CA 90731
8.	Mary Star of the Sea High School (310) 547 – 1138	810 8th Street San Pedro, CA 90731
9.	Cabrillo Avenue Elementary (310) 832-6446	732 S Cabrillo Ave San Pedro, CA 90731
10.	Banning Elementary School (310) 847-1400	500 Island Ave Wilmington, CA 90744

Figure 4 -- Distances to Nearest Schools



COMPLIANCE REVIEW

Facility T1000 is a new facility that has not begun operation. As a result, neither the facility nor the proposed equipment has any unresolved compliance issues or violations. Based on its estimated VOC emissions, Facility T1000 will be a major polluting facility as defined by Rule 1302(s). Consequently, PLAMT and its parent company PLAINS are required to demonstrate statewide compliance for all of its major stationary sources. In a letter dated September 13, 2010, Mr. Thomas McLane, PLAMT's Western Division Director E&RC, certified that PLAMT operates all of its major stationary sources in the State of California in compliance with all applicable emission limitations and standards under the Clean Air Act (see Attachment II).

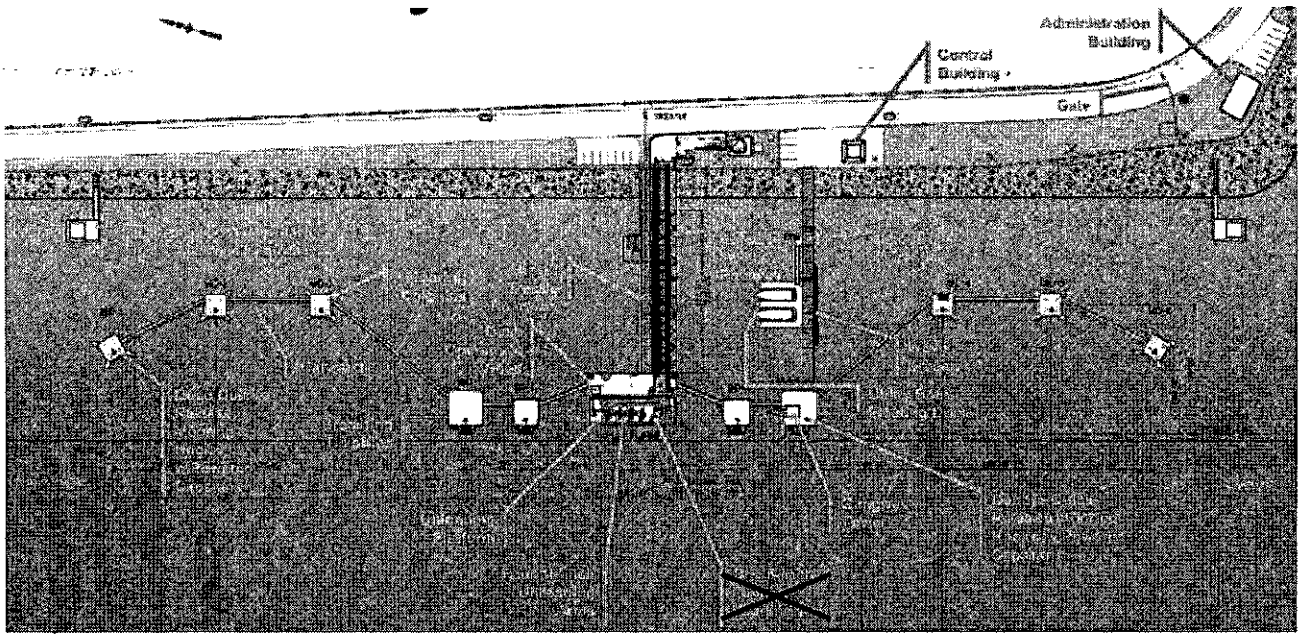
PROCESS DESCRIPTION

BULK MARINE UNLOADING FACILITY, BERTH 408 (A/N 451893)

As shown in Figure 5 on page 10, the proposed Berth 408 unloading terminal consists of four cargo unloading arms. The arms are 16 inches in diameter and have motor-operated valves, expansion joints, pig launcher, small valves, pumps and flanges. The arms are designed to be flexible to allow for 360-degree movements. During offloading, the unloading arms will be connected to a cargo offloading manifold on ships, and on-board steam-turbine driven pumps will offload liquid cargo into storage tanks. Typical marine crude oil tanker vessels are capable of discharging their liquid cargos to storage facility as far as 10 miles from shore. Marine tanker vessels to make calls at Berth 408 are expected to have steam-turbine driven offloading pumps that are powered by the ship boilers. PLAMT proposes to install electric pumps on the shore to assist in offloading of products. The purpose of the shore side electric pumps is to reduce emissions from ship boilers. The shore side electric pumps will operate on an as-needed basis in preventing exceedance of emission limits and will not be required by permit to be utilized at every offloading of product.

In order to accommodate the difference in the ship pump and electric pump capacities, a surge tank will be installed between the onboard ship offloading pumps and the shore side electric pumps. Liquid cargo will be offloaded from marine tanker vessels through the berth offloading arms to the piping and will typically flow through the surge tank if shore side electric pumps are utilized to assist in offloading of liquid cargo. From the surge tank the product will flow through the shore side pump station for delivery into any of the storage tanks located at the proposed tank farm T2000. The surge tank will serve to absorb/balance the difference in offloading flow rates thereby allowing the shore side pumps and the ships offloading pumps to operate independently with regard to pumping rates. This design minimizes pressure and flow differences in the pipeline. Whenever shore side electric pumps are not needed, the surge tank would be bypassed, and on-board offloading pumps will move the liquid cargo directly into storage tanks or underground pipelines. During cargo offloading, part of the flue gas from ship boilers is expected to be routed back to the cargo tanks to prevent explosion. This inerting of cargo tanks with flue gases reduces emissions from ship boilers by not releasing them to the atmosphere.

Figure 5: Berth 408 Marine Terminal Layout



In an effort to reduce and manage emissions from ship boilers, PLAMT proposes to install shore-side electric pumps at the new marine terminal. With assistance from the shore side electric pumps, the steam-turbine driven on-board offloading pumps will only need to run at reduced capacities lowering the steam demand, thereby reducing emissions from ship boilers. PLAMT will use the shore-side electric pumps for the purpose of ensuring compliance with the NSR emission cap limits to be imposed on facility T1000. However, the electric pumps will not necessarily be employed at every offloading of product; instead the pumps will operate on the basis of preventing exceedance of the NSR emission cap limits. It is most likely that the electric pumps will need to operate regularly because the emission limits as proposed by PLAMT were calculated with the assumption that the shore side electric pumps will assist on-board pumps during offloading of liquid cargo.

The proposed marine terminal is subject to New Source Review. Pursuant to paragraphs (g)(2) and (g)(3) of Rule 1306, all emissions from marine tanker vessel during offloading of cargo and while at berth, and non-propulsion ship emissions within Coastal Waters under District jurisdiction are required to be offset. PLAMT proposes to limit emissions from the proposed marine terminal based on the amounts of emission reduction credits (ERCs) to be provided. PLAMT calculated the proposed emission limits for Berth 408 using the following presumed operational scenario:

- To determine the emission limits for facility T1000, PLAMT assumes that there will be two Very Large Crude Carrier (VLCC) size marine tanker vessels, three Suezmax-size marine tanker vessels, three Aframax-size marine tanker vessels and 0.75 Panamax-size marine vessels making calls at the proposed marine terminal per

month. The nominal throughputs for the terminal are estimated to be 250,000 barrels per day and 91.25 million barrels per year. The operational scenarios analyzed in the Environmental Impact Report (EIR) are different than the operational scenario used by PLAMT for NSR purpose. For the final SEIS/SEIR analysis, the Port of Los Angeles, which is the lead agency for this project, uses a vessel mix of 26 VLCC, 45 Suezmax, 32 Aframax and 26 Panamax vessels calls per year for the terminal start-up year 2010. The vessel mix is expected to increase to a total of 201 vessel calls when the facility is full operation mode by the year 2025. PLAMT will be restricted to the numbers of vessel calls per month which do not exceed the emission limits imposed on the permit of the marine terminal.

- The sulfur contents of both auxiliary engine's fuel and boiler's fuel are assumed to equal to 0.135 percent by mass. The assumption is based partially on ARB rule limit of 0.1 percent effective 2012 and IMO's ECA limit of 0.1 percent effective 2015. For the purpose of compliance with the emission cap limits, PLAMT will be required by permit condition to determine the actual sulfur contents of fuels used by ship boilers and auxiliary engines.
- To determine "non-propulsion ship emissions within Coastal Waters under District jurisdiction" specified by paragraph (g)(3) of Rule 1306, Ms. Jeri G. Voge, Senior AQMD Deputy District Counsel, was asked to provide an interpretation of the rule language. In a letter dated October 6, 2006 to Ms. Sharon Rubalcava, the attorney representing PLAMT, Ms. Voge concluded that the non-propulsion ship emissions are meant to be from both ship boilers and auxiliary engines while a marine tanker vessel is traveling within a distance of three geographical miles from the coastline (see Attachment III). Non-propulsion emissions were interpreted as "the ship emissions not directly attributable to propelling the vessel." Ms. Voge's interpretations will be used to determine non-propulsion ship emissions for New Source Review purpose. Consequently, PLAMT calculated the non-propulsion emissions to include:

  (1) Emissions from auxiliary IC engines that are not directly attributable to propelling the vessel. PLAMT has shown based on various electrical demands that approximately 350 kW of load from auxiliary IC engines are used for various activities not related to the propulsion while a vessel is in-transit.

  (2) Emissions from ship boilers that occurs three hours prior to arrival at berth; and with the boilers operating at 30 percent of the fuel consumption rate that occurs during offloading of product. Based on experiences from marine tanker vessel operators, three hours prior to arrival will place a marine tanker vessel at or beyond the three mile distance from the berth.

Since PLAMT agrees to emission cap limits for facility T1000, the permit for Berth 408 marine unloading facility will include conditions to ensure compliance with the proposed NSR emission cap limits. To demonstrate compliance, PLAMT will be required to calculate emissions from

Berth 408 using actual fuel/energy consumption by on-board ship boilers and auxiliary engines using equations and methods discussed in the Criteria Pollutant Emission section of this report.

ELECTRICAL GENERATOR EMERGENCY IC ENGINE (A/N 512041)

PLAMT proposes install a 2922 bhp diesel fueled Cummins engine at this facility. The engine will drive an emergency electrical generator. The evaluation report for the engine is included in Attachment I.

IN-LINE AIR ELIMINATOR SYSTEM (A/N 512791)

A large drum will be installed between the offloading arms and shore side electric pumps. The drum will vent to an activated carbon adsorption system. The drum will function to eliminate air in the piping between the ship offloading manifolds and shore side electric pumps. Prior to cargo offloading, vapors are collected in the piping on the ship, inside offloading arms and 2300-feet pipeline upstream of the drum because these lines are only partially drained the end of cargo offloading operation creating a vapor space inside the lines. The vapors will be pushed out of the lines through the drum as new ship cargo is being offloaded as the far end of the pipeline is filled with liquid from the last offloading operation. The air eliminator drum will be equipped with a pressure control valve and a detonation arrestor. The valve controls air flow through the carbon absorption system.

PLAMT proposes to install two 3000-pound activated carbon canisters that will be utilized to control hydrocarbon vapors in the pipeline between the ship offloading manifolds and the shore side electric pumps. The carbon canisters are the High Flow VENTSORB units (model HFVS-3000) manufactured by Calgon. The carbon canisters will be connected in series. The carbon adsorption system will also be equipped with a mist eliminator, which consists of a knock out drum and a demister pad. Design maximum air flow rate for each carbon canister equals to 3000 cubic feet per minute (cfm). At maximum flow rate, pressure drop is expected to be 13.5 inches of water column. Pipeline vapors are first vented to the air eliminator drum and then to the mist eliminator drum before entering the primary carbon adsorber. PLAMT estimates that the carbon will need to be replaced once every 12 months. A permit condition will require the operator to monitor VOC concentration at the outlet of the carbon adsorber system at every offloading operation and no less than once every month.

FIXED ROOF OILY CONTACT WATER STORAGE TANK (A/N 513781)

PLAMT proposes to construct a 20,000-gallon fixed roof storage tank. The tank is proposed to received storm water and surface runoff water collected by drains throughout the facility that may be in contact with some slop oil. The evaluation report for the tank is included in Attachment I.

CRITERIA POLLUTANT EMISSIONS

BULK MARINE UNLOADING FACILITY, BERTH 408 (A/N 451893)

The proposed marine bulk unloading facility is a permit unit with more than one source of emissions. The sources of emissions from this permit unit include:

1. Fugitive emission components
2. Internal floating roof surge tank T1000-S1
3. Non-propulsion ship emissions occurred within Coastal Waters under District jurisdiction
4. Ship emissions from cargo offloading and non-offloading activities while the marine vessel is at berth

Appendix A shows the emission calculations for each of the listed emission sources. The fugitive emissions are calculated using District AER Method—Guideline for Fugitive Emissions Calculations with a screening value of 500 ppmv. Emissions from surge tank T1000-S1 are calculated using US EPA TANKS4.09d software.

Ship emissions include non-propulsion emissions from auxiliary IC engines and emissions from boilers operating within Coastal Waters under District jurisdiction and while at berth. In-transit, auxiliary engines are utilized to provide auxiliary electrical power for maneuvering, utility and instrumentation equipment, safety and cargo monitoring equipment and other ship services. In the open sea, only one of three auxiliary engines is typically in service. When approaching the harbor and during maneuvering mode, two auxiliary engines are always required for safety purpose. PLAMT has estimated based on power demands that approximately 350 kW of load from auxiliary IC engines are used for various activities not related to the propulsion while a vessel is in-transit. Ship boilers are used in heating heavy fuel oil for propulsion engines as well as producing steam and hot water. In-transit, PLAMT has estimated that ship boilers requires only about one-third of the steam amount needed for cargo offloading.

Once anchored at berth, the beginning of a period known as hoteling, auxiliary engines are operating at higher load than they do during transit. The reason is propulsion engines are completely shut down during hoteling. As a result, auxiliary engines are responsible for all on-board power including some of the loads that would be otherwise provided by the propulsion engines. Ship boilers are also operating at higher heat input rate during hoteling than in-transit. Ship boilers provide all of the steam that drives on-board ship offloading pumps. Since auxiliary IC engines and ship boilers operate at various loads in different time periods while the ship is within Coastal Waters and at berth, the emissions are calculated using assumptions specific to each mode of operation. For example, emissions from auxiliary engines are broken down into emissions from in-transit and hoteling operations. The emissions from boilers are calculated for offloading and non-offloading operations. In addition, auxiliary engines and ship boilers may also be fired on either marine distillate oil (MDO) or marine gas oil (MGO) in each mode of operation. Heavy fuel oil (HFO) will not be allowed as fuel in the auxiliary engines or boilers.

TABLE 4 -- Summary of Emissions from Proposed Marine Terminal, Berth 408

Source of Emissions		NOx	CO	VOC	PM	PM10	SOx
Fugitive components, lb/day		---	---	3.25	---	---	---
Surge tank T1000-S1, lb/day		---	---	62.8	---	---	---
Ship	Auxiliary IC engine (in-transit on arrival+depart)	11.3	0.9	0.3	0.3	0.2	0.5
	Auxiliary IC engine (At berth but not offloading)	37.1	2.9	1.1	0.8	0.7	1.5
	Auxiliary IC engine (Offloading)	309.7	24.5	8.9	7.1	5.8	12.8
	Boiler (in-transit on arrival + pre-offloading)	9.1	2.0	0.3	1.3	0.9	7.6
	Boiler (Offloading)	82.6	17.9	3.2	11.4	8.3	68.1
Total Emissions, lb/day (30-day Ave)		**449.8**	**48.2**	**79.9**	**20.9**	**15.9**	**90.5**

ELECTRICAL GENERATOR EMERGENCY IC ENGINE (A/N 512041)

TABLE 5 -- Emissions from Proposed Emergency IC Engine Generator (lb/day—30-day ave.)

NOx	CO	VOC	PM	PM10	SOx
3.54	0.33	0.09	0.06	0.06	0.00

Note: See Attachment I for emission calculations of the engine

IN-LINE AIR ELIMINATOR SYSTEM (A/N 512791)

Emissions from the proposed in-line air eliminator are determined by assuming a VOC concentration of 500 ppmv at the outlet of the carbon adsorbers. Since the operator will be required by permit to replace the carbon once VOC concentration at the outlet of the primary carbon adsorber reaches 500 ppmv, the assumption results in an overly conservative estimate of the emissions. Appendix B shows the emission calculations for the in-line air eliminator system.

VOC, lbs/day 30-day ave = 0.1

FIXED ROOF OILY CONTACT WATER STORAGE TANK (A/N 513781)

See Attachment I for emission calculations of this tank.

VOC, lbs/day 30-day ave. = 0.1

TOTAL OFFSET EMISSIONS FOR FACILITY T1000

TABLE 6 -- Total Emissions and Required Offset for Facility T1000

Facility Total	NOx	VOC	PM10	SOx
30-day Ave, lbs/day	449.8	80.1	15.9	90.5
Required ERCs, lbs	540	96	None	109

Note: Total PM10 emissions for the facility are below 4 tons per year.

TOXIC AIR CONTAMINANT EMISSIONS & RULE 1401 HEALTH RISK ASSESSMENT

BULK MARINE UNLOADING FACILITY, BERTH 408 (A/N 451893)

As discussed in Criteria Pollutant Emissions section above, the proposed marine terminal Berth 408 is a permit unit with four separate emission sources: fugitive emission source, surge tank T1000-S1, non-propulsion ship emissions and ship offloading emissions. However, emissions from ship are caused by mobile sources and thus, are accumulated with the terminal pursuant to Rule 1306(g) for New Source Review offset purpose only. As a result, only toxic air contaminant emissions from fugitive components and surge tank T1000-S1 are included in the health risk assessment analysis of the permit unit.

PLAMT provided analytical results performed on typical crude oils and partially refined petroleum/intermediate feedstock which are expected to be unloaded by the proposed Berth 408. The samples were analyzed using EPA Test Methods 8260 -- Volatile Organic Compounds By Gas Chromatography/Mass Spectrometry (GC/MS) and 8270 -- Semi volatile Organic Compounds By Gas Chromatography/Mass Spectrometry (GC/MS). Lab test results show the concentrations of the toxic compounds that are listed in Table 1 of District Rule 1401 (see Attachment IV).

The toxic air contaminant (TAC) emissions from the fugitive components are calculated from VOC emissions for fugitive components speciated using the procedures for speciation emissions published by the US EPA, in a report titled "Protocol for Equipment Leak Emission Estimates", Section 2.4.1 (Document EPA-453/R-95-017). The toxic emissions from fugitive emission sources are calculated with the following assumptions:

(1) All fugitive emission sources are assumed in single-phase liquid service, and all fugitive components contain 100 percent hydrocarbon liquids.
(2) The compositions of the crude oils and partially refined petroleum/intermediate feedstock received by Berth 408 are assumed to have all of the toxic compounds that are present in the test results.

Furthermore, each of the toxic compounds is assumed to have the greatest concentration of all of the shown test results. These assumptions result in over estimates of the toxic emissions for the fugitive components because a typical crude oil or partially refined petroleum/intermediate feedstock is not expected to have this overly conservative toxic speciation profile. See Appendix C for toxic emission calculations for the fugitive emission sources at Berth 408.

TABLE 7 -- Toxic Emissions from Fugitive Emission Sources

Substance	Crude Oils (Max. Profile) lb/hr **(lb/yr)**	Partially Refined Petro (Max. Profile) lb/hr **(lb/yr)**
Benzene	2.7308E-03 **(2.10)**	5.0064E-05 **(0.04)**
Ethyl benzene	1.6688E-03 **(1.28)**	2.1239E-04 **(0.16)**
Naphthalene	1.6688E-03 **(1.28)**	1.6688E-03 **(0.06)**
Toluene	4.2479E-03 **(3.27)**	2.7308E-04 **(0.04)**
Xylene, m-	4.3996E-03 **(3.38)**	3.9445E-04 **(0.05)**
Xylene, o-	2.2757E-03 **(1.75)**	1.6688E-04 **(0.03)**
Methylene chloride	4.7030E-04 **(0.36)**	1.6688E-05 **(0.00)**
Chrysene	N/A	3.0342E-05 **(0.14)**
Benzo[a]pyrene	N/A	4.6423E-04 **(0.04)**

PLAMT performed Tier IV health risk assessment for the fugitive emission sources at Berth 408 and facility risks from the new terminal T1000. AERMOD modeling software together with ARB's Hot Spot Analysis and Report Program (HARP) software were used to determine the health risks from the proposed equipment. Even at facility-wide level, the maximum individual cancer risk (MICR) from the proposed equipment equals to 0.22 in one million, which is below the allowable threshold of one in one million. The maximum acute and chronic hazard indices equal to 5.17E-04 and 3.46E-4, respectively, both of which are also below the Rule 1401 limits of one at any receptor location. Therefore, the health risks increases from the fugitive emission sources by themselves are also below the thresholds of Rule 1401. The risk assessment was submitted to AQMD modeling staff for review and approval. The risk results were deemed

acceptable by AQMD modeling staff. Appendix E includes the Tier IV health risk assessment and the approval memorandum dated February 16, 2011.

Toxic emissions from surge tank T1000-S1 will be emitted under two different and unrelated conditions: normal storage operation and roof landing event. For normal operation, the toxic emissions are calculated using US EPA TANKS4.09d software. Partial speciation option available with the program calculates emissions of individual components within a mixture liquid. As with the fugitive emission sources, toxic speciation profiles for crude oil and partially refined petroleum/intermediate feedstock are assumed to have all of the toxic compounds that are present in the lab results. Furthermore, each of the toxic compounds is assumed to have the greatest concentration among the test results.

According to the applicant, the surge tank will not require regular drained-dry and cleaning operation. After an offloading event, the roof of the surge tank will be maintained at a liquid height of 25 feet, not resting upon its legs. However, PLAMT requests that roof landing is allowed for the surge tank, and PLAMT agrees to have a portable vapor recovery system on site to control emissions whenever the tank undergoes tank degassing and cleaning operation. PLAMT was informed on the 12-month time limit on the use of portable control equipment. After one year, PLAMT may apply for permit for a stationary vapor recovery system if one is needed to serve the surge tank on a permanent basis. PLAMT proposes a limit of 15 roof landing events per month for the surge tank and a control efficiency of 99 percent for the portable vapor recovery system. During a roof landing event, toxic air contaminants will be emitted as the byproducts from the combustions of natural gas and a mixture of natural gas and tank vapor, of which natural gas is used to increase the heat content of tank vapor. The products of combustion are created by the portable vapor recovery system and thus will be included with the control equipment, not the surge tank. To ensure that the toxic emission estimate for tank degassing and refilling period is health protective, it is assumed that one percent of the uncontrolled toxic emissions from tank vapor will escape into the atmosphere. This amount is added to the toxic emissions from normal operation in determining the health risks from the surge tank.

Toxic emissions during roof landing period are generated from two distinctly different activities: tank degassing/purging and tank refilling. For further details on how the toxic emissions for the proposed surged tank are calculated, see Appendix C.

Table 8 -- Toxic Emissions from Surge Tank T1000-S1

Substance	Crude Oils (Max. Profile) lb/hr **(lb/yr)**	Partially Refined (Max. Profile) lb/hr **(lb/yr)**
Benzene	5.02E-03 **(34.5)**	6.45E-06 **(0.0)**
Ethyl benzene	2.16E-03	7.07E-05

Substance	Crude Oils (Max. Profile) lb/hr **(lb/yr)**	Partially Refined (Max. Profile) lb/hr **(lb/yr)**
	(17.6)	**(0.6)**
Naphthalene	2.14E-03 **(17.3)**	2.48E-05 **(0.2)**
Toluene	5.60E-03 **(46.8)**	1.98E-05 **(0.2)**
Xylene, m-	5.69E-03 **(46.4)**	2.36E-05 **(0.2)**
Xylene, o-	2.94E-03 **(23.9)**	1.24E-05 **(0.1)**
Methylene chloride	4.07E-03 **(9.9)**	1.81E-05 **(0.0)**
Chrysene	N/A	5.83E-05 **(0.5)**
Benzo[a]pyrene	N/A	1.61E-05 **(0.1)**

Similar to fugitive emission sources, PLAMT performed Tier IV health risk assessment for the proposed surge tank T1000-S1. The maximum individual cancer risk (MICR) and chronic health index are determined from the sum of toxic emissions from normal operation and roof landing period. The acute hazard index is obtained using the highest hourly emission rate among normal operation, tank degassing/purging period and tank refilling. Since the MICR and hazard indices for facility T1000 are below the allowable limits of Rule 1401 as discussed above, the health risks increases from the surge tank by itself are also below the thresholds of the rule. These risks were also deemed acceptable by AQMD modeling staff as shown in Appendix E.

EMERGENCY IC ENGINE GENERATOR (A/N 512041)

Emergency IC engine used exclusively as a standby electrical generator is exempt from Rule 1401. Toxic emissions from the proposed engine were determined for the purpose of calculating health risks. See Attachment I for the toxic emissions and health risks from the proposed IC engine.

IN-LINE AIR ELIMINATOR SYSTEM (A/N 512791)

Toxic air contaminant (TAC) emissions for the in-line air eliminator system are calculated with the same conservative assumptions used for the fugitive emission sources and surge tank T1000-S1. Each of the toxic compounds is assumed to have the greatest concentration of all of the shown test results. TAC emissions for the air eliminator are calculated by multiplying the vapor

mass fractions of the toxic compounds by the mass VOC emission rates (at only 29 lbs/yr and 0.003 lb/hr). As shown in Appendix D, toxic emissions from the in-line air eliminator system are negligible to nil. As a result, the system passes Tier I health risk screening assessment.

FIXED ROOF OILY CONTACT WATER STORAGE TANK (A/N 513781)

(The proposed tank passes Tier I screening risk assessment. Therefore, the increases in health risks from the tank are below the thresholds of Rule 1401. See Attachment I for the toxic emissions and health risks from the proposed contact water storage tank.)

Table 9 -- Toxic Emissions from Contact Water Storage Tank

Substance	Crude Oils lb/hr **(lb/yr)**
Benzene	3.01E-06 **2.63E-02**
Ethyl benzene	1.78E-07 **1.56E-03**
Methylene chloride	2.36E-06 **2.06E-02**
Toluene	1.35E-06 **1.18E-02**
Xylene, m-	3.93E-07 **3.43E-03**
Xylene, o-	1.61E-07 **1.41E-03**

RULE COMPLIANCE EVALUATION

DISTRICT RULES & REGULATIONS

Rule 212 (Amended1/14/97) STANDARDS FOR APPROVING PERMITS AND ISSUING PUBLIC NOTICE

Facility T1000 is a new facility which will have on-site VOC emissions greater than 30 lbs/day, respectively. Therefore, the project is required public notification to all addresses within1/4 mile radius of its location, which is considered to be the outer property line of the facility according to District's policy. Pursuant to Rule 212(d), the District also requires PLAMT to distribute to an area beyond of the ¼ mile radius. The total area of public notification is bounded on the North by Opp Street continued on Avalon Street and Anaheim Street; on the West by Interstate 110 at the intersection of Anaheim Street extending southerly to Gaffey Street until the intersection of South

Gaffey St. and Shepard St; on the East by Terminal Island Fwy from the intersection of Opp Street and Henry Ford to the intersection of Terminal Island Fwy and West Ocean blvd; on the South by San Pedro Bay generally between Terminal Island Fwy and South Gaffey St. (see Attachment V for the map of this area). Since public notification is triggered as result of emissions increases exceeding the daily maximums specified by paragraph (g) of the rule, the public notification will be published in a newspaper in general circulation in the vicinity of Port of Los Angeles, Port of Long Beach and City of San Pedro. A copy of the notice will also be mailed to the Administrator of US EPA Region 9, the Air Resource Board, Southern California Association of Government, Los Angeles County, the chief executives of the city of San Pedro, Los Angeles and Long Beach, State and Federal Land Managers. Copies of the public notice along with the applications and this engineering evaluation report will also be made available to the public at Los Angeles Public Library, San Pedro Branch located at 921 South Gaffey Street, San Pedro. Public comment period will be 30 days. Compliance with all applicable requirements of this rule is expected.

Rule 401 VISIBLE EMISSIONS
(Amended 11/09/01)

With proper operation and maintenance, visible emissions are not expected from the proposed equipment at this facility.

Rule 402 NUISANCE
(Adopted 5/07/76)

With proper operation and maintenance, the proposed bulk marine unloading facility and in-line air eliminator system are not expected to cause nuisance under normal operating conditions.

Rule 404 PARTICULATE MATTER - CONCENTRATION
(Amended 2/07/86)

Particular matter emitted by ship auxiliary IC engines and boilers are not subject to this rule. This rule does not apply.

Rule 407 LIQUID AND GASEOUS AIR CONTAMINANTS
(Amended 4/02/82)

Carbon monoxide and sulfur dioxide emitted by ship auxiliary IC engines and boilers are not subject to this rule. This rule does not apply.

Rule 409 (Amended 8/07/81) COMBUSTION CONTAMINANTS

Particular matter emitted by ship auxiliary IC engines and boilers are not subject to this rule. This rule does not apply.

Rule 431.1 (Amended 6/12/98) SULFUR CONTENT OF GASEOUS FUELS

Based a H_2S limit of 70 ppm or less in the liquid phase which PLAMT will impose on its customers, facility T1000 is expected to emit less than 5 pounds per day total sulfur compounds, calculated as H_2S. Furthermore, analyses performed using District Method 307-91 show that there's no detectable level of carbonyl sulfide or mercaptans in the vapor of the typical crude oils to be stored at this facility. The H_2S calculation and lab analyses are included in Attachment VI.

Rule 463 (Amended 5/06/05) ORGANIC LIQUID STORAGE

The proposed surge tank is subject to this rule. Therefore, the tank is required to be designed and equipped with vapor control devices specified by paragraph (c)(2), which is properly installed and continuously maintained in good operating condition:

(c)(2) -- Internal Floating-Type Cover:

The surge tank will be equipped with a primary seal and a secondary seal, both of which will be on the current list seals approved by the Executive Officer. All openings and fittings will be gasketted and controlled in accordance to the requirements of Rule 1178. The gaps between the metallic shoe seals and the tank shells are expected to be within the distances specified by (c)(1)(A)(i). The gaps between the secondary seals and the tank shells are expected to be within the distances specified by (c)(1)(A)(ii). The metallic-shoe seals will be installed with one end submerged in the stored liquids and the other end extending at least 24 inches above the stored liquid surface. The geometry of the metallic-shoe seals will comply with the configuration specified by (c)(1)(A)(iv). The concentration of organic vapor in the vapor space above the internal floating-type cover will be required by permit condition not to exceed 30 percent of its lower explosive limit (LEL). The condition will also require the operator to verify compliance using an explosimeter.

The proposed surge tank T1000-S1 is also expected to comply with all other applicable requirements of this rule such as other performance requirements of paragraph (d), self-inspection, identification, maintenance, recordkeeping and reporting requirements. Finally, the surge tank will be conditioned by permit to comply with all applicable requirements of this rule. Compliance with this rule is expected.

Rule 1142 MARINE TANK VESSEL OPERATIONS
(Amended 7/19/1991)

The propose Berth 408 is unloading only facility. No organic liquid will loaded or filled into marine vessels or their cargo tanks making call at this facility. Therefore, this rule does not apply marine operations occurred at this facility.

Rule 1149 STORAGE TANK CLEANING AND DEGASSING
(Amended 5/02/08)

The proposed surge tank is subject to the requirements of this rule whenever it is open to the atmosphere during cleaning and degassing after storing organic liquids with a Reid vapor pressure of 0.5 psia or greater. Emissions from tank cleaning and degassing activities will be controlled by a portable/rental vapor collection and disposal system, which is expected to reduce VOC concentration within the tank to less than 5,000 ppmv, measured as methane. The operator will also monitor the VOC concentration to ensure that it is below 5,000 ppmv for at least one hour after degassing operations have ceased. Finally, the surge tank will be conditioned by permit to comply with all applicable requirements of this rule. Compliance with this rule is expected.

Rule 1178 FURTHER REDUCTIONS OF VOC EMISSIONS FROM STORAGE
(Adopted 4/7/06) TANKS AT PETROLEUM FACILITIES

Facility T1000 is a petroleum facility as defined by paragraph (c)(22). However, facility T1000 is not expected to emit more than 20 tons of VOC per year . The proposed facility's total VOC emissions are estimated to be 12 tons per year . Therefore, the proposed surge tank is not subject to this rule.

Rule 1303 REQUIREMENTS
(Amended 12/7/95)

Best Available Control Technology (BACT)

Facility T-1000 will be a major polluting facility as defined by Rule 1302(s) because its facility-wide VOC emissions are equal or greater than 10 tons/yr. Therefore, BACT determinations are based on Parts A & B of the BACT Guidelines. Non-propulsion ship emissions are emitted by mobile sources. As a result, ship auxiliary IC engines and on-board boilers are preempted from District rules and regulations by federal law and thus are not subject to BACT requirement.

For the proposed surge tank, which is an internal floating roof tank, BACT is Category A tank seals and compliance with AQMD Rule 1178 except for the reporting and notification requirements. The surge tank will be equipped with liquid-mounted, metallic-shoe primary seals, which is a Category A seals. PLAMT also proposed to install multiple-wiper secondary seals on all of the proposed tanks. Therefore, the secondary seals will also be Category A seals. The

proposed surge tank is expected to comply with all applicable requirements of AQMD Rule 1178 as discussed below.

Rule 1178(d)(3) -- Internal Floating Roof Tanks

(A) -- Fixed roof support columns of the proposed surge tank will be equipped with a gasketted sliding cover.

(B) -- According to the applicant, the proposed surge tank will not be equipped with a ladder well. Roll-up ladders will be used to access the tanks.

(C) -- All other roof openings will comply with the specifications of paragraph (d)(1)(A) as shown below:

(d)(1)(A)

(i) -- Each access hatch and gauge float well will be equipped with a gasketted and bolted cover. The covers will be kept closed at all times except when personnel need to access the tanks.

(ii) -- Each gauge hatch/sample well will be equipped with a gasketted cover. The covers will be kept closed at all times with no visible gap except when personnel needs to access the hatches or wells.

(iii) -- Roof legs will be fixed. Consequently, the requirements that the legs are gasketted and covered with VOC impervious socks at all times when the roof is floating do not apply.

(iv) -- Rim vents will be equipped with gasket and closed at all times except when the roof is being floated off the leg supports.

(v) -- Each vacuum breaker will be gasketted and maintained in a closed position at all times when the roof is floating. The vacuum breakers will be set to open only when the roof is being floated off or is being landed on the roof leg supports.

(vi) -- The proposed surge tank will not be equipped with open floating roof drain according to the applicant.

(vii) -- Fixed-roof support columns function as unslotted guide poles for the proposed internal floating roof tank. Each unslotted guidepole well will be equipped with a gasketted sliding cover and a wiper.

(viii) -- The ends of the fixed-roof support columns/guide poles are covered by the fixed roofs with no visible gaps.

(ix) thru (xi) -- The proposed surge tank will not be equipped with slotted guide poles.

(xii) -- The guide poles of proposed tanks will not be equipped with pole floats.

(xiii) -- Except for vacuum breakers, each opening in the internal floating roof of the proposed surge tank will extend into the liquid surface.

(xiv) -- Except for vacuum breakers and leg sleeves, all other openings in the roofs will be equipped with a gasketted cover or seal which will be closed at all times, with no visible gaps, except when the cover or seal must be opened for access.

(D) -- The proposed surge tank will be equipped with a metallic-shoe primary seal and a secondary seal that comply with the specifications of paragraph (d)(1)(B) of Rule 1178 as shown below:

(d)(1)(B)

(i) -- The proposed surge tank will be equipped with a metallic-shoe type primary seals.

(ii) -- The secondary seals on the proposed surge tank will be rim-mounted and will not be attached to the metallic shoe seals.
(iii) -- The gaps between the metallic shoe seals and the tank shell are expected to be within the distances specified by this paragraph.
(iv) -- The gaps between the secondary seals and the tank shell are expected to be within the distances specified by this paragraph.
(v) -- The metallic-shoe seals will be installed with one end extended at least 4 inches into the stored liquids and the other end extending at least 6 inches above the stored liquid surface.
(vi) -- The geometry of the metallic-shoe seals will comply with the configuration specified by this paragraph.
(vii) -- The primary seal envelope will be made accessible for unobstructed inspection by the Executive Officer along its circumference.
(viii) -- The secondary seal will be installed to allow access for probes up 1.5 inches in width to be inserted for gaps measurements in the primary seal.
(ix) -- The secondary seal and the primary seal envelope are not expected to have any holes, tears or openings.
(x) -- The seals of the proposed surge tank will cover the annular space between the internal floating roof and the shell wall of the proposed tanks in a continuous fashion, with no visible gaps at all times except during preventive maintenance, repair, or inspection periods allowed by this paragraph.
(xi) – PLAMT will install primary and secondary seals for the proposed surge tank that are identified in the current seal list approved by the Executive Officer for compliance with this rule. A condition will require as-built drawings for the tank is submitted to demonstrate compliance with this requirement.

(E) -- The concentration of organic vapor in the vapor space above the internal floating-type cover will be required by permit condition not to exceed 30 percent of its lower explosive limit (LEL).

The proposed surge tank is also expected to comply with all other applicable requirements of Rule 1178 such as identification, monitoring, maintenance and recordkeeping requirements. Therefore, the proposed surge tank is expected to meet the BACT requirement for its source category.

For the proposed marine bulk unloading facility, BACT are also required on fugitive components. Fugitive emission sources associated with Berth 408 will be equipped with the following BACT:

Component	Service	BACT
Valve	Light liquid	Leakless valves if commercially available
Pump	Light liquid	Double or tandem seals with barrier fluid and closed vent system, or dry tandem seal and closed

		vent system
Flange & Connector	Light liquid	Meeting ANSI/API standards

Many of the valves proposed for the marine bulk unloading facility will not be leakless valves as shown by the valve list provided by PLAMT for this project (see Attachment VII). PLAMT indicated that leakless valves cannot be employed for these valves because they are pressure safety valves, control valves or torsional stem motion valves. The reasons for not equipped the components with BACT have been reviewed and are deemed to be qualified for BACT exemption.

The proposed in-line air eliminator system has uncontrolled VOC emissions greater than 1.0 lb per day. As a result, it is also subject BACT requirement. Carbon replacement will be required by permit when VOC concentration is greater than 500 ppmv at the outlet of the first carbon adsorber. As a result, VOC emissions for the in-line air eliminator system are not expected to exceed 500 ppmv at the outlet of the secondary carbon adsorber. BACT requirement for the similar equipment is usually a VOC concentration limit of 500 ppmv. Therefore, the proposed in-line air eliminator system meets BACT requirement.

Modeling

Except for ship emissions and emergency IC engine, all of the proposed equipment for this facility will emit only VOCs. Modeling of VOC is not required. Emissions from ship and emergency equipment are exempt from modeling requirements.

Offset

The applicant has provided following regular ERCs to offset the increases in emissions from the proposed permit units. All of the ERCs were originated from Zone 1.

Pollutant	Amount lbs/day	ERC Certificate
NOx	658	Various certificates including AQ006337, AQ006138, AQ005158, AQ005159, AQ005157, AQ009186, AQ009188, AQ009190, AQ009192
VOC	100	AQ006006
SOx	142	AQ005878, AQ005364 AQ005363

PLAMT is not required to offset PM10 emissions for the proposed equipment. The total PM10 emissions for facility T1000 equals to 2.86 tons/yr. The emissions are exempt from offset pursuant to Rule 1304(d)(1)(A).

Facility Compliance

Facility T1000 is a new facility that has not begun operation. Therefore, it is not yet subject to any rules or regulation of the AQMD.

Major Polluting Facilities

Facility T1000 is expected to be a major polluting facility as defined by Rule 1302(p), and thus is subject to additional requirements specified by paragraph (b)(5) of this rule.

An analysis of alternative sites, sizes and control technologies was considered in the Final Supplemental Environmental Impact Statement (SEIS)/Supplemental Impact Report (SEIR), which was certified by the Los Angeles Board of Harbor Commissioner, the lead agency for this project, on November 20, 2008. As discussed in the Compliance Review section above, PLAMT operates all of its major stationary sources in the State of California in compliance with all applicable emission limitations and standards under the Clean Air Act. Finally, the NOx and PM10 emissions from ship and IC engine are not subject to modeling requirements of this rule. Therefore, modeling for plume visibility is not required.

Compliance with this rule is expected.

Rule 1401 NEW SOURCE REVIEW OF AIR TOXIC CONTAMINANTS
(Amended 3/4/05)

The application for the proposed bulk marine unloading facility was deemed completed on March 6, 2006. Therefore, it is subject to the version of this rule that was amended on March 4, 2005. The other applications were deemed complete in August 2010. As a result, the proposed in-line air eliminator system and contact water tank are subject the version of Rule 1401 amended on June 5, 2009.

MICR and Cancer Burden

As shown in Toxic Air Contaminants & Rule 1401 Health Risk Assessment section, none of the proposed equipment is expected to result in an MICR one in a million or greater. Cancer burden only needs to be calculated if the MICR is greater than one in a million.

Chronic/Acute Hazard Index

As shown in Toxic Air Contaminants & Health Risk Impacts section, none of the proposed equipment is expected to result a cumulative increase in total chronic hazard index or acute hazard index for any target organ system greater than one at any receptor location.

Risk per Year

The maximum risk per year allowed for sources with T-BACT equal to 1/70 multiplied by 10 x 10^{-6} which is one-seventh (1/7) cancer case increase per year in a million people population. For the MICR of 2.2 x10^{-7}, the risk per year equal to 0.022/7 cancer case increase per year in a million people population. Since the MICR of 2.2 x 10^{-7} is the greatest MICR increase for any receptor

locations in residential areas from any permit units at this facility, it can be concluded that none of the risks per year exceeds the allowable limit specified by this paragraph.

Compliance with this rule is expected.

Regulation XVII Prevention of Significant Deterioration (PSD)

Effective upon delegation by EPA, AQMD Regulation 17- Prevention of Significant Deterioration applies to preconstruction review of stationary sources that emit attainment air contaminants. Effective July 25, 2007, the District was granted a limited delegation authority from the EPA for reviewing compliance with Prevention of Significant Deterioration (PSD) Program. Since this facility is a new PSD source, the District is responsible for determining PSD compliance according the agreement between the District and EPA signed on July 25, 2007.
This facility is a new stationary source that will emit only VOC emissions under normal operation. The only equipment emits attainment air contaminants (NO2, SO2 and CO) is the proposed emergency IC engine which is expected to comply with all applicable rules and regulation of the District as discussed in Attachment I. The engine will also meet EPA Tier II exhaust emission standards which is BACT for its source category. Since the potential to emit from the proposed T1000 facility is below the PSD threshold, no further PSD analysis is required. Therefore, the facility is in compliance with PSD.

In determining PSD applicability, emissions from ship are not included in the potential to emit (PTE) for facility T1000 for the following reasons:

- Rule 1702(p) defines PTE as "...the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. ..." [Emphasis added] and it specifically excludes secondary emissions. Rule 1702(r) defines secondary emissions as "emissions which would occur as a result of the construction or operation of a major stationary source or major modification itself. For the purpose of this regulation, secondary emissions must be specific, well defined, quantifiable and impact the same general area as the stationary source or modification which causes the secondary emissions."
This rule further states that "Secondary emissions may include, but are not limited to:(1) emissions from ships or trains coming to or from the new or modified stationary source, and (2) emissions from any offsite support facility which would not otherwise be constructed to increase its emissions as a result of the construction or operation of the major stationary source or major modification."

- In determining PSD applicability for the proposed Long Beach LNG Import Terminal, the EPA had also made an interpretation that the

potential to emit from that facility includes only emissions from stationary sources, not emissions from ship as shown by the letter from Ms. Deborah Jordan, Director of EPA Region IX, to Sound Energy Solution (SES) dated December 15, 2006.

PSD applicability for GHGs—According to Tailoring Rule Step 1, PSD analysis is not required if a new source does not trigger PSD through another regulated NSR pollutant. As indicated above, facility T1000 is not subject to PSD analysis based on NO2, SO2 and CO emissions. Therefore, PSD applicability for GHGs does not trigger even when GHGs emissions were not determined for facility T1000.

Rule 2001 APPLICABILITY
(Amended 5/06/05)

The sources of NOx and SOx emissions from this facility include ship emissions occurred during unloading of cargo and while at berth, non-propulsion ship emissions occurred within Coast Waters under District's jurisdiction and the emissions from the proposed emergency IC engine. Pursuant to Rule 2001(b)(1) and (b)(2), the ship emissions are not included in the four or more tons per year of NOx and SOx criteria for determining to include in RECLAIM. As shown in the Criteria Pollutant Emissions section, NOx and SOx emissions from the proposed emergency IC engine equal to only 1265 lbs/yr and 1.6 lbs/yr, respectively. Therefore, Regulation XX does not apply to the new facility T1000. Additionally, PLAMT has requested that facility T1000 be excluded from RECLAIM.

Rule 3001 APPLICABILITY
(Amended 11/14/97)

PLAMT Facility T1000 is a Phase II Title V facility. On September 16, 2010, PLAMT submitted an initial Title V application (A/N 514918) to the Executive Officer. The Title V permit for this facility is being proposed at the same time as the issuance for Permits to Construct for this project. The public review period is expected to start on February 15, 2011 and will end on April 1, 2011. The final Title V permit is expected to be issued by the District at end of the public comment period.

STATE REGULATIONS

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Pier 400 Project could have significant impacts on the air quality and other environmental aspects. PLAMT was required to prepare a Supplemental Environmental Impact Statement (SEIS)/ Supplemental Environmental Impact Report (SEIR) to address and mitigate all environmental

impacts. The Los Angeles Harbor Department and Army Corps of Engineers are the lead agencies for the project. A draft SEIS/SEIR was prepared for the project which includes the new marine terminal T1000 and tank farm facility T2000. On May 28, 2008, the lead agencies circulated the draft SEIS/EIR for public review. A public meeting for the proposed project was jointly conducted by the lead agencies on June 26, 2008 at the Board of Harbor Commissioner Hearing Room. The public review period closed on August 13, 2008. Public comments and responses were incorporated into the Final SEIS/SEIR which was certified on November 20, 2008.

FEDERAL REGULATIONS

STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

40 CFR60 Subpart Kb (Source: 52 FR 11429, April 8, 1987, unless otherwise noted)

STANDARDS OF PERFORMANCE FOR VOLATILE ORGANIC LIQUID STORAGE VESSELS (INCLUDING PETROLEUM LIQUID STORAGE VESSELS) FOR WHICH CONSTRUCTION, RECONSTRUCTION, OR MODIFICATION COMMENCED AFTER JULY 23, 1984

The proposed internal floating roof surge tank is subject to this subpart. Additionally, the tank has a capacity greater than 151 m^3 (949.8 barrels), and will store volatile organic liquids with a true vapor pressure as high as 10 psia. Therefore, the permit unit is subject to the requirements specified by paragraph (a)(1) of section §60.112b.

(a)(1) -- A fixed roof in combination with an internal floating roof

(i) -- The internal floating roof of surge tank T1000-S1 is expected to be floating on the liquid surface at all times except during filling, emptying and refilling. When the roof is resting on the leg supports, the process of filling, emptying, or refilling is expected to be continuous and be accomplished as rapidly as possible. If the process is not continuous, the tank is required to vent to vapor destruction unit (VDU) for air pollution control.

(ii) -- The proposed surge tank will be equipped with a mechanical shoe seal, which is listed as one of the three closure devices specified by this paragraph.

(iii) -- Except for vacuum breakers, each opening in the internal floating roof of the surge tanks will extend into the liquid surface.

(iv) -- Except for leg sleeves, automatic bleeder vents, column wells, sample wells, and stub drains, all other openings in the roofs will be equipped with a gasketted cover or seal that will be closed at all times, with no visible gaps, except when the cover or seal must be opened for access.

(v) -- Each automatic bleeder vent will be gasketted and maintained in a closed position at all times when the roof is floating. The vacuum breakers will be set to open only when the roof is being floated off or is being landed on the roof leg supports.

(vi) -- The surge tank will not be equipped with rim vents according to the applicant. Therefore, this paragraph does not apply to the permit units.

(vii) -- Each sample well will be equipped with a gasketted cover. The covers will be kept closed at all times with no visible gap except when personnel needs to access the hatches or

wells. Gasketted cover is equivalent or better than slit fabric cover that covers at least 90 percent of the opening. Therefore, the tank is expected to be in compliance with this paragraph.
(viii) -- Fixed-roof support columns will penetrate the internal floating roofs of the surge tank. Each fixed-roof column will be equipped with a gasketted sliding cover and a wiper.
(ix) -- The surge tank will not have a penetration for passage of a ladder according to the applicant. Instead, roll-up ladders will be used to access the tanks. Therefore, this paragraph does not apply to the proposed tanks.

Since the proposed surge tank will also be subject to District Rule 1178, it is also expected to comply with all other applicable requirements of this subpart such as inspection, monitoring, maintenance, recordkeeping and reporting requirements.

Compliance with this subpart is expected.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

40 CFR63 Subpart Y (Source: 40 CFR 48399, September 19, 1995)

NATIONAL EMISSION STANDARDS FOR MARINE TANK VESSEL LOADING OPERATIONS

No marine tank vessel loading operations will be permitted at the proposed Berth 408 unloading facility. As a result, Berth 408 is not an affected source as defined in section §63.561. Therefore, this subpart does not apply to the proposed marine bulk unloading facility.

COMPLIANCE ASSURANCE MONITORING (CAM)

40 CFR64 (Source: 62 FR 54940, October 22, 1997)

Pursuant to District Rule 1149, the proposed surge tank will be required to vent to a vapor control device when the roof rests upon its support legs after the tank has been emptied. The tank will also be subject to a VOC concentration limit of less than 5,000 ppmv prior to being open to the atmosphere. Furthermore, facility T1000 is a Title V facility which initial Title V application was received after April 20, 1998. However, the potential post-control VOC emissions of the surge tank will not be equal or greater than the major source definition of 10 tons per year. The potential post-control VOC emissions equals to only 145 lbs per year. Therefore, CAM evaluation is not required. (Under normal operation, the surge tank will not vent to a vapor destruction unit. For the purpose of determining applicability, the surge tank's potential post-control VOC emissions do not include VOC emissions from normal operation).

RECOMMENDATION

The proposed new construction of the marine bulk unloading facility Berth 408, in-line air eliminator, emergency IC engine and contact water tank are expected to comply with all applicable rules or regulations of the District. Furthermore, facility T1000 is a new facility and thus does not have any violations. Therefore, issuance of four Permits to Construct for this project is recommended with the following conditions.

FACILITY WIDE CONDITION(S)

1. CONSTRUCTION AND OPERATION OF THE PERMITTED EQUIPMENT AT THIS FACILITY SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATIONS UNDER WHICH THE FACILITY PERMIT IS ISSUED EXCEPT WHEN OTHERWISE SPECIFIED IN THIS PERMIT.

   [RULE 204]

2. ALL EQUIPMENT UNDER THIS FACILITY PERMIT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

   [RULE 204]

3. THE OPERATOR OF THIS FACILITY SHALL COMPLY WITH AIR-QUALITY-RELATED MITIGATION MEASURES STIPULATED IN THE "FINDINGS OF FACTS, STATEMENT OF OVERRIDING CONSIDERATIONS" AND "MITIGATION MONITORING AND REPORT PROGRAM (MMRP)" DOCUMENTS WHICH ARE PARTS OF FINAL SUPPLEMENTAL IMPACT STATEMENT/FINAL SUBSEQUENT ENVIRONMENTAL IMPACT REPORT (FINAL SEIS/SEIR) CERTIFIED BY THE BOARD OF HARBOR COMMISSIONER ON NOVEMBER 18, 2008.

   [CA PRC CEQA, 11-23-1970]

4. EXCEPT FOR OPEN ABRASIVE BLASTING OPERATIONS, THE OPERATOR SHALL NOT DISCHARGE INTO THE ATMOSPHERE FROM ANY SINGLE SOURCE OF EMISSIONS WHATSOEVER ANY AIR CONTAMINANT FOR A PERIOD OR PERIODS AGGREGATING MORE THAN THREE MINUTES IN ANY ONE HOUR WHICH IS:

   A. AS DARK OR DARKER IN SHADE AS THAT DESIGNATED NO. 1 ON THE RINGLEMANN CHART, AS PUBLISHED BY THE UNITED STATES BUREAU OF MINES; OR
   B. OF SUCH OPACITY AS TO OBSCURE AN OBSERVER'S VIEW TO A DEGREE EQUAL TO OR GREATER THAN DOES SMOKE DESCRIBED IN SUBPARAGRAPH (A) OF THIS CONDITION.

   [RULE 401]

5. THE OPERATOR SHALL NOT BURN OR PURCHASE ANY LIQUID FUEL FOR ANY STATIONARY SOURCE CONTAINING SULFUR COMPOUNDS IN EXCESS OF 0.05 PERCENT BY WEIGHT. ON OR AFTER JUNE 1, 2004, THE OPERATOR SHALL NOT PURCHASE ANY DIESEL FUEL FOR STATIONARY SOURCE CONTAINING SULFUR COMPOUNDS IN EXCESS 15 PPM BY WEIGHT AS SUPPLIED BY THE SUPPLIER.

   [RULE 431.2]

6. THE OPERATOR SHALL NOT USE ANY FUEL IN STATIONARY COMPRESSION IGNITION ENGINE UNLESS THE FUEL IS CARB DIESEL FUEL OR AN ALTERNATIVE DIESEL FUEL SPECIFIED BY AQMD RULE 1470.

[RULE 1470]

CONDITIONS FOR BULK MARINE UNLOADING FACILITY, BERTH 408 (A/N 451893)

1. The operator shall limit emissions from marine tanker vessels making calls at this facility as follows:

Contaminant	Emission Limit, lbs per calendar month
NOx	16,450
SOx	3542
PM10	578
VOC	505

Emissions from the marine tanker vessels shall include: (a) emissions from boilers and the non-propulsion portion of auxiliary engines while operating in-transit within three nautical miles from the coastline of the South Coast basin, and (b) emissions from auxiliary engines and boilers while the vessels are at berth (including but not limiting to offloading cargo and hoteling).

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

[RULE 1301(b)(2)-Offset, 5-10-1996]

2. The operator shall calculate the emissions per visit from auxiliary engines (also called ship service auxiliary generator) on-board marine tanker vessels making calls at this facility using the following equations, emission factors and procedures:

Equation #2-1: $AE, \text{ lbs/visit} = AE_{\text{in-transit}} + AE_{\text{hotel}}$

Where:

AE = auxiliary engine's visit emissions;

$AE_{\text{in-transit}}$ = auxiliary engine's visit in-transit emissions while a marine vessel is in-transit on arrival and on departure (within the three nautical miles District Coastal Waters boundary)

AE_{hotel} = auxiliary engine's visit hoteling emissions;

Equation #2-2: $$AE_{\text{in-transit}}, \text{ lbs/visit} = \frac{EF \times 350 \times t(\text{in - transit})}{453.6}$$

$AE_{\text{in-transit}}$ = auxiliary engine's visit emissions while a marine vessel is in-transit on arrival and on departure (within the three nautical miles District Coastal Waters boundary); EF = emission factor in unit of g/kW-hr; 350 = total kilowatts of energy demand in auxiliary engines while a marine vessel is in-transit on arrival and on departure (within the three nautical miles District Coastal Waters boundary); t(in-transit) = time duration in transit (on arrival and on departure) firing on the fuel in hours; 453.6 = conversion factor from grams to pounds. The operator shall record the times and dates when the vessel enters the three nautical mile coastal water boundary, arrival at berth (all fast), departure (first line off) from berth and leaving the three nautical mile coastal water boundary.

Equation #2-3: AE_{hotel}, lbs/visit $= \frac{EF \times E_{hotel}}{453.6}$

Where: AE_{hotel} = auxiliary engine's visit hoteling emissions; EF = emission factor in unit of g/kW-hr; E_{hotel} = total visit hoteling energy demand of auxiliary engines in unit of kW-hr per visit; 453.6 = conversion factor from grams to pounds.

The following emission factors (g/kW-hr) shall be used to compute the emissions:

NOx	SOx	PM10	VOC
13.9	4.2425*%S	0.25+0.3413x(%S-0.1)	0.4

The SOx and PM10 emission factors shall be calculated from actual percent sulfur by weight (%S) of the fuel using the formula shown above. The operator shall test the fuel(s) used in auxiliary engines for sulfur content using one of following methods: ASTM Method D4294, D2622, D5453, or any other equivalent test method approved in writing by the Executive Officer. SOx and PM10 emission factors shall be calculated using the highest sulfur content result. Whenever a test result for the sulfur content is not available, the operator shall assume the highest recorded sulfur content in the previous 12-month period.

The following methods for determining the energy demand factor, E_{hotel}, are listed in order of accuracy. Operator shall use the most accurate instrument available from the vessel in determining E_{hotel}.

Method #1: If a kW-hr meter is available for the auxiliary engines, the visit hoteling energy demand factor, E_{hotel}, for Equation #2-3 in Condition 2 shall be taken directly from the meter. The operator shall record the start and end kW-hr readings at arrival (all fast) and at departure (first line off) and calculate the total visit hoteling energy demand in kW-hr while the tanker vessel is at berth. In the event that a visit starts in one month and ends in the next month, the operator shall prorate the total visit hoteling energy demand kW-hr value using the hours of operation in each respective month.

Method #2: If the auxiliary engines are equipped with kW meter instead of kW-hr meter, the total visit hoteling energy demand factor, E_{hotel}, for Equation #2-3 in Condition 2 shall be calculated from the total kW energy demand multiplied by the total visit hours using Equation #2-4 below. The operator shall record the time and kW readings at arrival (all fast), at start of offloading pumps, one hour after pump start, at every four hours thereafter until shut down of offloading pumps and at departure (first line off). The operator shall calculate the total visit hoteling energy demand in kW-hr from the recorded data. In the event that a visit starts in one month and ends in the next month, the operator shall prorate the total visit hoteling energy demand kW-hr value using the hours of operation in each respective month.

Equation #2-4: E_{hotel} = Area(kW vs. time)

Where: E_{hotel} = total visit hoteling energy demand in unit of kW-hr; Area(kW vs. time) = area under the kW versus time graph.

Method #3: If the auxiliary engines are equipped with fuel meter instead of kW-hr meter or kW meter, the total visit hoteling energy demand factor, E_{hotel}, for Equation #2-3 in Condition 2 shall be calculated from the total visit hoteling fuel consumption of auxiliary engines using Equation #2-5 below. The operator shall record the start and end fuel readings at arrival (all fast) and at departure (first line off) and calculate the total visit hoteling fuel consumption in gallons while the tanker vessel is

at berth. In the event that a visit starts in one month and ends in the next month, the operator shall prorate the total visit fuel consumption value using the hours of operation in each respective month.

Equation #2-5: $E_{hotel} = Vol_{fuel} \times HHV_{fuel} \times density_{fuel} \times \frac{0.25}{3415} \times \frac{7.48 gal}{ft^3}$

Where: E_{hotel} = total visit hoteling energy demand in unit of kW-hr; Vol_{fuel} = total visit hoteling fuel consumption of the auxiliary engines in cubic feet; HHV_{fuel} = higher heating value of fuel in unit of Btu/lb; $density_{fuel}$ = density of the fuel in unit of pound per gallon; 1/3415 = conversion factor from Btu to kW-hr; 0.25 = assumed 25 percent thermal efficiency for the auxiliary engines. The operator shall test the fuel(s) used for higher heating value and density. The highest test results shall be used in Equation #2-5.

This method may also be used if the fuel usage of the auxiliary engines can be indirectly determined from fuel readings of a totalizing fuel meter minus the fuel meter serving the offloading boilers.

Method #4: If the auxiliary engines are not equipped with kW-hr meter, kW meter or fuel meter, the fuel consumed in auxiliary engines shall be measured by manually gauging the auxiliary engines' fuel tank. The total visit hoteling energy demand factor, E_{hotel}, for Equation #2-3 in Condition 2 shall be calculated from the total visit hoteling fuel consumption of auxiliary engines using Equation #2-5 and Method 3 above. The operator shall record the start and end fuel readings at arrival (all fast) and at departure (first line off) and calculate the total visit hoteling fuel consumption in cubic feet while the tanker vessel is at berth. In the event that a visit starts in one month and ends in the next month, the operator shall prorate the total visit fuel consumption value using the hours of operation in each respective month.

Method #5: If the tanker vessel has no instrument for determining E_{hotel}, then E_{hotel} for Equation #2-3 in Condition 2 shall be determined from the average of the last five usable vessel class recorded values normalized on a per 1000-barrel offloaded basis. "Vessel class recorded value" means the recorded value from the same class of vessel. Vessel classes are defined by dead-weight tonnage (DWT) ranges as specified in Condition 3. Only vessel class recorded values with ± 25 percent of the average shall be deemed usable. If there are less than five usable recorded values from the same vessel class, then the highest recorded value for the vessel class normalized on a per 1000-barrel offloaded basis shall be used.

Equation #2-6: $E_{hotel} = E_{hotel}(ave) \times V(product)$

Where: E_{hotel} = total visit hoteling energy demand in unit of kW-hr; $E_{hotel}(ave)$ = average of total visit hoteling energy demand from the last five total visit hoteling energy demands from the same class marine vessels in unit of kW-hr per 1000 barrels offloaded; V(product) = volume of product offloaded per visit in barrels. If there are less than five usable recorded E_{hotel} values, then $E_{hotel}(ave) = E_{hotel}(high)$; where $E_{hotel}(high)$ = highest total visit hoteling energy demand in auxiliary engines from past visits of the same class marine vessels in unit of kW-hr per 1000 barrels offloaded.

Method #6: If the tanker vessel has no instrument for determining E_{hotel}, and there are no historical data to calculate E_{hotel} using Method #5 above, then E_{hotel} for Equation #2-3 in Condition 2 shall be determined from the maximum continuous ratings (MCRs) of the auxiliary engines using Equation #2-7 below.

Equation #2-7: $E_{hotel} = MCR \times LF \times t_{hotel}$

Where: E_{hotel} = total visit hoteling energy demand in unit of kW-hr; MCR = total maximum continuous ratings of the auxiliary engines in kilowatts (kW); LF = load factor of the auxiliary engines which shall equal to 0.834; t_{hotel} = total number of hoteling hours.

[RULE 1303(b)(2)-Offset, 5-10-1996]

3. The operator shall calculate the total visit emissions from offloading boilers on-board marine tanker vessels making calls at this facility using following equations, emission factors and methods:

Equation #3-1: BE, lbs/visit = $BE_{non\text{-}offload} + BE_{offload}$ x [1- f(IGS)]

Where: BE = boiler's total visit emissions; $BE_{non\text{-}offload}$ = boiler's total visit emissions from non-offloading operations; $BE_{offload}$ = boiler's total visit emissions from offloading operations; f(IGS) = fraction of boiler's flue gas being routed to cargo tanks by the inert gas system.

Equation #3-2: BE, lbs/visit = EF x C_B x density x $\frac{\text{metric ton}}{1000\,\text{kg}} \times \frac{7.48\,\text{gal}}{\text{ft}^3}$

Where: BE = boiler's total visit emissions from non-offloading or offloading operation; EF = emission factor for the ship boilers selected from the table below in unit of kilogram of pollutant per metric ton fuel consumed; C_B = total visit consumption of the fuel by the boilers from non-offloading or offloading operation in cubic feet; density = density of the fuel in unit of pounds per gallon.

Equation #3-3: $f(IGS) = \frac{V_{product}}{C_B} \times \frac{1}{\text{density}} \times \frac{\text{lb}}{200\,\text{ft}^3} \times \frac{42\,\text{gal}}{\text{bbl}} \times \frac{\text{ft}^3}{7.48 gal} \times \frac{\text{ft}^3}{7.48 gal}$

Where: f(IGS) = fraction of the boiler's flue gas being routed to cargo tanks by inert gas system; $V_{product}$ = volume of product offloaded per visit in barrels; C_B = volume of the fuel consumed by the boilers per visit for offloading operations in cubic feet; density = density of the fuel in unit of pounds per gallon; 200 = cubic feet of flue gas produced from the combustion of one pound of fuel. If an inert gas generator is utilized instead of flue gas from the boilers or the inert gas system is not continuously operating during cargo offloading period, the f(IGS) shall equal to zero.

The following emission factors (kg pollutant per metric ton of fuel burned) shall be used with Equation #3-2:

Boiler Firing Rate	NOx	SOx	PM10	VOC
Equal or less than 100 MMBtu/hr	2.84	20*%S	0.33	0.04
Greater than 100 MMBtu/hr	3.40	20*%S	0.33	0.15

SOx emission factors shall be calculated from actual percent sulfur by weight (%S) of the fuel using above formula. The operator shall test the fuel(s) used in the boilers for sulfur content using one of following methods: ASTM Method D4294, D2622, D 5453, or any other equivalent method approved in writing by the Executive Officer. SOx emission factor shall be calculated using the highest sulfur content result. Whenever a test result for the sulfur content is not available, the operator shall assume the highest recorded sulfur content in the previous 12-month period.

The operator shall used emission factors of boilers less than and equal to 100 MMBtu/hr for Panamax and Aframax class vessels and emission factors of greater than 100 MMBtu/hr for Suezmax and VLCC

class vessels in calculating emissions from the boilers. Vessel classes are defined by dead-weight tonnage (DWT) as shown below.

The following methods for determining the visit fuel consumption factor, C_B, are listed in order of accuracy. Operator shall use the most accurate instrument available from the vessel in determining C_B.

Method #1: If the boilers are equipped with fuel meter, the total visit fuel consumption factor, C_B for Equation #3-3 in Condition 3 shall be taken directly from the meter. The operator shall record the start and end fuel readings at the three nautical mile coastal waters boundary, at arrival (all fast), at the start of cargo offloading and at the end of cargo offloading. The operator shall calculate the total visit fuel consumptions, C_B, for non-offloading and offloading operations in cubic feet. In the event that a visit starts in one month and ends in the next month, the operator shall prorate the total visit fuel consumption value using the hours of operation in each respective month.

This method may also be used if the fuel usage of the boilers can be indirectly determined from fuel readings of a totalizing fuel meter minus the fuel meter serving the auxiliary engines.

Method #2: If the boilers are not equipped with fuel meter, the fuel consumed in the boilers shall be measured by manually gauging the boilers' fuel tank. The operator shall record the start and end fuel readings at the three nautical mile coastal waters boundary, at arrival (all fast), at the start of cargo offloading and at the end of cargo offloading. The operator shall calculate the total visit fuel consumptions, C_B, for non-offloading and offloading operations in cubic feet. In the event that a visit starts in one month and ends in the next month, the operator shall prorate the total visit fuel consumption value using the hours of operation in each respective month.

Method #3: Only if the tanker vessel has no instrument for determining C_B, then C_B for Equation #3-2 in Condition 3 shall be determined from the average of the last five usable vessel class recorded values normalized on a per 1000-barrel offloaded basis as shown in Equation #3-4. "Vessel class recorded value" means the recorded value from the same class of vessel. Vessel classes are defined by dead-weight tonnage (DWT) rating as shown below. Only vessel class recorded values with ± 25 percent of the average shall be deemed usable. If there are less than five usable recorded values from the same vessel class, then the highest recorded value for the vessel class normalized on a per 1000-barrel offloaded basis shall be used.

Equation #3-4: $C_B = C_B\text{ (ave)} \times V\text{(product)}$

Where: C_B = total visit fuel consumption of boiler from non-offloading or offloading operation in cubic feet; C_B(ave) = average of total visit fuel consumptions of boiler from the last five total visit non-offloading or offloading operations for the same class marine vessels in unit of cubic feet per 1000 barrels offloaded; V(product) = volume of product offloaded per visit in barrels. If there are less than five usable recorded C_B values, then C_B (ave) = C_B(high); where C_B(high) = highest total visit fuel consumption of boiler from past visits of the same class marine vessels in unit of cubic feet per 1000 barrels offloaded.

Method #4: If the tanker vessel has neither a fuel meter nor a totalizing fuel meter, and there are no historical data for determining C_B using Method #3, the total visit fuel consumption factor, C_B for Equation #3-2 in Condition 3 shall be determined from default values using Equations #3-5 and #3-6 below.

Equation #3-5:

$$C_B(\text{non-offload}) = \left[t_{\text{transit}} + t_{\text{hotel}} - t_{pumpout}\right] \times \left[0.3 \times \frac{SFC}{1000} \times \frac{V(\text{product})}{t_{\text{pumpout}}} \times \frac{1}{density}\right] \times \frac{ft^3}{7.48\,\text{gal}} \times P$$

Where: C_B = total visit fuel consumption of the boilers for non-offloading operations in cubic feet, which include in-transit and warm-up boiler operation; $t_{transit/hotel/pumpout}$ = number of hours for these periods (in-transit time includes only on arrival time): vessel in-transit within the three nautical mile coastal water, vessel hoteling at berth and offloading cargo; 0.3 = assumed 30 percent of offload load; SFC = specific fuel consumption in pounds of fuel consumed by the boilers to offload 1000 barrels of product; V(product) = visit volume of product offloaded in barrels; density = density of the fuel in unit of pounds per gallon; P = 1.25 (25% margin of error included). For Equation #3-5, the operator shall use actual number of hours for in-transit, hoteling and offloading cargo periods, $t_{transit/hotel/pumpout}$, actual visit volume of product offloaded and actual density of the fuel.

Equation #3-6:

$$C_B(\text{offload}) = \frac{SFC}{1000} \times V(\text{product}) \times \frac{1}{\text{density}} \times \frac{ft^3}{7.48 gal} \times P$$

Where: C_B(offload) = total visit fuel consumed by the boilers for offloading operation in gallons; SFC(fuel) = specific fuel consumption in unit of pounds of fuel consumed per 1000 barrels of product offloaded; V(product) = visit volume of product offloaded in unit of barrels; density = density of the fuel in unit of pounds per gallon; P = 1.25 (25% margin of error included). For equation #3-6, the operator shall use actual visit volume of product offloaded and actual density of the fuel

The operator shall use the following default values for SFC factors (lbs fuel per 1000 barrels product offloaded) with Equations #3-5 and #3-6:

Tanker Class	Size Rating (DWT)	SFC (with shore side pumps)	SFC (without shore side pumps)
Panamax	Up to 70,000	63.5	185.8
Aframax	70,000 – 119,000	101.3	185.7
Suezmax	120,000 – 199,000	110.4	255.0
VLCC	200,000	113.9	358.3

[RULE 1303(b)(2)-Offset, 5-10-1996]

4. Ship boilers shall not be in operation at the end of cargo offloading operation.

   [RULE 1303(b)(2)-Offset, 5-10-1996]

5. The District shall be notified at least 10 days prior to arrival of a marine vessel which is not equipped with kW-hr meter, kW meter, fuel meter, totalizing fuel meter and thus requires gauging of fuel tanks or other less accurate methods for determining E_{hotel} or C_B factors specified by Conditions 2 and 3. If the facility receives notification of the arrival of such a vessel less than 10 days prior to arrival, the District shall be notified within 2 hours of the operator's confirmation that notification is required.

   [RULE 1303(b)(2)-Offset, 5-10-1996]

6. Marine tanker vessels making calls at this facility shall not use heavy fuel oil (HFO) in their ship service auxiliary IC engines/generators or boilers.

   [RULE 1303(b)(2)-Offset, 5-10-1996]

7. Marine tanker vessels making calls at this facility shall not bunker on fuels while at berth.

[RULE 1303(b)(2)-Offset, 5-10-1996]

8. The operator shall not offload finished petroleum products or carbon black oil (CBO) from marine tanker vessels at this facility.

[RULE 1401, 3-4-2005]

9. The operator shall limit the throughput of surge tank T1000-S1 to no more than 50 turnovers in any one calendar month:

The number of turnovers shall equal to L divided by h, where L is the total vertical one-way liquid surface level travel in feet per month and h is the height of the tank in feet. The tank height, h, shall be based the most recent strapping chart measurements. The one-way liquid surface level travel, L, shall be actual measurement taken by an automatic tank level gauge (ATLG) meeting the below requirements.

The operator shall install and maintain an automatic tank level gauge (ATLG) and recorder to record continuously the vertical movement of the tank level. For the purpose of this condition, continuous recording is defined as once per minute with no greater than 14 data point missing in any 24-hour period.

The operator shall calculate the total one-way liquid surface level movement, in feet, every day when cargo is being offloaded from a marine vessel and every calendar month.

The ATLG installed shall be verified once per quarter by comparing against a manual tank level measurement. If the ATLG differs from the manual tank level measurement by more than 1.0 inch or 0.8%, whichever is greater, the ATLG shall be repaired and put back into service within 10 days. While the ATLG is being repaired, throughput shall be determined by the surge tank's minute level data averaged for the five previous same vessel-size offloading operations, prior to the discovery of the discrepancy.

In the event of a failure or routine maintenance of the ATLG, the ATLG shall be repaired (if necessary) and put back into service within 10 days of the time that the ATLG failed or was removed from service for maintenance. While the ATLG is being repaired or maintained, the throughput shall be determined by the surge tank's minute level data averaged for the five previous same vessel-size offloading operations, prior to time that the ATLG went out of service.

[RULE 1303(b)(2)-Offset, 5-10-1996]

9. The operator shall not use surge tank T1000-S1 with crude oils having a true vapor pressure (TVP) of greater than 10 psia or partially refined petroleum/intermediate feedstock having a TVP of greater than 5 psia under actual storing conditions. To demonstrate compliance with this condition, the operator shall determine vapor pressures of the materials stored in the surge tank using one of the following methods:

a. Sample and test the material stored
b. Use engineering method to calculate the vapor pressure of material stored
c. Provide material safety data sheet (MSDS) that show vapor pressure of material stored

[RULE 1303(b)(2)-Offset, 5-10-1996; Rule 1401, 3-5-2005]

10. Surge tank T1000-S1 shall not process or store finished petroleum products and carbon black oil (CBO).

[RULE 1401, 3-4-2005]

11. The operator shall limit the number of roof landings for surge tank T1000-S1 to no more than 15 times in any one calendar month.

[RULE 1303(b)(2)-Offset, 5-10-1996]

12. The operator shall not rest the floating roof of surge tank T1000-S1 upon its support legs after the tank has been emptied unless:

The tank is connected to an air pollution control system with a minimum VOC destruction efficiency of 99.0% by weight which is in full use and has been issued a valid permit by the District.

The tank shall vent to the air pollution control system while its floating roof is resting on leg support until the VOC concentration within the tank is reduced to less than 5,000 ppmv, measured as methane, for at least one hour after the shutdown of the air pollution control system.

The operator may elect not connecting surge tank T1000-S1 to the air pollution control device if the tank contained or last contained organic liquid with a Reid vapor pressure (RVP) of 0.5 psia or less under actual storage condition before being emptied. The operator shall maintain and make available to the Executive Officer upon request RVP data of the liquid stored in the tank before it is emptied.

[RULE 1149, 5-2-2008]

13. Surge tank T1000-S1 is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	463

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1149
VOC	40 CFR60	Kb

[RULE 1149, 5-2-2008; RULE 463, 5-6-2005; 40CFR 60 SUBPART Kb, 10-15-2003]

14. The operator shall construct, operate, and maintain the surge tank as follows:

(a) All roof openings and fittings for the internal floating-type cover shall meet the requirements of Rule 1178 (d)(1)(A)(i) through (d)(1)(A)(xiv), as applicable.
(b) The rim seals for the internal floating-type cover shall meet the requirements of Rule 1178 (d)(1)(B)(i) through (d)(1)(B)(xi), as applicable.
(c) Complete gap measurements of the rim seal system shall be performed by District certified personnel if the tank is emptied and degassed for a continuous period of 10 days or more. Measurements shall be conducted by District certified personnel in accordance with Rule 1178 Attachment A – Inspection Procedures and Compliance Report Forms. Once completed, the next gas measurements are not be required for another five years; but complete gap measurements of the rim seal system shall be conducted at least once every 10 years
(d) The concentration of organic vapor in the vapor space above the internal floating-type cover shall not exceed 30% of its lower explosive limit (LEL). The LEL levels in the vapor space above the

internal floating-type cover shall be measured by District certified personnel on a semiannual basis. Measurements shall be conducted by District certified personnel in accordance with Rule 463 Attachment B – Inspection Procedures and Compliance Report Form, Part E.

[RULE 1303(a)(1)-BACT, 5-10-1996; Rule 3004 (a)(4) – Fenceline Monitoring, 12-12-1997]

16. The following BACT requirements shall apply to VOC service fugitive components associated with the marine bulk unloading facility covered by application number(s) 451893:

All sampling connections shall be closed-purge, closed loop, or closed-vent systems.

All valves in VOC service shall be leakless type, except those specifically exempted by Rule 1173 or approved by the District in the following applications: heavy liquid service, control valves, instrument piping/tubing, applications requiring torsional valve stem motion, applications where valve failure could pose safety hazard (e.g., drain valves with valve stems in horizontal position), retrofits/special applications with space limitations, and valves not commercially available.

For the purpose of this condition, leakless valve shall be defined as any valve equipped with sealed bellows or equivalent valve approved in writing by the District prior to installation.

All components in VOC service as defined by Rule 1173, except valves and flanges shall be inspected quarterly using EPA Reference Method 21. All valves and flanges in VOC service except those specifically exempted by Rule 1173 shall be inspected monthly using EPA Method 21. Components shall be defined as any valve, flange, fitting, pump, compressor, pressure relief device, diaphragm, hatch, sight-glass, and meter, which are not exempted by Rule 1173.

The following leaks shall be repaired within 7 calendar days -- all light liquid/gas/vapor components leaking at a rate of 500 to 10,000 ppm, and heavy liquid components leaking at a rate of 100 to 500 ppm and greater than 3 drops/minute, unless otherwise extended as allowed under Rule 1173.

The following leaks shall be repaired within 2 calendar days -- any leak between 10,000 to 25,000 ppm, any atmospheric PRD leaking at a rate of 200 to 25,000 ppm, unless otherwise extended as allowed under Rule 1173.

The following leaks shall be repaired within 1 calendar day -- any leak greater than 25,000 ppm, heavy liquid leak greater than 500 ppm, or light liquid leak greater than 3 drops per minute.

If 98.0 percent or greater of the valve and flange population inspected is found to leak gaseous or liquid volatile organic compounds at a rate less than 500 ppmv for two consecutive months, then the operator may change inspection frequency to quarterly inspection with the written approval of the Executive Officer. Leakless valves may be excluded from the valve count.

The operator shall revert from quarterly to monthly inspection program if less than 98.0 percent of the valve and flange population inspected is found to leak gaseous or liquid volatile organic compounds at a rate less than 500 ppmv. Leakless valves may be excluded from the valve count.

The operator shall keep records of the quarterly and monthly inspections, subsequent repairs, and re-inspections, in a manner approved by the District.

The operator shall provide to the District, prior to initial startup, a list of all non-leakless type valves that were installed. The list shall include the tag numbers for the valves and reasons why leakless valves

were not used. The operator shall not startup the equipment prior to the District's approval for the use of all non-leakless valves.

The operator shall provide to the District, no later than 90 days after initial startup, a recalculation of the fugitive emissions based on actual components installed and removed from service. The operator shall also submit a complete, as built, piping and instrumentation diagram(s) and copies of requisition data sheets for all non-leakless type valves with a listing of tag numbers and reasons why leakless valves were not used.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996]

17. This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1173

[RULE 1173, 6-1-2007]

18. The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

Total volume of product in barrels per day and type of product offloaded by this facility.

Characteristics of each marine tanker vessel making call at this facility including names, deadweight (DWT), maximum rated capacities and total units of ship service auxiliary engines/generators and ship boilers, cargo capacity, numbers of cargo offloading pumps.

Tanker activity information including date and time when the marine tanker vessel enters and leaves the coastal waters within the three nautical miles boundary; hoteling and offloading product.

Characteristics of the fuel(s) fired on by the auxiliary engines and boilers including test results for weight percent of sulfur, density (lbs/gallon), and higher and lower heating values (MMBtu/lb) if being used in calculating emissions.

Identification/description of the source for inert gas utilized to prevent explosion in cargo tanks.

Data collected as required by Condition Nos. 2 and 3 for calculating emissions.

Material Safety Data Sheet (MSDS) of any products other than crude oil being offloaded by this process.

Surge Tank T1000-S1's throughput, vapor pressure of stored liquid, and other records required to demonstrate compliance with permit conditions.

The start and end dates and times when surge tank T1000-S1 has a roof-landing event including the numbers of degassing hours.

[RULE 1303(b)(2)-Offset, 5-10-1996]

19. The operator shall provide to the District the following items:

Final drawings and specifications of the equipment installed including but not limited to process flow diagrams (PFD), process and instrumentation diagrams (P&ID), final drawings and/or specifications of

tank rim seals, deck fittings, floating roof and all other roof openings for surge tank T1000-S1. All items shall be submitted to the District within 60 days after installation.

[RULE 1303(b)(2)-Offset, 5-10-1996]

CONDITIONS FOR EMERGENCY IC ENGINE GENERATOR (A/N 512041)

1. For the purpose of this permit, an equivalent engine is an internal combustion engine that meets the same or lower emissions limits as Cummins engine, model 2000DQKA and meets the emission limits specified in Title 13 California Code of Regulations Section 2423.

2. The engine is subject to all applicable requirements of SCAQMD Rules 431.2, 1470 and 40CFR 60 Subpart IIII and 40CFR 63 Subpart ZZZZ.

3. This engine shall not operate more than 200 hours in any one year, which includes no more than (a) 50 hours in any one year for maintenance and testing purpose; and (b) No more than 4.2 hours in any one calendar month for maintenance and testing.

4. An operational non-resettable totalizing time meter shall be installed and maintained to indicate the engine elapsed operating time.

5. The operator shall restrict the operation of this equipment as follows:

   In addition to maintenance and testing of this engine, this engine shall only be used to provide electrical power to either portable operations or emergency power to stationary sources.

   Portable operations are those where it can be demonstrated that because of the nature of the operation, it is necessary to periodically move the equipment from one location to another.

   Emergencies at stationary sources are those that result in an interruption of services of the primary power supply or during stage II or III electrical emergencies declared by the California Independent System Operator.

6. The operator shall keep a log of engine operations documenting the total time the engine is operated each month and the specific reason for operation as:

   A. Emergency Use
   B. Maintenance and testing
   C. Other operating hours (describe the reason for the operation)

   In addition, for each time the engine is manually started, the log shall include the date of engine operation, the specific reason for operation, and the totalizing hour meter readings (in hours and tenths of hours) at the beginning and the end of the operation.

   On or before January 15th of each year, the operator shall record in the engine operating log:

   a. The total hours of engine operation for the previous calendar year, and
   b. The total hours of engine operation for maintenance and testing for the previous calendar year.

7. Engine operation log(s) shall be retained on site for a minimum of five calendar years and shall be made available to the Executive Officer or representative upon request.

CONDITIONS FOR IN-LINE AIR ELIMINATOR SYSTEM (A/N 512791)

1. The operator shall use this equipment to receive vapor accumulated in the lines prior to offloading of cargo from a marine tanker vessel.

   [RULE 1401, 6-5-2009]

2. The operator shall limit the concentration of volatile organic compounds (VOCs) at the outlet of the last carbon adsorber to less than 50 ppmv.

   [RULE 1303(a)(1)-BACT, 5-10-1996]

3. The operator shall periodically monitor the concentration of volatile organic compounds (VOCs) at the outlet of the primary carbon adsorber according to the following specifications

   The operator shall monitor using EPA Reference Method 21 with a District approved hydrocarbon detection instrument calibrated in ppmv methane.

   The operator shall monitor at the start of each cargo offloading event and not less than once every month. If no cargo offloading event is scheduled for the month, the VOC monitor may be conducted at anytime.

   [RULE 1303(a)(1)-BACT, 5-10-1996]

4. The operator shall replace the spent carbon in the adsorber with fresh activated carbon within 24 hours whenever breakthrough occurs.

   For the purpose of this condition, breakthrough occurs when the hydrocarbon monitor reading pursuant to Condition 3 indicates a concentration greater than 500 ppmv at the outlet of the primary carbon adsorber.

   Carbon replacement shall be conducted as follows: the adsorber with fresh activated carbon shall become the new secondary adsorber, and the previous secondary adsorber shall take the place of the primary secondary adsorber.

   The operator shall keep all spent carbon in a tightly covered container , which shall remain closed except when it is being transferred into or out of the container.

   [RULE 1303(a)(1)-BACT, 5-10-1996, RULE 1303(b)(2)-Offset, 5-10-1996]

5. This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1173

   [RULE 1173, 2-6-2009]

6. The operator shall provide to the District the following items:

   Final drawings and specifications of the in-line air eliminator system to the District within 60 calendar day after its installation. The drawing shall show the location of the air eliminator vessel and its air pollution control equipment within facility T1000.

[RULE 1303(b)(2)-Offset, 5-10-1996]

CONDITIONS FOR OILY CONTACT WATER STORAGE TANK (A/N 513781)

1. The storage tank shall be vented to the carbon adsorption canisters at all times.

2. The operator shall limit the throughput to no more than 26,000 barrel(s) in any one calendar month.

   To comply with this condition, the operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

   Tank throughput in barrels per month.
   Vacuum truck records

3. The operator shall monitor the concentration of volatile organic compounds (VOCs) at the outlet of the primary carbon adsorber whenever the tank is being filled. The operator shall monitor using EPA Reference Method 21 with a District approved hydrocarbon detection instrument calibrated in ppmv methane.

4. In the event the OVA analyzer reaches 500 ppmv, the carbon in the primary carbon canister shall be replaced with fresh activated carbon or, the secondary canister becomes the primary canister and the replenished canister becomes the secondary canister. The primary canister shall be replaced within 72 hours after the initial discovery of 500ppmv. A log shall be maintained to record the sequential position of each fresh carbon canister and the date each carbon canister is replenished and/or re-sequenced.

5. This equipment shall only be used to store storm water, and the liquid stored in this equipment shall not exceed VOC content of 10 percent by weight pursuant to Rule 1173(l)(1)(D)—amended February 6, 2009. Annual records shall be retained to show compliance with this condition and shall be made available to the Executive Officer.

6. The activated carbon used in the primary and secondary carbon canisters shall have a carbon tetrachloride activity number not less than 60% as measure by ASTM Method D3467-99 or a butane activity number of not less than 23.5% as measured by ASTM Method 5288-92.

7. Spent carbon removed from the carbon adsorption system shall be maintained or stored in closed containers prior to removal from this site.

8. This tank is subject to all applicable requirements of SCAQMD Rules 463.

9. The storage tank shall not be used to receive petroleum liquids as defined in 40 CFR60 Subpart Kb.

Appendix A

EMISSION CALCULATIONS FOR BERTH 408

1. Fugitive Emissions

The fugitive emissions are calculated by multiplying the shown emission factors by the number of components as shown below. Emission factors are derived using Capcoa Revised 1995 EPA Correlation Equations and Factors for Refineries and Marketing Terminals with a 500 ppmv screening value.

Table 1 -- Emissions from Fugitive Components

New Fugitive Sources + BACT Installed	Service	Emission Factor* per source (lb/yr)	Number of Sources	Emissions (lb/yr)
Valves + Sealed bellows	Gas/vapor, light liquid	0	213	0.0
Valves + Low emission ≤ 500 ppm, or + Live loaded with dual seal system	Gas/vapor	4.55	0	0.0
	Light liquid	4.55	51	1102
	Heavy liquid	4.55	0	0.0
Pumps + Sealless type	Light liquid	0	0	0.0
Pumps +Double or tandem mechanical or +Dry running with closed vent system	Light liquid	46.83	4	624
Pumps + Single mechanical seal with flush cooling	Heavy hot liquid	46.83	0	0.0
Compressors + Closed vent system	Gas/vapor	9.09	0	0.0
Flanges (fittings, hatches, sight-glass, meters, etc...) + ANSI / API standards	All	6.99	107	699
Threaded connectors	All	2.86	0	0.0
Total VOC emissions				
lb/yr				1167
30-day average, lb/day				3.25
Maximum daily, lb/day				3.20
lb/hr				0.13

* Fugitive emission factors are derived using EPA Correlation Equation Method (1996) with a screening value of 500 ppmv.

2. Emissions from Surge Tank S-1

Emissions from surge tank S1 are calculated using US EPA TANKS 4.09d program and below assumptions:

1. The floating roof of the surge tank will be maintained at the 25-foot level during offloading of liquid cargo. After offloading is completed, liquid level of surge tank S1 will drop from 25 feet operating level to zero.
2. Liquid level of the surge tank will rise about 30 inches and drop 30 inches every ten minutes during offloading. This results in a 15 foot drop every hour.
3. Offloading liquid cargo of a VLCC-size vessel will take 24.8 hours; for an Aframax and Suezmax vessels, it will take 15 and 15.3 hours, respectively. It is estimated that a Panamax vessel will offload in 11 hours.
4. The proposed marine terminal will offload two VLCC marine tanker vessels, three Suezmax vessels, three Aframax vessels and one Panamax vessel in a busiest month.

Consequently, the number of turnovers per month for the surge tank is calculated as followed:

$$\text{Turnovers}_{\text{surge tank}} = 2\times\frac{(24.8\times15+25)\text{ft}}{50\text{ ft}}+3\times\frac{(15.3\times15+25)\text{ft}}{50\text{ ft}}+3\times\frac{(15\times15+25)\text{ft}}{50\text{ ft}}+1\times\frac{(11\times15+25)\text{ft}}{50\text{ ft}}$$

$$\text{Turnovers}_{\text{surge tank}} = 49.95\ \frac{\text{turnovers}}{\text{month}}$$

The surge tank will be equipped with an automatic level gauge which monitors the tank's liquid level continuously during offloading of liquid cargo. Emissions calculated for compliance to the NSR emission cap limits will be required by permit condition to use actual number of turnovers recorded by the automatic level gauge. The products processed by the surge tank are similar to those proposed for storage tanks. For crude oil, PLAMT proposes a vapor pressure limit of 10 psia. For partially refined petroleum/intermediate feedstock, PLAMT has agreed to a vapor pressure limit of 5 psia. As shown in Table 2 below, processing crude oil only for the entire month will result in the highest VOC emissions for the surge tank. Consequently, the potential to emit (PTE) emissions for surge tank S-1 are determined on the basis of processing crude oil for an entire month.

Table 2 -- Emissions from Surge Tank S-1 (Normal Operation)

VOC Emission Rate	Crude Oil	Intermediate Feedstock
30-day ave, lb/day	**50.7**	**19.7**
Annual, lb/yr	18,188	7,071
Maximum daily, lb/day	50.0	19.4
Hourly, lb/hr	2.08	0.81

In addition to normal operation emissions, there will also be emissions from tank degassing operation when the surge tank needs to be drained-dry and cleaned on occasions such as service

changing from crude oil to feedstock. PLAMT has confirmed that the surge tank will not require roof landing under normal operation. There will not be a regular drained-dry and cleaning operation for the surge tank. For purpose of operation flexibility, PLAMT requests that the surge tank will be permitted to allow fifteen roof landing events per month. PLAMT will be required to have a portable vapor recovery system on site to control emissions from the surge tank during tank degassing and cleaning operation. The control efficiency of the vapor recovery system is assumed to equal to 99.0 percent similar to the on-site VDU located at the proposed tank farm facility T2000. Therefore, emissions from roof landing events for the proposed surge tank are estimated as follows:

Table 3 -- Roof Landing Emissions from Surge Tank T1000-S1

VOC Emission Rate	Feedstock (controlled)[2]
30-day ave, lb/day	**12.1**
Annual, lb/yr	4,359
Hourly, lb/hr[3]	4.8

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification:	Tank T1000-S1 VOC (Normal Operation)
City:	Long Beach
State:	California
Company:	Pacific LA Marine Terminal LLC
Type of Tank:	**Internal Floating Roof Tank**
Description:	**Crude oil; Vp limit of 10.0 psia or less; throughput limit of 49.95 turnovers/ month**

Tank Dimensions

Diameter (ft):	124.00
Volume (gallons):	3,360,000.00
Turnovers:	599.40
Self Supp. Roof? (y/n):	N
No. of Columns:	8.00
Eff. Col. Diam. (ft):	1.00

Paint Characteristics

Internal Shell Condition:	Light Rust
Shell Color/Shade:	White/White
Shell Condition	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

Rim-Seal System

Primary Seal:	Mechanical Shoe
Secondary Seal	Rim-mounted

Deck Characteristics

Deck Fitting Category:	Detail
Deck Type:	Welded

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Automatic Gauge Float Well/Bolted Cover, Gasketed	1
Column Well (24-in. Diam.)/Pipe Col.-Sliding Cover, Gask.	8
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Sock	87
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1
Ladder Well (36-in. Diam.)/Sliding Cover, Gasketed	1

Meterological Data used in Emissions Calculations: Long Beach, California (Avg Atmospheric Pressure = 14.7 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

Tank T1000-S1 VOC - Internal Floating Roof Tank
Long Beach, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Crude Oil (TVP 10 psia)	All	66.43	60.99	71.87	64.33	10.0000	N/A	N/A	50.0000			207.00	

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: Annual

Tank T1000-S1 VOC - Internal Floating Roof Tan4k
Long Beach, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissior
Crude Oil (TVP 10 psia)	412.91	15,709.39	2,065.54	0.00	**18,187.8**

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Identification and Physical Characteristics

Identification

User Identification:	Tank T1000-S1 VOC (Normal Operation)
City:	Long Beach
State:	California
Company:	Pacific LA Marine Terminal LLC
Type of Tank:	**Internal Floating Roof Tank**
Description:	**Partially refined petro/intermediate feedstock; Vp limit of 5.0 psia or less; throughput limit of 49.95 turnovers/ month**

Tank Dimensions

Diameter (ft):	124.00
Volume (gallons):	3,360,000.00
Turnovers:	599.40
Self Supp. Roof? (y/n):	N
No. of Columns:	8.00
Eff. Col. Diam. (ft):	1.00

Paint Characteristics

Internal Shell Condition:	Light Rust
Shell Color/Shade:	White/White
Shell Condition	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

Rim-Seal System

Primary Seal:	Mechanical Shoe
Secondary Seal	Rim-mounted

Deck Characteristics

Deck Fitting Category:	Detail
Deck Type:	Welded

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Automatic Gauge Float Well/Bolted Cover, Gasketed	1
Column Well (24-in. Diam.)/Pipe Col.-Sliding Cover, Gask.	8
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Sock	87
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1
Ladder Well (36-in. Diam.)/Sliding Cover, Gasketed	1

Meterological Data used in Emissions Calculations: Long Beach, California (Avg Atmospheric Pressure = 14.7 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

Tank T1000-S1 VOC - Internal Floating Roof Tank
Long Beach, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Partially Refined Petro (TVP 5.0)	All	66.43	60.99	71.87	64.33	5.0000	N/A	N/A	68.0000			92.00	

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: Annual

Tank T1000-S1 VOC - Internal Floating Roof Tank
Long Beach, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissior
Partially Refined Petro (TVP 5.0)	523.79	3,927.35	2,620.21	0.00	7,071.3

Roof Landing Emissions From Surge Tank at T1000

Volume of the vapor space, ft^3	36451
Tank diameter, ft	124
Crude Oil TVP, psia	10
Partially Refined Petro TVP, psia	5
Ideal Gas Constant, psia-ft^3/(lb-mol-°R)	10.731
Crude Oil Vapor Mol. Wt, lb/lb-mol	50
Petro Vapor Mol. Wt, lb/lb-mol	68
Vapor space outage h_v, ft	1.58
Standing Idle Saturation Factor, K_s	0.60
Filling Saturation Factor, S	0.15
Ave. liquid/vapor temp, °R	526.1
Number of tanks in the group	1

Uncontr'l VOC Degassing Loss per Landing, lbs		Landings per Mon	Contr'l Eff.	**Contr'l VOC Loss lbs/day**
Crude Oil	1937.0	15	99.0	9.68
Partially Refined Petro	1317.1	15	99.0	6.59

Uncontr'l VOC Filling Loss per Landing,lbs		Landings per Mon	Contr'l Eff.	**Contr'l VOC Loss (30- lbs/day**
Crude Oil	484.2	15	99.0	2.42
Partially Refined Petro	329.3	15	99.0	1.65

Uncontr'l VOC Loss per hour per tank,lbs

Filling time, hr (less than 1 hr)	0.43	Total Loss, lbs	**12.11**
Crude Oil	484.2		
Partially Refined Petro	329.3		

3. Ship Emissions

Ship emissions include non-propulsion emissions from auxiliary IC engines and emissions from boilers while a marine vessel operates within Coastal Waters under District's jurisdiction and at berth. In transit, auxiliary engines are utilized to provide auxiliary electrical power for maneuvering, utility and instrumentation equipment, safety and cargo monitoring equipment and other ship services. In the open sea, only one of three auxiliary engines is typically in service. When approaching harbor and during maneuvering mode, two auxiliary engines are always required for safety purpose. It is estimated based on power demands that approximately 350 kW of load from auxiliary IC engines are used for various activities not related to the propulsion while a vessel is in-transit. Ship boilers are used in heating fuel and propulsion engines as well as producing steam and hot water. In transit, ship boilers requires around one-third of the heat input needed for offloading cargo.

Once anchored at berth, the beginning of a time period known as hoteling, auxiliary engines are operating at higher load than they do during transit. The reason is propulsion engines are completely shut down during hoteling. As a result, auxiliary engines are responsible for all on board power including some of the loads that were otherwise provided by the propulsion engines. Ship boilers are also operating at higher heat input rate during hoteling than in transit. Ship boilers provide all of the steam that drives on board ship offloading pumps. Since auxiliary IC engines and ship boilers operate at various loads in different time periods while the ship is within Coastal Waters and at berth, the emissions are calculated using assumptions specific to each mode of operation. For example, emissions from auxiliary engines are broken down into emissions from in transit and hoteling operations. The emissions from boilers are calculated for offloading and non-offloading events. In addition, auxiliary engines and ship boilers may also be fired on either marine distillate oil (MDO) or marine gas oil (MGO) in each mode of operation. Heavy fuel oil (HFO) will not be permitted as fuel in the auxiliary engines or boilers. Equations used to calculate emissions from auxiliary engines and boilers are shown below:

Auxiliary IC engine:

Equation #1: $AE, \text{ lbs/visit} = AE_{\text{in-transit}} + AE_{\text{hotel}}$

Where:

AE = auxiliary engine's visit emissions;

$AE_{\text{in-transit}}$ = auxiliary engine's visit in-transit emissions while a marine vessel is in-transit on arrival and on departure (within the three nautical miles District Coastal Waters boundary)

AE_{hotel} = auxiliary engine's visit hoteling emissions

Equation #2: $$AE_{\text{in-transit}}, \text{ lbs/visit} = \frac{EF \times 350 \times t(\text{in - transit})}{453.6}$$

Where:

$AE_{\text{in-transit}}$ = auxiliary engine's visit emissions while a marine vessel is in-transit on arrival and on departure (within the three nautical miles District Coastal Waters boundary); EF = emission factor in unit of g/kW-hr; 350 = total kilowatts of energy demand in auxiliary engines while a marine vessel is in-transit on arrival and on departure (within the three nautical miles District Coastal Waters

boundary); t(in-transit) = time duration in transit firing on the fuel in unit of hour; 453.6 = conversion factor from grams to pounds.

Equation #3: $$AE_{hotel}, \text{ lbs/visit} = \frac{EF \times E_{hotel}}{453.6}$$

Where:

AE_{hotel} = auxiliary engine's visit hoteling emissions from firing on the fuel; EF = emission factor in unit of g/kW-hr; E_{hotel} = total hoteling energy demand in auxiliary engines while they are firing on the fuel in unit of kW-hr per visit; 453.6 = conversion factor from grams to pounds. When actual data for E_{hotel} is not available, E_{hotel} is calculated using Equation #4 below.

Equation #4: $E_{hotel} = MCR \times LF \times A$

Where:

Where: E_{hotel} = total visit hoteling energy demand in unit of kW-hr; MCR = total maximum continuous ratings of the auxiliary engines in kilowatts (kW); LF = load factor of the auxiliary engines; A = total number of hoteling hours.

Table 3 -- Emission Factors (g/kW-hr) for Ship Auxiliary IC Engine

NOx	SOx	PM10	PM	CO	VOC
13.9*	4.2425*%S	0.25+0.3413(%S-0.1)	PM10/0.82	1.1	0.4

*See the letter dated 5/23/07 in Attachment II written by Retired District's DEO, Ms. Carol Coy.

- SOx and PM10 emission factors are derived using the following equations:

$$SOx\ EF = BSFC \times 2 \times 0.97753 \times {}^{\%sulfur_{fuel}}/_{100}$$

BSFC, brake specific fuel consumption = 217 g/kW-hr

$$PM10\ EF = PM10\ EF_{(soxbas)} + BSFC \times 7 \times 0.02247 \times {}^{(\%sulfur_{fuel} - \%sulfur_{soxbas})}/_{100}$$

$PM10\ EF_{(soxbas)} = 0.25$
$\%sulfur_{soxbas} = 0.1$
BSFC, brake specific fuel consumption = 217 g/kW-hr

Ship boiler:

Equation #1: BE, lbs/visit = BE(non-offload) + BE(offload) x [1- f(IGS)]

Where:

BE = boiler's total visit emissions; BE(non-offload) = boiler's total visit emissions from non-offloading operations; BE(offload) = boiler's total visit emissions from offloading operations; f(IGS) = fraction of boiler's flue gas being routed to cargo tanks by the inert gas system.

Equation #2: $$\text{BE, lbs/visit} = \text{EF} \times C_B \times \rho \times \frac{tonne}{1000\,\text{kg}} \times \frac{7.48 gal}{ft^3}$$

Where:

BE = boiler's total visit emissions from non-offloading or offloading operation; EF = emission factor for the ship boilers selected below table in unit of kilogram of pollutant per metric ton fuel consumed; C_B = total visit consumption of the fuel by the boilers from non-offloading or offloading operation in cubic feet; ρ = density of the fuel in unit of pounds per gallon. When actual data for C_B is not available, C_B is calculated using Equations #3 and #4 below.

Equation #3:

$$C_B(\text{non-offload}) = \left[t_{\text{transit}} + t_{\text{hotel}} - t_{pumpout}\right] \times \left[0.3 \times \frac{SFC}{1000} \times \frac{\text{V(product)}}{t_{\text{pumpout}}} \times \frac{1}{\rho}\right] \times \frac{\text{ft}^3}{7.48\,\text{gal}}$$

Where:

Where: C_B = total visit fuel consumption of the boilers for non-offloading operations in cubic feet, which include in-transit and warm-up boiler operation; $t_{\text{transit/hotel/pumpout}}$ = number of hours for these periods: vessel in-transit within the three nautical mile coastal water, vessel hoteling at berth and offloading cargo; 0.3 = assumed 30 percent of offload load; SFC = specific fuel consumption in barrels of fuel consumed by the boilers to offload 1000 barrels of product; V(product) = visit volume of product offloaded in barrels; ρ = density of the fuel in unit of pounds per gallon

Equation #4: $$C_B(\text{offload}) = \frac{\text{SFC}}{1000} \times \text{V(product)} \times \frac{1}{\rho} \times \frac{\text{ft}^3}{7.48 gal} \times P$$

Where:

Where: C_B(offload) = total visit fuel consumed by the boilers for offloading operation in gallons; SFC(fuel) = specific fuel consumption in unit of pounds of fuel consumed per 1000 barrels of product offloaded; V(product) = visit volume of product offloaded in unit of barrels; ρ = density of the fuel in unit of pounds per gallon

Equation #5: $$f(\text{IGS}) = \frac{V_{\text{cargo}}}{C_B} \times \frac{1}{\text{density}} \times \frac{\text{lb}}{200\,\text{ft}^3} \times \frac{42\,\text{gal}}{\text{bbl}} \times \frac{\text{ft}^3}{7.48 gal} \times \frac{\text{ft}^3}{7.48 gal}$$

Where:

Where: f(IGS) = fraction of the boiler's flue gas being routed to cargo tanks by inert gas system; V_{cargo} = volume of product offloaded per visit in barrels; C_B = volume of the fuel consumed by the boilers per visit for offloading operations in cubic feet; density = density of the fuel in unit of pounds per gallon; 5.615 = volume conversion factor from barrels to cubic feet; 200 = cubic feet of flue gas produced from the combustion of one pound of fuel. If an inert gas system is utilized instead of flue gas from the boilers or any of the boilers vent to the atmosphere, the f(IGS) shall equal to zero.

Table 4 -- Emission Factors (kg/ton fuel burned) for Ship Auxiliary Boilers Firing on MDO or MGO Fuels

Max. Heat Input Rating	NOx	CO	VOC	PM	PM10	SOx
Less or equal to100 MMBtu/hr	2.84	0.71	0.04	0.44	0.33	20*%S
Greater than 100 MMBtu/hr	3.40	0.71	0.15	0.44	0.33	20*%S

Based on their own estimates, PLAMT proposes NSR emission cap limits for the proposed marine terminal, as shown in Table 5. Therefore, the permit of the terminal will have an emission limit condition not to exceed the calendar monthly limits shown below.

TABLE 5 -- Emission Reduction Credits Calculations

Emissions	NOx	VOC*	PM10	PM10	CO	SO2
Annual, lbs/yr	197,400	25,656	9,015	7,202	21,610	41,208
Monthly, lbs/month	**16,450**	**2,138**	751	**600**	1,800	**3,434**
30-ave, lbs/day	548.3	71.3	25.0	20.0	60.0	114.5
ERCs, lbs/day	659	64	---	(see note)	(see note)	205

*VOC emissions include emissions from marine vessels, surge tank, air eliminator drum and fugitive emission sources.
Note: No offsets are required for PM10 pursuant to Rule 1304(d)(1)(A): new facility with potential to emit less 4 tons per year. CO is not a nonattainment air contaminant subject to the requirements of NSR.

For the NSR purpose of estimating potential to emit, the following assumptions on the operations of the proposed marine terminal and marine tanker vessels making calls at the berth are used:

Berth Operation: The berth is assumed to offload two Very Large Crude Carrier (VLCC) sized marine vessels, three Suezmax-size vessels, three Aframax-size marine vessels and one Panamax-sized marine vessel per month. Shore side electric pumps are utilized to assist in offloading of products.

Auxiliary Engine Operational Characteristics: auxiliary IC engines on-board all marine vessels are assumed to have the following operational parameters:

Maximum continuous rating (MCR) = 3,600 kW
Load factor (LF) for in-transit operation = 0.0972 (or 350 kW)
Load factor (LF) for at berth but non-offloading operation = 0.278
Load factor (LF) for offloading = 0.556
Activity Hours:

Activity	VLCC	Suezmax	Aframax	Panamax
In transit on arrival time, hrs	2.0	2.0	2.0	2.0
Pre-offloading time, hrs	3.0	3.0	3.0	3.0
Offloading time, hrs	24.8	15.3	15.0	11

Post-offloading time, hrs	1.0	1.0	1.0	1.0
In transit on departure time, hrs	1.5	1.5	1.5	1.5

TABLE 7 -- Boiler Operational Characteristics

Assumed Operational Parameter	VLCC	Suezmax	Aframax	Panamax
Ship storage capacity, barrels	2,000,000	1,000,000	700,000	350,000
Offloading time, hours	24.8	15.3	15.0	11.0
Specific fuel consumption, lb/1000 bbl with the use of shore side pumps	113.9	110.4	101.3	63.5
Specific fuel consumption, lb/1000 bbl without the use of shore side pumps	358.3	255.0	185.7	185.8
Load factor boiler warm-up & pre-offloading operation	0.3	0.3	0.3	0.3
Warm-up time on arrival (within 3 nm mile boundary only), hours	2.0	2.0	2.0	2.0
Pre-offloading time, hours	3.0	3.0	3.0	3.0

TABLE 8 -- Characteristics of Fuels

Sulfur Content (weight percent)	Density (lbs/gal)
0.1% to 0.135%	7.3

Using above assumptions, the ship emissions (on a 30-day average basis) are estimated to be as followed:

TABLE 9 -- Emissions from Auxiliary IC Engines and Ship Boilers
(30-day ave, lbs/day)

Source of Emissions	NOx	CO	VOC	PM*	PM10*	SOx*
Auxiliary engines	358.1	28.3	10.3	8.0/8.2	6.6/6.7	12.4/14.8
Boilers	91.7	19.9	3.5	12.7/12.7	9.2/9.2	56.1/75.7
Total ship emissions	**449.8**	**48.2**	**13.8**	**20.7/20.9**	**15.8/15.9**	**68.5/90.5**

*Based on 0.1 and 0.135 percent sulfur content fuels, respectively.

TABLE 11 -- Summary of Emissions from the Proposed Marine Terminal, Berth 408
(30-day ave., lbs/day)

Source of Emissions	NOx	CO	VOC	PM	PM10	SOx
Fugitive emission, lb/day	---	---	3.3	---	---	---
Surge Tank S1, lb/day	---	---	62.8	---	---	---
Ship emissions, lb/day	449.8	48.2	13.8	20.9	15.9	90.5
Total Emissions for Berth 408	**449.8**	**48.2**	**79.9**	**20.9**	**15.9**	**90.5**

Ship Auxiliary IC Engine Emission Calculations

Fuel type	%Wt S	Density lbs/gal	BSFC g/kW-hr
MDO/MGO	0.135	7.3	217

Auxiliary Engine Emission Factors (g/kWh):

Engine	Fuel	NOx	CO	VOC	PM	PM10	SO2
	MDO/MGO	13.9	1.1	0.4	0.32	0.26	0.57

Note: Assume PM10 without Spmadj equals to 0.26 g/kW-hr; PM10 = 82% PM

	Panamax	Aframax	VLCC	Suezmax
calls/month	1	3	2	3
MCR, kW	3,600	3,600	3,600	3,600
Cruising/Manuvering within 3 nm boundary LF	0.0972	0.0972	0.0972	0.0972
At berth but non-offloading LF	0.278	0.278	0.278	0.278
Offloading LF	0.556	0.556	0.556	0.556
Total in-transit time (on arrival + departure), hrs	3.5	3.5	3.5	3.5
Offloading time, hrs	11	15	24.8	15.3
At berth but non-offloading time, hrs	4	4	4	4

Energy Demand	Aframax	Aframax	VLCC	Suezmax
In-transit -- E(MGO), kW-hr/month	1,224.7	3,674.2	2,449.4	3,674.2
Offloading -- E(MGO), kW-hr/month	22,017.6	90,072.0	99,279.4	91,873.4
At berth but non-offloading -- E(MGO), kW-hr/month	4,032.0	12,096.0	8,064.0	12,096.0

Emissions, lbs/day (30-day ave)

Emission	NOx	CO	VOC	PM	PM10	SO2
Panamax	27.9	2.2	0.8	0.6	0.5	1.1
Aframax	108.1	8.6	3.1	2.5	2.0	4.5
VLCC	112.1	8.9	3.2	2.6	2.1	4.6
Suezmax	110.0	8.7	3.2	2.5	2.1	4.5
Total	**358.1**	**28.3**	**10.3**	**8.2**	**6.7**	**14.8**

Ship Boiler Emission Calculations

Fuel type	%Wt Sulfur	Density
MDO/MGO	0.135	7.3 lb/gal

Emission Factors (kg/ton fuel consumed):

Boiler	Fuel	NOx	CO	VOC	PM	PM10	SO2
<100 MMBtu/hr	MDO/MGO	2.84	0.71	0.04	0.45	0.33	2.70
>100 MMBtu/hr	MDO/MGO	3.40	0.71	0.15	0.45	0.33	2.70

Operational Parameters		Panamax	Aframax	VLCC	Suezmax
Number of calls/month		1	3	2	3
In-transit on arrival time, hr	(only within 3nm boundary=2 hrs)	2	2	2	2
Pre-Offloading period	hrs	3	3	3	3
t(pump out) period	hrs	11	15	24.8	15.3
SFC with shoreside pump	lb/1000 bbl	63.5	101.3	113.9	110.4
SFC without shoreside	pump, lb/1000 bbl	185.8	185.7	358.3	255
T(product)	bbl	350,000	700,000	2,000,000	1,000,000
Capacity C	bbl	350,000	700,000	2,000,000	1,000,000

Fuel Consumptions	Panamax	Aframax	VLCC	Suezmax
Vol(in-transit+pre-loading), gal/month	415	2,914	3,775	4,448
Vol(offloading), gal/month	3,045	29,141	62,411	45,370
f(IGS)	0.44	0.28	0.25	0.25

Emissions, lbs/day (30-day ave)	NOx	CO	VOC	PM	PM10	SO2
Panamax	1.5	0.4	0.0	0.2	0.2	1.4
Aframax	16.6	4.1	0.2	2.6	1.9	15.8
VLCC	42.0	8.8	1.9	5.6	4.0	33.4
Suezmax	31.7	6.6	1.4	4.2	3.0	25.2
Total	**91.7**	**19.9**	**3.5**	**12.7**	**9.2**	**75.7**

Appendix B

EMISSION CALCULATIONS FOR IN-LINE AIR ELIMINATOR SYSTEM

Emissions from the proposed in-line air eliminator are determined by assuming a VOC concentration of 500 ppmv at the outlet of the carbon adsorbers. Since the operator will be required by permit to replace the carbon once VOC concentration at the outlet of the primary carbon adsorber reaches 500 ppmv, the assumption results in overly conservative emissions.

The volume of vapor in the line is calculated by assuming a total piping length from the marine vessel to the proposed air eliminator drum equal to 2300 feet: a total of 1820 feet of 24-inch diameter pipe from the ship deck to the loading arms plus four 120-foot long loading arms having a diameter of 16 inches. As a result, the volume of empty pipe prior to pumping startup equal to 5916 cubic feet. According to the applicant, the offloading rate will start at a low rate of 5,000 barrels per hour, and gradually increase to offloading pumps' capacities of 50,000 to 125,000 barrels per hour. It is assumed that air in the lines will be pushed out of the lines and entered the air eliminator vessel at the same low offloading rate of 5,000 barrels per hour.

$$\text{Flow Rate of Vapor, } Q = \frac{5{,}000\ \text{bbl}}{\text{hr}} \times \frac{42\ \text{gal}}{\text{bbl}} \times \frac{\text{ft}^3}{7.48\ \text{gal}} \frac{\text{hr}}{60\ \text{min}}$$

$$Q = 468\ \text{ft}^3/\text{min}$$

$$\text{Time takes to eliminate air, } t_{\text{air out}} = 5916\ \text{ft}^3 \times \frac{\text{min}}{468\ \text{ft}^3}$$

$$t_{\text{air out}} = 13\ \text{min per offloading event}$$

Vapor density of crude oil = 0.0886 lb/ft^3 (used in TANKS4.0 calculations)

Consequently,

$$\frac{500\ \text{ft}^3 VOC}{1\times10^6\ \text{ft}^3\ \text{vapor}} \times \frac{468\ \text{ft}^3\ \text{vapor}}{\text{min}} \times \frac{0.0886\ \text{lb VOC}}{\text{ft}^3\ \text{VOC}} \times \frac{13\ \text{min}}{\text{event}} = 0.27\ \text{lb VOC per}$$

event

Since air in the line will be eliminated in less than one hour, the hourly emission rate also equals to 0.27 lb per hour. The number of offloading event proposed for the new terminal equals to nine events per month. Therefore,

$$\frac{0.27\ \text{lb VOC}}{\text{event}} \times \frac{9\ \text{events}}{\text{month}} \times \frac{\text{month}}{30\ \text{days}} = 0.08\ \text{lb/day (30-day ave.)}$$

$$\frac{0.27\ \text{lb VOC}}{\text{event}} \times \frac{108\ \text{events}}{\text{year}} = 29\ \text{lbs/yr}$$

Appendix C

TOXIC EMISSION CALCULATIONS FOR BERTH 408

As discussed in Criteria Pollutant Emissions section of the report, the proposed marine terminal is a permit unit with five separate emission sources: fugitive emission source, surge tank T1000-S1, ship offloading emissions and non-propulsion ship emissions. However, emissions from ship are caused mobile sources and thus, are accumulated with the terminal pursuant to Rule 1306(g) for New Source Review offset purpose only. As a result, only toxic air contaminant emissions from fugitive components and surge tank T1000-S1 are included in the health risk assessment analysis of Berth 408.

PLAMT submitted lab test results performed on typical crude oils and partially refined petroleum/intermediate feedstock which are expected to be unloaded by the proposed Berth 408. The samples were analyzed using EPA Test Methods 8260 -- Volatile Organic Compounds By Gas Chromatography/Mass Spectrometry (GC/MS) and 8270 -- Semivolatile Organic Compounds By Gas Chromatography/Mass Spectrometry (GC/MS). Test results for concentrations of the toxic compounds that are listed in Table 1 of District Rule 1401 are as shown below:

TABLE 1 -- Liquid-Phase Concentrations of Rule 1401 Toxic Compounds
In Crude Oil to be Received By Berth 408

Compound	CAS No.	Oriente Crude (mg/kg)	Basrah Lt Crude (mg/kg)	Napo Crude (mg/kg)	Cold Lake Crude (mg/kg)	EPA Test Method
Benzene	71-43-2	320	610	240	**1,800**	8260
Ethylbenzene	100-41-4	430	**1,100**	290	380	8260
Methylene Chloride	75-09-2	---	**310**	34	160	8260
Napthalene	91-20-3	330	190	230	83	8260
		1,100	670	740	110	8270
Toluene	108-88-3	1,000	2,600	620	**2,800**	8260
Xylene, m-	108-38-3	1,100	**2,900**	660	1,900	8260
Xylene, o-	95-47-6	520	**1,500**	330	620	8260

Note: Oriente and Napo are crude oils from Ecuador; Basrah is crude oil from Iraq; Cold Lake is crude oil from Canada
Bold are the expected highest concentrations of the toxic compounds for typical crude oil received by Berth 408

TABLE 2 -- Liquid-Phase Concentrations of Rule 1401 Toxic Compounds
In Partially Refined Petroleum/Intermediate Feedstock to be Received By Berth 408

Compound	CAS No.	RGO (mg/kg)	LSVGO (mg/kg)	FRGO (mg/kg)	EPA Test Method
Benzene	71-43-2	**5.2**	1.6	0.091	8260
Ethylbenzene	100-41-4	9.7	**140**	0.61	8260
Methylene Chloride	75-09-2	2.9	2.8	**3.1**	8260
Benzo(a)	50-32-8	**32**	---	---	8270

Compound	CAS No.	RGO (mg/kg)	LSVGO (mg/kg)	FRGO (mg/kg)	EPA Test Method
pyrene					
Chrysene	218-01-9	14	77	**120**	8270
Napthalene	91-20-3	14	**37**	13	8260
		50	---	---	8270
Toluene	108-88-3	**37**	18	0.84	8260
Xylene, m-	108-38-3	36	**46**	2.3	8260
Xylene, o-	95-47-6	14	**24**	1.5	8260

Note: RGO = raw gas oil; LSVGO = low sulfur vacuum gas oil; CBO = carbon black oil; FRGO = feed raw gas oil
Bold are the expected highest concentrations of the toxic compounds for typical petroleum feedstock received by Berth 408.

The toxic air contaminant (TAC) emissions from the fugitive components are calculated following the procedures for speciating emissions published by the US EPA, in a report entitled Protocol for Equipment Leak Emission Estimates, Section 2.4.1 (Document EPA-453/R-95-017).

$$E_x = E_{TOC} \times (WP_x / WP_{TOC})$$

where,

E_x = mass emissions of TAC "x" from fugitive component, lb/hr
E_{TOC} = Total TOC mass emissions from fugitive component, lb/hr
WP_x = Concentration of TAC "x" in the fugitive component, weight percent Wt%
WP_{TOC} = TOC concentration in the fugitive component, weight percent Wt%

For single-phase streams, it is assumed that the leaking vapor has the same concentration (in weight percent) as the liquid, even though the liquid mixtures may contain constituents with varying volatilities. Thus all of the liquid mixture is presumed to evaporate within one year, the basis of the TOC fugitive emission factor. The assumption is valid if the leakage occurs in a way such that the liquid material leaks from the fugitive emission sources and then evaporates. Varying volatilities should be considered only if the liquid mixture "flashes" before it leaks from the fugitive emission source. In that case, the leaking vapor may contain a higher concentration of the more volatile constituents that is contained in the liquid mixture.

Toxic Emissions from Fugitive Components

The toxic air contaminant (TAC) emissions from the fugitive components are calculated following the procedures for speciating emissions published by the US EPA. The TAC emissions from fugitive components of the proposed marine terminal are calculated based the following assumptions:

(1) All fugitive emission sources are assumed in single-phase liquid service, and all fugitive components contain 100 percent hydrocarbon liquids.
(2) The compositions of the crude oils and partially refined petroleum/intermediate feedstock received by Berth 408 are assumed to have all of the toxic compounds that are present in the test results.

Furthermore, each of the toxic compounds is assumed to have the greatest concentration of all of the shown test results. These assumptions would result in over estimation of the TAC emissions for the proposed marine terminal because a typical crude oil or partially refined petroleum/intermediate feedstock is not expected to have this overly conservative toxic speciation profiles. TAC emissions for the fugitive emissions sources are calculated by multiplying the liquid weight fractions by the mass VOC emission rates.

TABLE 3 -- TAC Emissions from Fugitive Emission Sources
In Crude Oil Service

Compound	CAS No.	Max. Speciation Profile **(%Wt)**	Worst-Case TAC Emission **(lb/yr)**	Worst-Case TAC Emission **(lb/hr)**
Benzene	71-43-2	0.18	2.10	2.7308E-03
Ethylbenzene	100-41-4	0.11	1.28	1.6688E-03
Methylene Chloride	75-09-2	0.031	0.36	4.7030E-04
Napthalene	91-20-3	0.11	1.28	1.6688E-03
Toluene	108-88-3	0.28	3.27	4.2479E-03
Xylene, m-	108-38-3	0.29	3.38	4.3996E-03
Xylene, o-	95-47-6	0.15	1.75	2.2757E-03

TABLE 4 -- TAC Emissions from Fugitive Emission Sources
In Partially Refined Petroleum/Intermediate Feedstock Service

Compound	CAS No.	Max. Speciation Profile **(%Wt)**	Worst-Case TAC Emission **(lb/yr)**	Worst-Case TAC Emission **(lb/hr)**
Benzene	71-43-2	0.0005	0.04	5.0064E-05
Ethylbenzene	100-41-4	0.014	0.16	2.1239E-04
Methylene Chloride	75-09-2	0.0003	0.00	1.6688E-05
Naphthalene	91-20-3	0.0037	0.06	1.6688E-3
Toluene	108-88-3	0.0037	0.04	2.7308E-4
Xylene, m-	108-38-3	0.0046	0.05	3.9445E-4
Xylene, o-	95-47-6	0.0024	0.03	1.6688E-4
Chrysene	218-01-9	0.012	0.14	3.0342E-5
Benzo[a]pyrene	50-32-8	0.0032	0.04	4.6423E-4

Toxic Emissions From Surge Tank with 15 Roof Landings Per Month

Volume of the vapor space, ft^3	36451
Tank diameter, ft	124
Crude Oil TVP, psia	10
Partially Refined Petro TVP, psia	5
Ideal Gas Constant, psia-ft^3/(lb-mol-°R)	10.731
Crude Oil Vapor Mol. Wt, lb/lb-mol	50
Petro Vapor Mol. Wt, lb/lb-mol	68
Vapor space outage h_v, ft	1.58
Standing Idle Saturation Factor, K_s	0.60
Filling Saturation Factor, S	0.15
Ave. liquid/vapor temp, °R	526.1
Number of tanks in the group	1

Uncontr'l VOC Degassing Loss per Landing,lbs		Landings per Mon	Contr'l Eff.
Crude Oil	1937.0	15	99.0
Partially Refined Petro	1317.1	15	99.0

Uncontr'l VOC Filling Loss per Landing,lbs		Landings per Mon	Contr'l Eff.
Crude Oil	484.2	15	99.0
Partially Refined Petro	329.3	15	99.0

Uncontr'l VOC Loss per hour per tank,lbs	
Filling time, hr (less than 1 hr)	0.43
Crude Oil	484.2
Partially Refined Petro	329.3

Max. Crude Oil	Vapor Mass Fract
Benzene	1.0374E-03
Ethylbenzene	6.1614E-05
Methylene chloride	8.3991E-04
Naphthalene	1.4967E-06
Toluene	4.6614E-04
Xylene (-m)	1.3556E-04
Xylene (-o)	5.5390E-05

Landing Uncontr'l Emissions		Landing Contr'l Emissions		Normal Emissions		Total	Max
lbs/yr	lb/hr	lbs/yr	lb/hr	lbs/yr	lb/hr	lbs/yr	lb/hr
361.7	5.0237E-01	3.62	5.02E-03	30.85	3.83E-03	34.47	5.02E-03
21.5	2.9836E-02	0.21	2.98E-04	17.43	2.16E-03	17.64	2.16E-03
292.8	4.0672E-01	2.93	4.07E-03	6.95	8.62E-04	9.88	4.07E-03
0.5	7.2478E-04	0.01	7.25E-06	17.28	2.14E-03	17.29	2.14E-03
162.5	2.2573E-01	1.63	2.26E-03	45.14	5.60E-03	46.77	5.60E-03
47.3	6.5644E-02	0.47	6.56E-04	45.89	5.69E-03	46.36	5.69E-03
19.3	2.6822E-02	0.19	2.68E-04	23.7	2.94E-03	23.89	2.94E-03

Max. Partially Refined Petro

Benzene	1.9588E-06
Ethylbenzene	5.1253E-06
Methylene chloride	5.4896E-06
Naphthalene	4.4466E-08
Toluene	4.0260E-06
Xylene (-m)	1.4054E-06
Xylene (-o)	5.7924E-07
Benzo[a] pyrene	5.3364E-11
chrysene	1.4390E-16

Landing Uncontr'l Emissions		Landing Contr'l Emissions		Normal Emissions		Total	Max
lbs/yr	lb/hr	lbs/yr	lb/hr	lbs/yr	lb/hr	lbs/yr	lb/hr
0.5	6.4502E-04	0.00	6.45E-06	0.03	3.72E-06	0.03	6.45E-06
1.2	1.6877E-03	0.01	1.69E-05	0.57	7.07E-05	0.58	7.07E-05
1.3	1.8076E-03	0.01	1.81E-05	0.03	3.72E-06	0.04	1.81E-05
0.0	1.4642E-05	0.00	1.46E-07	0.2	2.48E-05	0.20	2.48E-05
1.0	1.3257E-03	0.01	1.33E-05	0.16	1.98E-05	0.17	1.98E-05
0.3	4.6278E-04	0.00	4.63E-06	0.19	2.36E-05	0.19	2.36E-05
0.1	1.9074E-04	0.00	1.91E-06	0.1	1.24E-05	0.10	1.24E-05
0.0	1.7572E-08	0.00	1.76E-10	0.13	1.61E-05	0.13	1.61E-05
0.0	4.7383E-14	0.00	4.74E-16	0.47	5.83E-05	0.47	5.83E-05

Appendix D

TOXIC EMISSIONS FOR IN-LINE AIR ELIMINATOR SYSTEM

Toxic air contaminant (TAC) emissions for the in-line air eliminator system are calculated with the same conservative assumptions used for the fugitive emission components and surge tank T1000-S1. Each of the toxic compounds is assumed to have the greatest concentration of all of the shown test results. TAC emissions for the air eliminator are calculated by multiplying the vapor mass fractions by the mass VOC emission rates.

TABLE 1 -- Toxic Emissions from In-line Air Eliminator System
In Crude Oil Service

Compound	CAS No.	Max. Speciation Profile **Vapor Mass Fraction**	Worst-Case TAC Emission **(lb/yr)**	Worst-Case TAC Emission **(lb/hr)**
Benzene	71-43-2	1.0374E-03	0.03	2.8011E-04
Ethylbenzene	100-41-4	6.1614E-05	0.00	1.6636E-05
Methylene Chloride	75-09-2	8.3991E-04	0.02	2.2678E-04
Napthalene	91-20-3	1.4967E-06	0.00	4.0412E-07
Toluene	108-88-3	4.6614E-04	0.01	1.2586E-04
Xylene, m-	108-38-3	1.3556E-04	0.00	3.6601E-05
Xylene, o-	95-47-6	5.5390E-05	0.00	1.4955E-05

TABLE 2 -- Toxic Emissions from In-line Air Eliminator System
In Partially Refined Petroleum/Intermediate Feedstock Service

Compound	CAS No.	Max. Speciation Profile **Vapor Mass Fraction**	Worst-Case TAC Emission **(lb/yr)**	Worst-Case TAC Emission **(lb/hr)**
Benzene	71-43-2	1.9588E-06	0.00	5.2889E-07
Ethylbenzene	100-41-4	5.1253E-06	0.00	1.3838E-06
Methylene Chloride	75-09-2	5.4896E-06	0.00	1.4822E-06
Naphthalene	91-20-3	4.4466E-08	0.00	1.2006E-08
Toluene	108-88-3	4.0260E-06	0.00	1.0870E-06

Compound	CAS No.	Max. Speciation Profile **Vapor Mass Fraction**	Worst-Case TAC Emission **(lb/yr)**	Worst-Case TAC Emission **(lb/hr)**
Xylene, m-	108-38-3	1.4054E-06	0.00	3.7946E-07
Xylene, o-	95-47-6	5.7924E-07	0.00	1.5640E-07
Chrysene	218-01-9	5.3364E-11	0.00	1.4408E-11
Benzo[a]pyrene	50-32-8	1.4390E-16	0.00	3.8852E-17

The in-line air eliminator system passes the Tier I screening risk assessment as shown below.

TIER 1 SCREENING RISK ASSESSMENT REPORT

Receptor Distance (actual)	120
Receptor Distance (for X/Q LOOKUP)	100

Tier 1 Results	
Cancer/Chronic ASI	**Acute ASI**
2.84E-01	7.90E-05
PASSED	PASSED

APPLICATION SCREENING INDEX CALCULATION

Compound	Average Annual Emission Rate	Max Hourly Emission Rate (lbs/hr)	Cancer / Chronic Pollutant Screening Level (lbs/yr)	Acute Pollutant Screening Level (lbs/hr)	Cancer / Chronic Pollutant Screening Index	Acute Pollutant Screening Index (PSI)
Benzene (including benzene from gasoline)	2.45E+00	2.80E-04	8.92E+00	3.96E+00	2.74E-01	7.08E-05
Ethyl benzene	1.45E-01	1.66E-05	1.02E+02		1.42E-03	
Methylene chloride(Dichloromethane)	1.98E+00	2.27E-04	2.55E+02	3.75E+01	7.77E-03	6.05E-06
Naphthalene	3.53E-03	4.04E-07	7.44E+00		4.75E-04	
Toluene (methyl benzene)	1.10E+00	1.26E-04	7.75E+04	9.91E+01	1.42E-05	1.27E-06
Xylene, m-	3.20E-01	3.66E-05	1.81E+05	5.89E+01	1.77E-06	6.21E-07
Xylene, o-	1.31E-01	1.50E-05	1.81E+05	5.89E+01	7.22E-07	2.54E-07
TOTAL (APPLICATION SCREENING INDEX)					**2.84E-01**	**7.90E-05**

TIER 1 SCREENING RISK ASSESSMENT REPORT

Receptor Distance (actual)	120
Receptor Distance (for X/Q LOOKUP)	100

Tier 1 Results	
Cancer/Chronic ASI	**Acute ASI**
7.18E-04	1.93E-07
PASSED	PASSED

APPLICATION SCREENING INDEX CALCULATION

Compound	Average Annual Emission Rate	Max Hourly Emission Rate (lbs/hr)	Cancer / Chronic Pollutant Screening Level (lbs/yr)	Acute Pollutant Screening Level (lbs/hr)	Cancer / Chronic Pollutant Screening Index	Acute Pollutant Screening Index (PSI)
Benzene (including benzene from gasoline)	4.62E-03	5.29E-07	8.92E+00	3.96E+00	5.18E-04	1.34E-07
Ethyl benzene	1.21E-02	1.38E-06	1.02E+02		1.19E-04	
Methylene chloride(Dichloromethane)	1.29E-02	1.48E-06	2.55E+02	3.75E+01	5.08E-05	3.95E-08
Naphthalene	1.05E-04	1.20E-08	7.44E+00		1.41E-05	
Toluene (methyl benzene)	9.50E-03	1.09E-06	7.75E+04	9.91E+01	1.23E-07	1.10E-08
Xylene, m-	3.31E-03	3.79E-07	1.81E+05	5.89E+01	1.83E-08	6.44E-09
Xylene, o-	1.37E-03	1.56E-07	1.81E+05	5.89E+01	7.55E-09	2.66E-09
Benzo[a]pyrene	1.26E-07	1.44E-11	7.69E-03		1.64E-05	
Chrysene	3.39E-13	3.89E-17	7.69E-01		4.41E-13	
TOTAL (APPLICATION SCREENING INDEX)					**7.18E-04**	**1.93E-07**

Appendix E

SOUTH COAST AIR QUALITY M ANAGEMENT DISTRICT

M E M O R A N D U M

DATE: February 16, 2011

TO: Jay Chen

FROM: Naveen Berry

SUBJECT: Modeling Review of Pier 400 Project (Facilities T1000 & T2000)

As you requested, Planning, Rule Development & Area Sources (PRA) staff reviewed the cancer risk analysis for the proposed project. Facility T1000 is located at 3000 Navy Way, on Terminal Island, California and Facility T2000 is located at 750 Eldrige Street, on Terminal Island, California. PRA staff had previously reviewed the modeling performed for the project and provided a memo dated February 11, 2009. Since then, the applicant has revised the emissions from the project and a subsequent review of the health risks was requested. On November 23, 2010, the applicant provided a memo and modeling files for our review. Our comments on the health risks from the project are as follows:

- **Rule 1401 - Application of HARP for the Health Risk Impacts**
  - ✓ The applicant utilized AERMOD (version 09292) for the air dispersion modeling and the HARP On-Ramp model to convert the AERMOD output files. The applicant utilized two sets of meteorological data in the AERMOD analysis. This is appropriate based on the location of the two facilities within the Port of Los Angeles. One complete year of meteorological data was used, which is acceptable as the data used is considered site-specific to the Project.
  - ✓ The AERMOD modeling generally conforms to the District's dispersion modeling procedures.
  - ✓ The applicant performed the risk assessment with the Hot Spots Analysis and Reporting Program (HARP, version 1.4c).
  - ✓ Although crude oil will be stored in the tanks nearly all of the time, a partially refined crude oil might occasionally be handled by the Project. Therefore, two scenarios (referred to as Partially Refined and Crude) were modeled for each facility in order to analyze the worst-case health risks.
  - ✓ PRA staff re-ran the AERMOD and HARP model analysis using the emission factors provided by E&C staff (email from Khang Nguyen on February 9, 2011). For both the facilities, PRA staff estimated the health impacts from the entire facility. This is a worse-case analysis as the health impacts from each individual permit unit will be less than that of the entire facility. The results are summarized below.
  - ✓ For Facility T1000, the peak cancer risk for the proposed project is 0.22 in one million from the Partially Refined scenario, and 0.06 in one million from the Maximum Crude scenario. The peak acute and chronic hazard indices for the proposed project are 7.65E-07 and 5.36E-06, respectively, from the Partially Refined scenario; and 5.17E-04 and 3.46E-04, respectively, from the Maximum Crude scenario. These total facility risks are less than the Rule 1401 cancer and non-cancer permit limits of 1 in one million (for permit units without T-BACT) and hazard index of 1, respectively. Therefore, the cancer

and non-cancer risks from the T1000 facility for both scenarios are less than the Rule 1401 permit limits.

- ✓ For Facility T2000, the ten tanks are grouped into three separate groups with emission limits for each group of tanks. Therefore, in order to estimate the health impacts, PRA staff assigned the emission limit amount to each of the tanks of the same group and found the one tank which would yield the greatest health impact. This was repeated for each group of tanks in order to determine the maximum health impacts from the entire facility. The peak cancer risk for the proposed project is 0.07 in one million from the Partially Refined scenario, and 0.03 in one million from the Maximum Crude scenario. The peak acute and chronic hazard indices for the proposed project are 1.74E-04 and 1.18E-06, respectively, from the Partially Refined scenario; and 8.62E-04 and 3.00E-05, respectively, from the Maximum Crude scenario. These total facility risks are less than the Rule 1401 cancer and non-cancer permit limits of 1 in one million (for permit units without T-BACT) and hazard index of 1, respectively. Therefore, the cancer and non-cancer risks from the T2000 facility for both scenarios are less than the Rule 1401 permit limits.

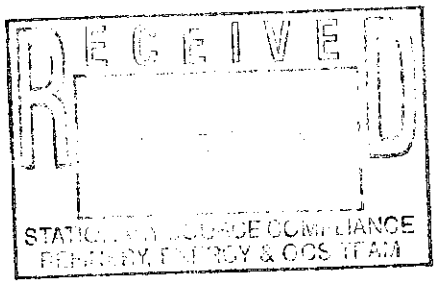
Modeling staff spent a total of 50 hours on this review. Please direct any questions to Thomas Chico at ext. 3149.

TC:JB

cc: Khang Nguyen

ManageTech

Transmittal



To: Khang Nguyen; Jillian Baker

From: Connie Cunningham

Date: November 23, 2010

Re: Pier 400 Modeling Files

Enclosed is the modeling report and CD with the modeling files divided by facility (T1000 and T2000) and further by permit units and the emission profiles (crude oil and partially refined) for your review and approval.

Khang Nguyen

From: Connie Cunningham [ccunningham@e2managetech.com]
Sent: Tuesday, November 23, 2010 9:44 AM
To: Jillian Baker; Khang Nguyen
Cc: Glenn Mayer
Subject: Pier 400 Modeling File
Attachments: Pier 400 Modeling DRAFT Report.docx

Khang/Jillian—

Attached is the Pier 400 modeling report. I will send a CD with all the HARP files in today's mail.

Happy Thanksgiving!
--Connie

Constance M. Cunningham, P.E.

E2 ManageTech
5000 East Spring Street, Suite 720
Long Beach, California 90815
Phone: 866-609-3374 ext. 909
Fax: 419-715-1762
mailto:ccunningham@e2managetech.com

Technology. Management. Solutions. It's all in the people and the process...

Khang Nguyen

From: Connie Cunningham [ccunningham@edsg.com]
Sent: Wednesday, November 19, 2008 3:24 PM
To: Khang Nguyen
Cc: Glenn Mayer
Subject: Pier 400 Modeling
Attachments: emissions.xls; VDU calc 1008.xls; T2000 tank 8x lab crude.pdf; Surge tank CBO.pdf; Surge tank default crude.pdf; Surge tank default gasoline.pdf; Surge tank lab crude.pdf; T1000 tank CBO.pdf; T1000 tank default crude.pdf; T1000 tank default gasoline.pdf; T1000 tank lab crude.pdf; T2000 tank 8x CBO.pdf; T2000 tank 8x default crude.pdf; T2000 tank 8x default gasoline.pdf

Khang,

Attached is the Pier 400 risk modeling. I will also send a CD with the files as a few of the files are too large to email.

This email has the emission files only.

Per your request, the risk is based on two separate risk scenarios - (1) highest tank emissions from crude oil either from submitted lab data or crude default in TANKS and (2) highest tank emissions from partially refined petroleum materials either from submitted lab data for CBO or default gasoline at 1 psia in TANKS. The VDU VOC emissions were calculated and then the toxic components were prorated based on the chemical composition output from TANKS.

Below is a description of the emission files:
emissions.xls - summary of the TANKS outputs with the VDU proration. The summary sheet takes the maximum value for the lab data vs TANKS default.
VDUcalc1008.xls - has the VDU calculation for T1000, T2000, and surge tank.
TANKS outputs in pdf:
surge tank CBO
surge tank default crude
surge tank default gasoline
surge tank lab crude
T1000 tank CBO
T1000 tank default crude
T1000 tank default gasoline
T1000 tank lab crude
T2000 tank 8x CBO
T2000 tank 8x default crude
T2000 tank 8x default gasoline
T2000 tank 8x lab crude

AERMOD was used as the air emissions model and the on-ramp HARP risk model using 80% inhalation method. The EIR used 2 sets of met data for this project. Berth47 met data was used for the outer harbor area which includes T1000. TITP met data was used for the Terminal Island area which includes T2000. T1000 includes 2 identical storage tanks with a height of 51.5 ft and a diameter of 209 ft and a surge tank with a height of 51.5 ft and a diameter of 90 ft which were modeled as volume sources. T2000 includes 14 identical storage tanks with a height of 65.5 ft and a diameter of 185 ft which were modeled as volume sources. Boundary and sensitive receptors were modeled and the receptor grid spacing of 250 meters was used.

Below is a description of the T1000 modeling and risk files:
Berth47_9-06_8-07.sfc - met data
Berth47_9-06_8-07.pfl - met data
aermodT1000.inp - input file
aermodT1000.out - output file (too large to email)
BothT1000.plt - plot file (too large to email)
T1000.rsk - risk file
T1000.src - source file

T1000.xoq - XOQ file (too large to email)
T1000crude.ems - emission file for crude scenario
RiskT1000crude - resulting risk file for the crude scenario
T1000partial.ems - emission file for partially refined scenario
RiskT1000partial - resulting risk file for the partially refined scenario

Below is a description of the T2000 modeling and risk files:
TITP_Sep06_Aug07.sfc - met data
TITP_Sep06_Aug07.pfl - met data
aermodT2000.inp - input file
aermodT2000.out - output file (too large to email)
BothT2000.plt - plot file (too large to email)
T2000.rsk - risk file
T2000.src - source file
T2000.xoq - XOQ file (too large to email)
T2000crude.ems - emission file for crude scenario
RiskT2000crude - resulting risk file for the crude scenario
T2000partial.ems - emission file for partially refined scenario
RiskT2000partial - resulting risk file for the partially refined scenario

Please contact me with any questions.
Thank you,

Connie Cunningham

EDSG - Environmental Data Solutions Group, LLC
26741 Portola Parkway, Suite 1E-245
Foothill Ranch, CA 92610
tel 866-609-EDSG ext. 09
direct fax 419-715-1762
ccunningham@edsgrp.com
www.edsgrp.com

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

M E M O R A N D U M

DATE: October 1, 2010

TO: Naveen Berry

Naveen/Tom - Anything you can do to help expedite this would be greatly appreciated. Thanks

FROM: Jay Chen

SUBJECT: Revised Rule 1401 Health Risk Assessment for Pier 400 Project

PLAINS All American Pipeline, L.P. (PLAINS) previously submitted a cancer risk analysis for the proposed project that was reviewed by Planning, Rule Development& Area Source (PRA) staff. Comments on the health risk assessment (HRA) were included in a memo dated February 11, 2009. The project was subsequently put on hold at the request of the applicant for various reasons including the permit moratorium and business agreement delays between PLAINS and its customers. In June of this year, PLAINS submitted a new proposal to the District that included several modifications to the originally proposed project. As a result, we requested that PLAINS resubmit a new HRA for the project. Attached for your review are electronic modeling files of the revised HRA. It should be noted that the attached AERMOD and HARP model analysis utilizes input data files provided by PRA staff to the applicant.

Please call or e-mail Khang Nguyen (x3210) or Paul Park (x2568) for any questions you may have on the project. In addition, please contact Ms. Connie Cunningham of EDSG at (866) 609-EDSG ext. 09 for any questions on the documents attached.

REQUESTED RESPONSE DATE: October 15, 2010

COMPANY NAME Pacific LA Marine Terminal LLC
FACILITY ID T1000—146546 & T2000—164567
FACILITY LOCATION T1000—3000 Navy Way, Terminal Island, CA 90731
T2000—750 Eldridge Street, Terminal Island, CA 90731

PROJECT DESCRIPTION: New constructions of a marine offloading terminal (T1000) and a tank farm (T2000)

Applications Submitted For Facility T1000

Appl No.	Equipment Tag Name	Application for
451893	Bulk Unloading Berth 408	(1) New construction of a marine bulk unloading facility at Berth 408 on Pier 400 in the Port of Los Angeles. (2) New construction of a 80,000-barrel internal floating roof tank. This tank will function as a surge tank to stabilize the different flow rates between the ship offload pumps and shore side assisted pumps.
512041	Emergency ICE	New construction of a 2922 bhp IC engine that will power an emergency generator.
512791	In-line Air Eliminator System	New construction of an air eliminator drum located upstream of the shore side offloading pumps. The drum will vent two activated carbon adsorbers connected in series

Appl No.	Equipment Tag Name	Application for
513781	Storage Tank CW1	New construction of a fixed roof storage tank that will be used to collect and store slop oil and contact oily water from various areas within the facility.

Applications Submitted For Facility T2000

Appl. No.	Tank Name	Application for
512793	T2000-1	New construction of a 500,000-barrel internal floating roof tank.
512794	T2000-2	New construction of a 500,000-barrel internal floating roof tank.
512795	T2000-3	New construction of a 500,000-barrel internal floating roof tank.
512796	T2000-4	New construction of a 500,000-barrel internal floating roof tank.
450095	T2000-5	New construction of a 250,000-barrel internal floating roof tank.
450097	T2000-6	New construction of a 250,000-barrel internal floating roof tank.
450098	T2000-7	New construction of a 250,000-barrel internal floating roof tank.
450099	T2000-8	New construction of a 250,000-barrel internal floating roof tank.
512797	T2000-9	New construction of a 500,000-barrel internal floating roof tank.
512798	T2000-10	New construction of a 500,000-barrel internal floating roof tank.
460679	Vapor Collection & Disposal System	New construction of a direct-flame afterburner and vapor collection system to control vapor from tank degassing and refilling operations.
512076	Emergency Generator	New construction of an internal combustion engine (ICE) that will power an emergency generator.
512077	Emergency Fire Pump	New construction of an internal combustion engine (ICE) that will power an emergency fire pump.
513776	Storage Tank CW1	New construction of a 35,000-gallon fixed roof storage tank that will be used to collect and store slop oil and contact water from various areas within the facility. (Engineering evaluation for this application is found in Attachment III)

FACILITY TYPE: Title V facilities; non-RECLAIM

PROCESSING ENGINEER: Khang Nguyen (x3210)

DOCUMENTS ATTACHED FOR REVIEW:

- A compact disk labeled Pier 400 Toxic Modeling, October 1, 2010

Attachments
cc (without attachment): Khang Nguyen

Attachment I

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 45	PAGE 1
ENGINEERING & COMPLIANCE	APPL. NO. 512041, 513781	DATE 2/15/2011
APPLICATION PROCESSING AND CALCULATIONS	PROCESSED BY: Cynthia Carter	CHECKED BY

PERMIT TO CONSTRUCT

APPLICANT'S NAME: PACIFIC LA MARINE TERMINAL
(FACILITY ID: 164564)

MAILING ADDRESS: 5900 CHERRY AVE
LONG BEACH, CA 90805

EQUIPMENT ADDRESS: BERTH 408 PORT OF LOS ANGELES (T1000)
SAN PEDRO, CA 90731

Equipment Description:
A/N 512041
INTERNAL COMBUSTION ENGINE, CUMMINS, MODEL NO. 2000DQKA *OR EQUIVALENT*, DIESEL FUELED, FOUR CYCLES, TURBOCHARGED, AFTERCOOLED, RATED AT 2922 BHP, DRIVING AN EMERGENCY ELECTRICAL GENERATOR

Conditions:

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.
2. FOR THE PURPOSES OF THIS PERMIT, AN EQUIVALENT ENGINE IS AN INTERNAL COMBUATION ENGINE THAT MEETS THE SAME OR LOWER EMISSIONS LIMITS AS CUMMINS ENGINE, MODEL NO. 2000DQKA AND MEET THE EMISSION LIMITS SPECIFIED IN TITLE 13 CALIFORNIA CODE OF REGULATIONS SECTION 2423.
3. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITIONS AT ALL TIMES.
4. THE OPERATOR SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF SCAQMD RULES 431.2, 1470 AND 40 CFR60 SUBPART IIII AND 40 CFR60 SUBPART ZZZZ.
5. THIS ENGINE SHALL NOT OPERATE MORE THAN 200 HOURS IN ANY ONE YEAR, WHICH INCLUDES NO MORE THAN A) 50 HOURS IN ANY ONE YEAR FOR MAINTENANCE AND TESTING PURPOSED; AND B) NO MORE THAN 4.2 HOURS IN ANY ONE CALENDAR MONTH FOR MAINTENANCE AND TESTING.
6. AN OPEARTIONAL NON-RESETTABLE TOTALIZING TIME METER SHALL BE INSTALLED AND MAINTAINED TO INDICATE THE ENGINE ELAPSED OPERATING TIME.
7. THE OPERATAOR SHALL RESTRICT THE OPERATION OF THIS EQUIPEMENT AS FOLLOWS:

   IN ADDITION TO MAINTENANCE AND TESTING OF THIS ENGINE, THIS ENGINE SHALL ONLY BE USED TO PROVIDE ELECTRICAL POWER TO EITHER PORTABLE OPERATIONS OR EMERGENCY POWER TO STATIONARY SOURCES.

   PORTABLE OPERATIONS ARE THOSE WHERE IT CAN BE DEMONSTRATED THAT BECAUSE OF THE NATURE OF THE OPERATION, IT IS NECESSARY TO PERIODICALLY MOVE THE EQUIPMENT FROM ONE LOCATION TO ANOTHER.

   EMERGENCIES AT STATIONARY SOURCES ARE THOSE THAT RESULT IN AN INTERRUPTION OF SERVICES OF THE PRIMARY POWER SUPPLY OR DURING STAGE II

OR III ELECTRICAL EMERGENCIES DECLARED BY THE CALIFORNIA INDEPENDENT SYSTEM OPERATIOR.

8. THE OPERATOR SHALL KEEP A LOG OF ENGINE OPERATIONS DOCUMENTING THE TOTAL TIME THE ENGINE IS OPERATED EACH MONTH AND THE SPECIFIC REASON FOR OPERATION AS:
   A. EMERGENCY USE
   B. MAINTENANCE AND TESTING
   C. OTHER OPERATING HOURS (DESCRIBE THE REASON FOR THE OPERATION)

   IN ADDITION, FOR EACH TIME THE ENGINE IS MANUALLY STARTED, THE LOG SHALL INCLUDE THE DATE OF ENGINE OPERATION, THE SPECIFIC REASON FOR OPERATION, AND THE TOTALIZING HOUR METER READINGS (IN HOURS AND TENTHS OF HOURS) AT THE BEGINNING AND THE END OF THE OPERATION.

   ON OR BEFORE JANUARY 15TH OF EACH YEAR, THE OPERATOR SHALL RECORD IN THE ENGINE OPERATING LOG:
   A. THE TOTAL HOURS OF ENGINE OPERATION FOR THE PREVIOUS CALENDAR YEAR, AND
   B. THE TOTAL HOURS OF ENGINE OPERATION FOR MAINTENTANCE AND TESTING FOR THE PREVIOUS CALENDAR YEAR.

9. ENGINE OPERATION LOG(S) SHALL BE RETAINED ON SITE FOR A MINIMUM OF FIVE CALENDAR YEARS AND SHALL BE MADE AVAILABLE TO THE EXECUTIVE OFFICER OR REPRESENTATIVE UPON REQUEST.

Equipment Description:
A/N 513781
STORAGE TANK, CONTACT STORM WATER, DIAMETER: 10.5 FT, LENGTH: 38.75 FT, 20,000 GALLON CAPACITY, WITH TWO CARBON ADSORPTION CANISTERS IN SERIES, EACH 55 GALLON DRUM OF GRANULAR ACTIVATED CARBON

Conditions:
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.
2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITIONS AT ALL TIMES.
3. THE STORAGE TANK SHALL BE VENTED TO THE CARBON ADSORPTION CANISTERS AT ALL TIMES.
4. THE OPERATOR SHALL LIMIT THE THROUGHPUT TO NO MORE THAN 26,000 BARREL(S) IN ANY ONE CALENDAR MONTH
   TO COMPLY WITH THIS CONDITION, THE OPERATOR SHALL KEEP RECORDS, IN A MANNER APPROVED BY THE DISTRICT, FOR THE FOLLOWING PARAMETER(S) OR ITEM(S):

   TANK THROUGHPUT IN BARRELS PER MONTH.
   VACUUM TRUCK RECORDS

5. THE OPERATOR SHALL MONITOR THE CONCENTRATION OF VOLATILE ORGANIC COMPOUNDS (VOCS) AT THE OUTLET OF THE PRIMARY CARBON ADSORBER

WHENEVER THE TANK IS BEING FILLED. THE OPERATOR SHALL MONITOR USING EPA REFERENCE METHOD 21 WITH A DISTRICT APPROVED HYDROCARBON DETECTION INSTRUMENT CALIBRATED IN PPMV METHANE.

6. IN THE EVENT THE OVA ANAYLZER REACHES 500 PPMV, THE CARBON IN THE PRIMARY CARBON CANISTER SHALL BE REPLACED WITH FRESH ACTIVATED CARBON OR, THE SECONDARY CANISTER BECOMES THE PRIMARY CANISTER AND THE REPLENISHED CANISTER BECOMES THE SECONDARY CANISTER. THE PRIMARY CANISTER SHALL BE REPLACED WITHIN 72 HOURS AFTER THE INITIAL DISCOVERY OF 500PPMV. A LOG SHALL BE MAINTAINED TO RECORD THE SEQUENTIAL POSITION OF EACH FRESH CARBON CANISTER AND THE DATE EACH CARBON CANISTER IS REPLENISHED AND/OR RE-SEQUENCED.

7. THIS EQUIPMENT SHALL ONLY BE USED TO STORE STORMWATER AND THE LIQUID STORED IN THIS EQUIPMENT SHALL NOT EXCEED VOC CONTENT OF 10% BY WEIGHT PURSUANT TO RULE 1173 (l)(1)(D) –AMENDED FEBRUARY 6, 2009. ANNUAL RECORDS SHALL BE RETAINED TO SHOW COMPLIANCE WITH THIS CONDITION AND SHALL BE MADE AVAILABLE TO THE EXECUTIVE OFFICER.

8. THE ACTIVATED CARBON USED IN THE PRIMARY AND SECONDARY CARBON CANISTERS SHALL HAVE A CARBON TETRACHLORIDE ACTIVITY NUMBER NOT LESS THAN 60% AS MESURED BY ASTM METHOD D3467-99 OR A BUTANE ACTIVITY NUMBER OF NOT LESS THAN 23.5% AS MEASURED BY ASTM METHOD 5288-92.

9. SPENT CARBON REMOVED FROM THE CARBON ADSORPTION SYSTEM SHALL BE MAINTAINED OR STORED IN CLOSED CONTAINERS PRIOR TO REMOVAL FROM THIS SITE.

10. THIS TANK IS SUBJECT TO ALL APPLICABLE REQUIREMENTS OF SCAQMD RULES 463.

11. THE STORAGE TANK SHALL NOT BE USED TO RECEIVE PETROLUEM LIQUIDS AS DEFINED IN 40 CFR 60 SUBPART KB.

BACKGROUND:

Pacific LA Marine Terminal submitted applications for auxiliary equipment at T1000. For more background information, please see the Master Evaluation for their entire project under AN 451893. Table 1 shows the submitted applications.

Table 1- Submitted Application(s)

	A/N	Received Date	Equipment	Requested Action	Previous A/N
Berth 408 (T1000)	512041	6/23/2010	IC Engine, Emergency Generator	• Install new emergency IC Engine	N/A
	513781	8/19/2010	Contact Water Tank	• Construct tank	N/A

Since construction is expected to begin 1-2 years from the issuance of the permit, the engine has not been purchased. In a meeting between AQMD and PLAMT on August 12, 2010, it was agreed that PLAMT may purchase equivalent engines as long as the emissions are the same or less than the proposed engines. A permit condition will be added to reflect this. Once the PC to PO conversion is done, the equipment description (serial number, model number, etc) will be updated.

FEE EVALUATION:

The fees paid for the applications submitted are as follows:

Table 2-Application Fees Submitted

A/N	Equipment	BCAT/ CCAT	Type	Status	Fee Schedule, FY 09-10 & 10-11	Fee Required, $	Fees Paid, $
512041	IC Engine, Emergency Generator	043902	10	20	B	$2,051.52	$2,051.52
513781	Contact Water Tank	294901	10	20	B	$2,051.52	$1,971.38
					Total:	$4103.04	$4,022.90
						Net Fee Due:	***$80.14***

PROCESS DESCRIPTION:

A/N 512041
The proposed diesel-fired engine is a Cummins rated at 2922 bhp. This engine is Tier 2 compliant and will be used to drive an emergency electrical generator to provide emergency power. The emission factors provided by the engine manufacturer will be used.

A/N 513781
PLAMT proposed to install a 20,000 gallon contact water horizontal tank to collect stormwater with an oily sheen. When it rains, the containment pads (sizes vary per operation) may fill with stormwater. The operator will then manually open the valves in order for the stormwater to drain out of the containment pads. In the event of a spill, the operators have a different procedure on handling the spill. The water will be held in the tank until filled and then pumped out by a contractor for appropriate off-site disposal. The tank will be vented through two carbon adsorbers (55-gallons each). The facility requested the maximum throughput to be 26,000 barrels per month which amounts to 13MM gal/yr.

EMISSIONS:

Emergency Engine

The emissions with calculations can be found below. The overall mass emissions are summarized in Table 3.

Engine data

Engine hp	2922	hp
Engine manufacturer	Cummins	
Fuel type	Diesel	
Fuel rate	138	gal/hour
EPA non-road engine		
Date manufactured	2010	

Engine operating limits

max hr/day	4.2	hour
max hr/month	4.2	hour
max hr/year	50	hour

PM10/PM	0.96

Emission factors	R1	units	R2	units
NOx (Manufacturer)	3.930	g/bhp-hr	3.930	g/bhp-hr
ROG (Manufacturer)	0.1	g/bhp-hr	0.1	g/bhp-hr
CO (Manufacturer)	0.37	g/bhp-hr	0.37	g/bhp-hr
SOx (AQMD Rule)	0.0049	g/bhp-hr	0.005	g/bhp-hr
PM (Manufacturer)	0.07	g/bhp-hr	0.07	g/bhp-hr
PM10 (Calc.)	0.067	g/bhp-hr	0.067	g/bhp-hr

Emission calculations	lb/hour		lb/day max		30-day avg lb/day		lb/year	
	R1	R2	R1	R2	R1	R2	R1	R2
NOx	25.29	25.29	106.23	106.23	3.54	3.54	1264.70	1264.70
ROG	0.64	0.64	2.70	2.70	0.09	0.09	32.18	32.18
CO	2.38	2.38	10.00	10.00	0.33	0.33	119.07	119.07
SOx	0.03	0.03	0.13	0.13	0.00	0.00	1.58	1.58
PM	0.45	0.45	1.89	1.89	0.06	0.06	22.53	22.53
PM10	0.43	0.43	1.82	1.82	0.06	0.06	21.63	21.63

SOx emission factor = based on AQMD Rule

Nox, ROG, CO, PM emission factors from engine manufacturer data; PM10 = 0.96 * PM
A. Emissions as a function of gr/bhp-hr
Emissions (lb/hr) = gr/bhp-hr * hp rating * 1 lb/454 grams
Emissions (lb/day max) = lb/hr * max hr/day

B. NSR 30-day and lb/year values
30-day avg (lb/day) = lb/hr * max hr/month / 30 day
lb/year = lb/day * max lb/year

Table 3 – Cummins Emergency Generator (2922 bhp) Estimated Emissions[a,b]

	lb/hour	lb/day max	30-day avg lb/day	lb/year
	R1=R2	R1=R2	R1=R2	R1=R2
NOx	25.29	106.23	3.54	1264.70
ROG	0.64	2.70	0.09	32.18
CO	2.38	10.00	0.33	119.07
SOx	0.03	0.13	0.00	1.58
PM	0.45	1.89	0.06	22.53
PM10	0.43	1.82	0.06	21.63

[a] Assumes each engine will operate 1 hr/day, 1 day/week in a 30-day month for testing
[b] Engine is limited to operate 50 hours/year for maintenance and testing.

For major polluting facilities, Lowest Achievable Emission Rate (LAER) is determined by the most stringent emission or control technology which are: found in a state implementation plan (SIP), or SCAQMD's Best Available Control Technology (BACT) guidelines for Non-Major Polluting Facilities (October 3, 2008) are "achieved in practice". Therefore, the following table shows the BACT guidelines for an emergency engine > 750 bhp and the facility's proposed emergency engine emission rates.

Table 4 – BACT Compliance Emergency Generator 2922 bhp

	NOx + NMHC	SOx	CO	PM
U.S. EPA Tier 2 Certification Levels Required for Emergency Compression-Ignition Engines, ≥750 bhp (10-3-2008 Revision)	4.8 gr/bhp-hr	Diesel Fuel Sulfur Content ≤ 0.05% by Weight; User only purchase diesel < 0.0015 % by weight (Rule 431.2)	2.6 gr/bhp-hr	0.15 gr/bhp-hr
Cummins, 2922 bhp AQMD Certified ICE AN 471027 FULL PRIME	3.94 gr/bhp-hr	Rule 431.2: Diesel Fuel Sulfur ≤ 0.0015% by Weight	0.37 gr/bhp-hr	0.07 gr/bhp-hr
Comply with BACT?	Yes	Yes	Yes	Yes

Tank

The emissions for the contact water tank were calculated using EPA Tanks 4.0 Program. To be conservative, crude oil was used as its commodity with a vapor pressure <10psia with ~655 turnovers per year for the 20,000 gallon tank. For controlled emissions calculations, the emissions were based off 500 ppmv. Based on the ratio of atmospheric pressure equaling to 1 x10^6ppm, the equivalent vapor pressure at 500 ppmv equals 0.00735 psia. Thus, the calculated vapor pressure was inputted in the tanks' program and the resulting emissions were 99.9% less than the uncontrolled emissions. For carbon breakthrough, the rule of thumb is 20% adsorption. To be conservative, calculating the weight of the carbon divided by total VOC emissions:

$$Min\ Days\ till\ breakthrough = \frac{180\ lb * 20\%}{70.32\ {}^{lb}/_{day}} = 0.51\ days$$

See below for the summary and detailed results.

Table 5: Tank Summary ROG Emissions

A/N	Tank No.	ROG Emissions			
		Uncontrolled		500 ppmv Controlled	
		lb/yr	30day average (lb/day)	lb/yr	30day average (lb/day)
513781	T1000	25,313.96	70.32	20.30	0.06

See the next few pages for EPA Tanks Program emissions report.

Uncontrolled Emissions

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification:	T1000-Contact Water Tank
City:	Long Beach
State:	California
Company:	PLAMT
Type of Tank:	Horizontal Tank
Description:	Assume crude oil properties with Vp <10 psia; throughput 26,000 bbl/month

Tank Dimensions

Shell Length (ft):	38.75
Diameter (ft):	10.50
Volume (gallons):	20,000.00
Turnovers:	655.40
Net Throughput(gal/yr):	13,104,000.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Long Beach, California (Avg Atmospheric Pressure = 14.7 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

T1000-Contact Water Tank - Horizontal Tank
Long Beach, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Crude Oil (TVP <10 psia)	All	66.43	60.99	71.87	64.33	10.0000	10.0000	10.0000	50.0000			207.00	
Benzene						1.3922	1.2004	1.6086	78.1100	0.0018	0.0010	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.1353	0.1123	0.1622	106.1700	0.0011	0.0001	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Methylene chloride						6.5444	5.7679	7.4049	84.9400	0.0003	0.0008	84.94	Option 2: A=7.409, B=1325.9, C=252.6
Naphthalene						0.0033	0.0026	0.0041	128.2000	0.0011	0.0000	128.20	Option 2: A=7.3729, B=1968.36, C=222.61
Toluene						0.4021	0.3405	0.4730	92.1300	0.0028	0.0005	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						10.2335	10.2309	10.2311	49.9466	0.9885	0.9974	209.72	
Xylene (-m)						0.1129	0.0936	0.1356	106.1700	0.0029	0.0001	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Xylene (-o)						0.0892	0.0736	0.1075	106.1700	0.0015	0.0001	106.17	Option 2: A=6.998, B=1474.679, C=213.69

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

T1000-Contact Water Tank - Horizontal Tank
Long Beach, California

Annual Emission Calcaulations	
Standing Losses (lb):	522.0513
Vapor Space Volume (cu ft):	2,137.1772
Vapor Density (lb/cu ft):	0.0886
Vapor Space Expansion Factor:	0.0286
Vented Vapor Saturation Factor:	0.2644

Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	2,137.1772
Tank Diameter (ft):	10.5000
Effective Diameter (ft):	22.7665
Vapor Space Outage (ft):	5.2500
Tank Shell Length (ft):	38.7500
Vapor Density	
Vapor Density (lb/cu ft):	0.0886
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	10.0000
Daily Avg. Liquid Surface Temp. (deg. R):	526.1003
Daily Average Ambient Temp. (deg. F):	64.3083
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	523.9983
Tank Paint Solar Absorptance (Shell):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,571.6498
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0286
Daily Vapor Temperature Range (deg. R):	21.7491
Daily Vapor Pressure Range (psia):	0.0000
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	10.0000
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	10.0000
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	10.0000
Daily Avg. Liquid Surface Temp. (deg R):	526.1003
Daily Min. Liquid Surface Temp. (deg R):	520.6630
Daily Max. Liquid Surface Temp. (deg R):	531.5375
Daily Ambient Temp. Range (deg. R):	19.8167
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.2644
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	10.0000
Vapor Space Outage (ft):	5.2500
Working Losses (lb):	24,857.1429
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	10.0000
Annual Net Throughput (gal/yr.):	13,104,000.0000
Annual Turnovers:	655.2000
Turnover Factor:	0.6254
Tank Diameter (ft):	10.5000
Working Loss Product Factor:	0.7500
Total Losses (lb):	25,379.1941

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

T1000-Contact Water Tank - Horizontal Tank
Long Beach, California

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Crude Oil (TVP <10 psia)	24,857.14	522.05	25,379.19
Benzene	25.79	0.54	26.33
Ethylbenzene	1.53	0.03	1.56
Methylene chloride	20.20	0.42	20.63
Naphthalene	0.04	0.00	0.04
Toluene	11.59	0.24	11.83
Xylene (-m)	3.37	0.07	3.44
Xylene (-o)	1.38	0.03	1.41
Unidentified Components	24,793.25	520.71	25,313.96

Controlled Emissions:

TANKS 4.0.9d

Emissions Report - Detail Format

Tank Identification and Physical Characteristics

Identification		
User Identification:	T1000-Contact Water Tank (R2)	
City:	Long Beach	
State:	California	
Company:	PLAMT	
Type of Tank:	Horizontal Tank	
Description:	Controlled VOC	
Tank Dimensions		
Shell Length (ft):		38.75
Diameter (ft):		10.50
Volume (gallons):		20,000.00
Turnovers:		655.40
Net Throughput(gal/yr):		13,104,000.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	
Paint Characteristics		
Shell Color/Shade:	White/White	
Shell Condition	Good	
Breather Vent Settings		
Vacuum Settings (psig):		-0.03
Pressure Settings (psig)		0.03

Meterological Data used in Emissions Calculations: Long Beach, California (Avg Atmospheric Pressure = 14.7 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

T1000-Contact Water Tank - Horizontal Tank
Long Beach, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Controlled VOC (500 ppmv at outlet)	All	66.43	60.99	71.87	64.33	0.0074	0.0074	0.0074	50.0000			207.00	

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

T1000-Contact Water Tank - Horizontal Tank
Long Beach, California

Annual Emission Calcaulations	
Standing Losses (lb):	7.8695
Vapor Space Volume (cu ft):	2,137.1772
Vapor Density (lb/cu ft):	0.0003
Vapor Space Expansion Factor:	0.0373
Vented Vapor Saturation Factor:	0.9979
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	2,137.1772
Tank Diameter (ft):	10.5000
Effective Diameter (ft):	22.7665
Vapor Space Outage (ft):	5.2500
Tank Shell Length (ft):	38.7500
Vapor Density	
Vapor Density (lb/cu ft):	0.0003
Vapor Molecular Weight (lb/lb-mole):	50.0000

Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0074
Daily Avg. Liquid Surface Temp. (deg. R):	526.1003
Daily Average Ambient Temp. (deg. F):	64.3083
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	523.9983
Tank Paint Solar Absorptance (Shell):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,571.6498
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0373
Daily Vapor Temperature Range (deg. R):	21.7491
Daily Vapor Pressure Range (psia):	0.0000
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0074
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0074
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0074
Daily Avg. Liquid Surface Temp. (deg R):	526.1003
Daily Min. Liquid Surface Temp. (deg R):	520.6630
Daily Max. Liquid Surface Temp. (deg R):	531.5375
Daily Ambient Temp. Range (deg. R):	19.8167
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9980
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.0074
Vapor Space Outage (ft):	5.2500
Working Losses (lb):	18.3943
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0074
Annual Net Throughput (gal/yr.):	13,104,000.0000
Annual Turnovers:	655.2000
Turnover Factor:	0.2125
Tank Diameter (ft):	10.5000
Working Loss Product Facto:	0.7500
Total Losses (lb):	20.2951

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

T1000-Contact Water Tank - Horizontal Tank
Long Beach, California

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Controlled VOC (500 ppmv at outlet)	18.39	1.90	20.30

RULES EVALUATION:

PART 1 SCAQMD REGULATIONS

Rule 212	**Standards for Approving Permits**	**November 14, 1997**
	This modification meets all criteria in Rule 212 for permit approval. The installation of the IC Engine does not violate Division 26 of the State Health and Safety Code or in violation of AQMD's rules and regulations. Prior to granting a Permit to Construct for a project requiring notification is as follows: (1) the modified permit unit are, located within 1000 feet of a school. This subdivision shall *not* apply to a modification of an existing facility if the Executive Officer determines that the modification will *result in a reduction of emissions of air contaminants* from the facility and no increase in health risk at any receptor location. (2) the emissions increase does not exceed the daily maximum specified in subdivision (g) of this rule (30 lbs/day); and (3) the modified permit units do not have an increased cancer risk greater than, or equal to, one in a million ($1x 10^{-6}$) during a lifetime of 70 years or pose a risk of nuisance. The IC Engine and contact water tank are not within 1,000 feet of a school, the emission increase does not exceed the daily maximum specified in Rule 212(g). Even though the IC Engine is exempt from Rule 1401 per Rule 1401(g)(1)(F), a public notice is being published since it is part of a major project. A risk assessment was calculated for this rule. All the subject equipment pass the health risk assessment. The MICR for each are less than the threshold of one in a million. See Rule 1401 for detailed results.	

Rule 401	**Visible Emissions**	**November 9, 2001**
(b)(1)	Visible emissions are not expected from the IC Engine and contact water tank. Compliance is expected with proper operation and maintenance.	

Rule 402	**Nuisance**	**May 7, 1976**
	All of the subject equipment is not expected to emit odorous emissions. Compliance with this rule is expected.	

Rule 404	**Particulate Matter – Concentration**	**February 7, 1986**
	Based on the manufacturer's data, the exhaust flow rates for the engine as follows:	

	Cummins Emergency Generator (2922 bhp)

Rule 404	**Particulate Matter – Concentration**	**February 7, 1986**

PM Emission Factor (g/bhp-hr)	0.07
Exhaust Flow Rate (cfm)	14,920
PM Emission Rate (gr/cf)	0.00352
R404 Max PM Emission Rate (gr/cf)	0.06805
RESULT:	**PASS**

By interpolation at the engine's flow rate, the PM emission rate is below the maximum concentration of particulate matter allowed according to Table 404(a)

Therefore, the engine is expected to comply with Rule 404.

Rule 407	**Liquid and Gaseous Air Contaminants**	**April 2, 1982**
	In accordance with Rule 407(b)(1), the provisions of this rule shall not apply to emissions from stationary internal combustion engines.	

Rule 409	**Combustion Contaminants**	**August 7, 1981**
	The provisions of this rule shall not apply to emissions from stationary internal combustion engines.	

Rule 431.2	**Sulfur Content of Liquid Fuels**	**September 15, 2000**
	The operator is required by this rule to purchase only diesel fuel that contains 0.0015% or less sulfur by weight. A condition will be added to this effect. Compliance is expected.	

Rule 463	**Organic Liquid Storage**	**May 6, 2005**
	This rule applies to any above-ground tank with capacity 19,815 gallons or greater for storing organic liquids. The fixed roof tank is subject to Rule 463(c)(3). The tank will be vented to a carbon adsorption system, which meets 463 (c)(3)(C) 95% efficiency requirement. The tank is expected to comply with proper recordkeeping and inspections.	

Rule 1110.2	**Emissions from Gaseous and Liquid Fueled Engines**	**February 1, 2008**
(b)	This rule applies to all stationary and portable engines over 50 rated brake horsepower. The subject engine is stationary and is rated at 2922 HP, therefore this rule applies.	
(h)	The rule exempts emergency standby engines of subdivision (d) that have permit conditions that limit operation to 200 hours or less per year. The engine will have a permit condition to limit its operation to comply with this rule.	
	Based on the above analysis, the facility is expected to comply with the rule.	

Rule 1149	**Storage Tank Cleaning and Degassing**	**May 2, 2008**
	The purpose of this rule is to reduce Volatile Organic Compounds (VOCs) and toxics emissions from roof landings, cleaning, maintenance, testing, repair and removal of storage tanks and pipelines. This rule applies to the cleaning and degassing of a pipeline opened to atmosphere outside the boundaries of a facility, stationary tank, reservoir, or other container, storing or last used to store VOCs. The purpose of the tank is to store stormwater with an oily sheen, not store VOCS. Therefore, the requirements of this rule do not apply.	

Rule 1173:	**Fugitive Emissions of Volatile Organic Compounds**	**Amended February 6, 2009**
	This rule applies to fugitive VOC components at refineries, chemical plants, oil, and gas production fields, natural gas process plants and pipeline transfer stations. 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 liquid is expected to be exempt from the requirements of this rule per 1173(l)(1)(D). A permit condition will be added to show its exemption. Compliance is expected.	

Rule 1178	**Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities**	**April 7, 2006**
	This rule applies to aboveground storage tanks that have a capacity of 19,815 gallons that store organic liquids with a true vapor pressure greater than 0.1psi and the petroleum facility emits more than 20 tons per year of VOC in any emission inventory. Facility T1000 is a petroleum facility as defined by paragraph (c)(22). However, facility T1000 is not expected to emit more than 20 tons of VOC per year. The proposed facility's total VOC emissions are estimated to be less than 10 tons per year. Therefore, the proposed contact waste tank is not subject to this rule.	

REG XIII	**New Source Review**	**December 6, 2002** **Application Deem Complete Date: October 20, 2008**
	The proposed new construction in this project will cause an emission increase of non attainment pollutants (ROG, PM, NOx, and SOx). Even though the District is in attainment for CO, BACT applies when there is an increase of CO per DEO Mohsen Nazmi's email 8-9-2007. The daily emissions are as follows:	

Application #	Equipment	NSR Emissions, lbs/day				
		VOC	PM	NOx	SOx	CO
512041	Emergency IC Engine	0.09	0.06	3.54	0.00	0.33
513781	Storage Tank	0.06	--	--	--	--

The following is a discussion of each requirement in NSR.

BACT: 1303(a)	**<u>Emergency IC Engine</u>** Pacific Terminal is proposing the emission levels specified in emissions calculations section. The engine will meet the BACT requirements for ROG, CO, NOx, SOx, and PM_{10} as shown in the BACT Compliance Table 4. **<u>Tank</u>** According to BACT guidelines, for fixed roof storage tanks, the Vapor Recovery System must have an overall system efficiency of ≥ 95% for VOCs. Carbon adsorption has an efficiency greater than 95%.
Modeling	**<u>Emergency IC Engine</u>**

REG XIII	New Source Review — December 6, 2002 Application Deem Complete Date: October 20, 2008
1303(b)(1)	In accordance with Rule 1304(a)(4) – Exemptions (Emergency Equipment), the engine is exempt from the modeling requirements specified in 1303(b)(1) if the source is exclusively used as emergency standby equipment, provided the source does not operate more than 200 hours per year as evidenced by an engine-hour meter (see permit condition) **Tank** Although there is an increase in VOC from the tank, modeling for VOC, is not required.
Offsets 1303(b)(2)	The emissions from the subject equipment will be accumulated with the other project's equipment. Please refer to the MASTER evaluation under AN 451893
1303(b)(3)	Sensitive Zone Requirements. ERC's are not required.
1303(b)(4)	Facility Compliance. This facility complies with all applicable District rules and regulations.
Major Polluting Facilities 1303(b)(5)	Please refer to the MASTER evaluation under AN 451893 for rule analysis.
	Compliance with this rule is expected.

Regulation XIV	New Source Review of Toxic Air Contaminants — June 5, 2009
	This rule requires permit applicants to assess the cancer risks due to the cumulative emission impacts of new/modified sources in their facility. Requirements- Rule 1401 contains the following requirements: MICR, without T-BACT: ≤ 1 in 1 million (1.0×10^{-6}) MICR, with T-BACT: ≤ 10 in 1 million (1.0×10^{-5}) Cancer Burden: ≤ 0.5 Maximum Chronic Hazard Index: ≤ 1.0 Maximum Acute Hazard Index: ≤ 1.0 **Emergency Engine** Rule 1401(g)(1)(F) – Emergency Internal Combustion Engines provides an exemption from the requirements of Rule 1401(d) – Requirements, if the engine is exempt under Rule 1304. This engine is exempt from modeling under Rule 1304 (and offsets are not required) since they will exclusively be used as emergency generation and will not operate more than 200 hours per year. Even though, this engine is exempt from the

requirements of Rule 1401(d), a risk assessment was calculated for Rule 212 (Public Notice) purposes. The engine passed the health risk assessment. See the next page for Contact Water Tank detailed results.

Tank Health Risk Assessment Results

		MICR	∑HIC	∑HIA
IC Emergency Engine (2922 bhp)	Residential	9.53E-10	<1	<1
	Commercial	8.0E-7	<1	<1
	RESULT	PASS	PASS	PASS

Tank

Since the tank is a new source, a health risk assessment was calculated. The tank passed Tier 1, but since AQMD's R1401 spreadsheet calculates MICR, HIC, and HIA in Tier 2, the table below shows the results. To be conservative the nearest residential (2000 m) and commercial distances (25 m) were taken from the boundary of the facility near residential and commercial receptors. The results of the health risk assessment are summarized below:

Tank Health Risk Assessment Results

		MICR	∑HIC	∑HIA
T1000 tank	Residential	4.67E-11	<1	<1
	Commercial	4.60E-09	<1	<1
	RESULT	PASS	PASS	PASS

1401(d)(1)(A):Based on Tier 2 results, the MICR values are less than one in a million.

1401(d)(1)(B):Not applicable.

1401(d)(1)(C):Since the MICR is not greater than one in a million, the cancer burden is not greater than 0.5.

1401(d)(2): Based on Tier 2 results, the Chronic Hazard Index is less than 1.0.

1401(d)(3): Based on Tier 2 results, the Acute Hazard Index is less than 1.0.

1401(d)(4): Since the residential MICR value is below than one in a million, the risk per year is less than 1/70th of this value.

1401(d)(5): Not applicable since the permit conditions are not pursuant to Rule 1401.

1401(d)(6): Pursuant to Section 112(g) of the federal Clean Air Act (CAA), no person shall begin construction or reconstruction of a major stationary source emitting hazardous air pollutants listed in Section 112 (b) of the CAA, unless the source is constructed with Best Available Control Technology for Toxics (T-BACT) and complies with all other applicable

	requirements, including definitions and public noticing, referenced in 40 CFR 63.40 through 63.44. Since this is not a major HAP source, this does not apply.
	Compliance with this rule is expected. See the next few pages for detailed risk assessment report.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 45	PAGE 24
ENGINEERING & COMPLIANCE	APPL. NO. 512041, 513781	DATE 2/15/2011
APPLICATION PROCESSING AND CALCULATIONS	PROCESSED BY: Cynthia Carter	CHECKED BY

IC Emergency Engine Risk Assessment

TIER 1 / TIER 2 SCREENING RISK ASSESSMENT DATA INPUT

Application deemed complete date:	08/12/10
A/N:	512041 (2922 bhp)
Fac:	Pacific LA Marine Terminal (T1000)

Stack Data		Units
Hour/Day	1	hr/day
Day/Week	1	day/wk
Week/Year	50	wk/yr
Emission Units	lb/hr	
		0
Control Efficiency	0.00	fraction range 0-1
Does source have TBACT?	NO	
Point or Volume Source ?	P	P or V
Stack Height or Building Height	10	feet
Area (For Volume Source Only)		ft^2
Distance-Residential	2000	meters
Distance-Commercial	25	meters
Meteorological Station	Long Beach	

Source Type:	O - Other

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Screening Mode (**NO** = Tier 1 or Tier 2; **YES** = Tier 3)	NO

Emission Units	lb/hr	
Source output capacity	n/a	n/a

FOR USER-DEFINED CHEMICALS AND EMISSIONS, FILL IN THE TABLE BELOW

USER DEFINED CHEMICALS AND EMISSIONS				R1 - Uncontrolled	Efficiency Factor	R2 - Controlled
Compound Code	Compound	lb/hr	Molecular Weight	lbs/hr	Fraction range 0-1	lbs/hr
D14	Diesel PM from diesel-fueled internal combustion engine	4.50E-01	no data	0.45	0.99100	0.00405

TIER 1 SCREENING RISK ASSESSMENT REPORT

Receptor Distance (actual)	25
Receptor Distance (for X/Q LOOKUP)	25

Tier 1 Results	
Cancer/Chronic ASI	**Acute ASI**
1.69E+00	
FAILED	PASSED

APPLICATION SCREENING INDEX CALCULATION

Code	Compound	Average Annual Emission Rate (lbs/yr)	Max Hourly Emission Rate (lbs/hr)	Cancer / Chronic Pollutant Screening Level (lbs/yr)	Acute Pollutant Screening Level (lbs/hr)	Cancer / Chronic Pollutant Screening Index (PSI)	Acute Pollutant Screening Index (PSI)
D14	Diesel PM from diesel-fueled internal combustion engine	2.03E-01	4.05E-03	1.20E-01		1.69E+00	
TOTAL (APPLICATION SCREENING INDEX)						**1.69E+00**	

TIER 2 SCREENING RISK ASSESSMENT REPORT

A/N:	512041 (2922 bhp)
Fac:	Pacific LA Marine Terminal (T1000)

Application deemed complete date: 08/12/10

2. Tier 2 Data

MET Factor	0.59
4 hr	0.89
6 or 7 hrs	0.73

Dispersion Factors tables

2	For Chronic X/Q
6	For Acute X/Q

Dilution Factors (ug/m3)/(tons/yr)

Receptor	X/Q	X/Qmax
Residential	0.05	8.4
Commercial	51.18	2000

Adjustment and Intake Factors

	AFann	DBR	EVF
Residential	1	302	0.96
Worker	4.2	149	0.38

3. Rule 1401 Compound Data

Compound	R1 - uncontrolled (lbs/hr)	R2 - controlled (lbs/hr)	CP	MP MICR Resident	MP MICR Worker	MP Chronic Resident	MP Chronic Worker	REL Chronic	REL Acute
Diesel PM from diesel-fueled internal combustion engine	4.50E-01	4.05E-03	1.10E+00	1.0000	1.0000	1.0000	1.0000	5	

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4. Emission Calculations

Compound	uncontrolled R1 (lb/hr)	controlled R2 (lb/hr)	R2 (lb/yr)	R2 (ton/yr)
Diesel PM from diesel-fueled internal combustion engine	4.50E-01	4.05E-03	0.2025	0.00010125
Total	4.50E-01	4.05E-03	2.03E-01	1.01E-04

A/N: 512041 (2922 bhp)

Application deemed complete date: 08/12/10

TIER 2 RESULTS

5a. MICR

MICR = CP (mg/(kg-day))^-1 * Q (ton/yr) * (X/Q) * AFann * MET * DBR * EVF * 1E-6* MP

Compound	Residential	Commercial
Diesel PM from diesel-fueled internal combustion engine	9.53E-10	8.00E-07

No Cancer Burden, MICR<1.0E-6

5b. Cancer Burden	**NO**
X/Q for one-in-a-million:	
Distance (meter)	
Area (km2):	

Total	**9.53E-10**	**8.00E-07**
	PASS	**PASS**

Population:	-
Cancer Burden:	

6. Hazard Index

HIA = [Q(lb/hr) * (X/Q)max] * AF / Acute REL

HIC = [Q(ton/yr) * (X/Q) * MET * MP] / Chronic REL

Target Organs	Acute	Chronic	Acute Pass/Fail	Chronic Pass/Fail
Alimentary system (liver) - AL			Pass	Pass
Bones and teeth - BN			Pass	Pass
Cardiovascular system - CV			Pass	Pass
Developmental - DEV			Pass	Pass
Endocrine system - END			Pass	Pass
Eye			Pass	Pass
Hematopoietic system - HEM			Pass	Pass
Immune system - IMM			Pass	Pass
Kidney - KID			Pass	Pass
Nervous system - NS			Pass	Pass
Reproductive system - REP			Pass	Pass
Respiratory system - RES		6.11E-04	Pass	Pass
Skin			Pass	Pass

A/N: 512041 (2922 bhp)

Application deemed complete date: 08/12/10

6a. Hazard Index Acute

HIA = [Q(lb/hr) * (X/Q)max] *AF/ Acute REL

	HIA - Residential									
Compound	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Diesel PM from diesel-fueled internal combustion engine										
Total										

	HIA - Commercial									
Compound	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Diesel PM from diesel-fueled internal combustion engine										
Total										

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6b. Hazard Index Chronic

HIC = [Q(ton/yr) * (X/Q) * MET * MP] / Chronic REL

	HIC - Residential												
Compound	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Diesel PM from diesel-fueled internal combustion engine												5.97E-07	
Total												5.97E-07	

A/N: 512041 (2922 bhp)

Application deemed complete date: 08/12/10

6b. Hazard Index Chronic (cont.)

	HIC - Commercial												
Compound	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Diesel PM from diesel-fueled internal combustion engine												6.11E-04	
Total												6.11E-04	

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Contact Water Tank Risk Assessment

TIER 1 / TIER 2 SCREENING RISK ASSESSMENT
DATA INPUT

Application deemed complete date:	08/20/10
A/N:	513781
Fac:	Pacific LA Marine Terminal (T1000)

Stack Data		Units
Hour/Day	24	hr/day
Day/Week	7	day/wk
Week/Year	52	wk/yr
Emission Units	lb/hr	
		0
Control Efficiency	0.00	fraction range 0-1
Does source have TBACT?	NO	
Point or Volume Source ?	V	P or V
Stack Height or Building Height	15	feet
Area (For Volume Source Only)	407	ft^2
Distance-Residential	2000	meters
Distance-Commercial	25	meters
Meteorological Station	Long Beach	

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Source Type:	O - Other	
Screening Mode (**NO** = Tier 1 or Tier 2; **YES** = Tier 3)	NO	

Emission Units	lb/hr	
Source output capacity	n/a	n/a

FOR USER-DEFINED CHEMICALS AND EMISSIONS, FILL IN THE TABLE BELOW

USER DEFINED CHEMICALS AND EMISSIONS				R1 - Uncontrolled	Efficiency Factor	R2 - Controlled
Compound Code	Compound	lb/hr	Molecular Weight	lbs/hr	Fraction range 0-1	lbs/hr
B1	Benzene (including benzene from gasoline)	3.01E-06	78.11	3.0057E-06	0.99100	3.0057E-06
E4	Ethyl benzene	1.78E-07	106.16	0.000000178	0.97140	0.000000178
M13	Methylene chloride(Dichloromethane)	2.36E-06	84.94	0.000002355	0.99100	0.000002355
T3	Toluene (methyl benzene)	1.35E-06	92.13	0.00000135	0.9910(	0.00000135
X2	Xylene, m-	3.93E-07	106.17	3.9269E-07		3.9269E-07
X3	Xylene, o-	1.61E-07	106.18	1.609E-07		1.609E-07

TIER 1 SCREENING RISK ASSESSMENT REPORT

Receptor Distance (actual)	25
Receptor Distance (for X/Q LOOKUP)	25

Tier 1 Results	
Cancer/Chronic ASI	**Acute ASI**
2.37E-02	4.53E-06
PASSED	PASSED

APPLICATION SCREENING INDEX CALCULATION

Code	Compound	Average Annual Emission Rate (lbs/yr)	Max Hourly Emission Rate (lbs/hr)	Cancer / Chronic Pollutant Screening Level (lbs/yr)	Acute Pollutant Screening Level (lbs/hr)	Cancer / Chronic Pollutant Screening Index (PSI)	Acute Pollutant Screening Index (PSI)
B1	Benzene (including benzene from gasoline)	2.63E-02	3.01E-06	1.14E+00	7.39E-01	2.30E-02	4.07E-06
E4	Ethyl benzene	1.56E-03	1.78E-07	1.31E+01		1.19E-04	
M13	Methylene chloride(Dichloromethane)	2.06E-02	2.36E-06	3.26E+01	7.00E+00	6.31E-04	3.36E-07
T3	Toluene (methyl benzene)	1.18E-02	1.35E-06	9.92E+03	1.85E+01	1.19E-06	7.30E-08
X2	Xylene, m-	3.43E-03	3.93E-07	2.31E+04	1.10E+01	1.48E-07	3.57E-08
X3	Xylene, o-	1.41E-03	1.61E-07	2.31E+04	1.10E+01	6.07E-08	1.46E-08
	TOTAL (APPLICATION SCREENING INDEX)					**2.37E-02**	**4.53E-06**

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A/N:	513781
Fac:	Pacific LA Marine Terminal (T1000)

Application deemed complete date: 08/20/10

2. Tier 2 Data

MET Factor	0.99
4 hr	0.92
6 or 7 hrs	0.87

Dispersion Factors tables

5	For Chronic X/Q
7	For Acute X/Q

Dilution Factors (ug/m3)/(tons/yr)

Receptor	X/Q	X/Qmax
Residential	0.12	8.2
Commercial	60.49	1532.1

Adjustment and Intake Factors

	AFann	DBR	EVF
Residential	1	302	0.96

Worker	1	149	0.38

3. Rule 1401 Compound Data

Compound	R1 - uncontrolled (lbs/hr)	R2 - controlled (lbs/hr)	CP	MP MICR Resident	MP MICR Worker	MP Chronic Resident	MP Chronic Worker	REL Chronic	REL Acute
Benzene (including benzene from gasoline)	3.01E-06	3.01E-06	1.00E-01	1.0000	1.0000	1.0000	1.0000	60	1300
Ethyl benzene	1.78E-07	1.78E-07	8.70E-03	1	1	1	1	2000	
Methylene chloride(Dichloromethane)	2.36E-06	2.36E-06	3.50E-03	1	1	1	1.0000	400	14000
Toluene (methyl benzene)	1.35E-06	1.35E-06		1	1	1	1	300	37000
Xylene, m-	3.93E-07	3.93E-07		1.0000	1.0000	1	1	700	22000
Xylene, o-	1.61E-07	1.61E-07		1.0000	1.0000	1	1	700	22000

4. Emission Calculations

Compound	uncontrolled R1 (lb/hr)	controlled R2 (lb/hr)	R2 (lb/yr)	R2 (ton/yr)
Benzene (including benzene from gasoline)	3.01E-06	3.01E-06	0.026257795	1.31289E-05
Ethyl benzene	1.78E-07	1.78E-07	0.001555008	7.77504E-07
Methylene chloride(Dichloromethane)	2.36E-06	2.36E-06	0.02057328	1.02866E-05

Toluene (methyl benzene)	1.35E-06	1.35E-06	0.0117936	5.8968E-06
Xylene, m-	3.93E-07	3.93E-07	0.00343054	1.71527E-06
Xylene, o-	1.61E-07	1.61E-07	0.001405622	7.02811E-07
Total	7.44E-06	7.44E-06	6.50E-02	3.25E-05

A/N: 513781 **Application deemed complete date:** 08/20/10

TIER 2 RESULTS

5a. MICR

MICR = CP (mg/(kg-day))^-1 * Q (ton/yr) * (X/Q) * AFann * MET * DBR * EVF * 1E-6* MP

Compound	Residential	Commercial
Benzene (including benzene from gasoline)	4.52E-11	4.45E-09
Ethyl benzene	2.33E-13	2.29E-11
Methylene chloride(Dichloromethane)	1.24E-12	1.22E-10
Toluene (methyl benzene)		
Xylene, m-		
Xylene, o-		

No Cancer Burden, MICR<1.0E-6

5b. Cancer Burden	**NO**

Total	**4.67E-11**	**4.60E-09**
	PASS	**PASS**

X/Q for one-in-a-million:	
Distance (meter)	
Area (km2):	
Population:	-
Cancer Burden:	

6. Hazard Index

HIA = [Q(lb/hr) * (X/Q)max] * AF / Acute REL

HIC = [Q(ton/yr) * (X/Q) * MET * MP] / Chronic REL

Target Organs	Acute	Chronic	Acute Pass/Fail	Chronic Pass/Fail
Alimentary system (liver) - AL		2.33E-08	Pass	Pass
Bones and teeth - BN			Pass	Pass
Cardiovascular system - CV		1.54E-06	Pass	Pass
Developmental - DEV	3.60E-06	1.43E-05	Pass	Pass
Endocrine system - END		2.33E-08	Pass	Pass
Eye	9.45E-08		Pass	Pass
Hematopoietic system - HEM	3.54E-06	1.31E-05	Pass	Pass
Immune system - IMM	3.54E-06		Pass	Pass
Kidney - KID		2.33E-08	Pass	Pass
Nervous system - NS	3.14E-07	1.60E-05	Pass	Pass
Reproductive system –	3.60E-06		Pass	Pass

REP				
Respiratory system - RES	9.45E-08	1.38E-06	Pass	Pass
Skin			Pass	Pass

A/N: 513781 **Application deemed complete date:** 08/20/10

6a. Hazard Index
Acute

HIA = [Q(lb/hr) * (X/Q)max] *AF/ Acute REL

	HIA - Residential									
Compound	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Benzene (including benzene from gasoline)			1.90E-08		1.90E-08	1.90E-08	1.38E-09	1.90E-08		
Ethyl benzene										
Methylene chloride(Dichloromethane)										
Toluene (methyl benzene)			2.99E-10	2.99E-10			2.99E-10	2.99E-10	2.99E-10	
Xylene, m-				1.46E-10					1.46E-10	
Xylene, o-				6.00E-11					6.00E-11	
Total			1.93E-08	5.06E-10	1.90E-08	1.90E-08	1.68E-09	1.93E-08	5.06E-10	

	HIA - Commercial									
Compound	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Benzene (including benzene from gasoline)			3.54E-06		3.54E-06	3.54E-06		3.54E-06		

Ethyl benzene							2.58E-07			
Methylene chloride(Dichloromethane)			5.59E-08	5.59E-08			5.59E-08	5.59E-08	5.59E-08	
Toluene (methyl benzene)										
Xylene, m-				2.73E-08					2.73E-08	
Xylene, o-				1.12E-08					1.12E-08	
Total			3.60E-06	9.45E-08	3.54E-06	3.54E-06	3.14E-07	3.60E-06	9.45E-08	

6b. Hazard Index Chronic

HIC = [Q(ton/yr) * (X/Q) * MET * MP] / Chronic REL

	HIC - Residential												
Compound	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Benzene (including benzene from gasoline)				2.60E-08			2.60E-08			2.60E-08			
Ethyl benzene	4.62E-11		3.06E-09	4.62E-11	4.62E-11				4.62E-11				
Methylene chloride(Dichloromethane)				2.34E-09						3.06E-09			
Toluene (methyl benzene)										2.34E-09		2.34E-09	
Xylene, m-										2.91E-11		2.91E-10	
Xylene, o-										1.19E-10		1.19E-10	
Total	4.62E-11		3.06E-09	2.84E-08	4.62E-11		2.60E-08		4.62E-11	3.18E-08		2.75E-09	

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	HIC - Commercial												
Compound	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Benzene (including benzene from gasoline)				1.31E-05			1.31E-05			1.31E-05			
Ethyl benzene	2.33E-08		1.54E-06	2.33E-08	2.33E-08				2.33E-08				
Methylene chloride(Dichloromethane)				1.18E-06						1.54E-06			
Toluene (methyl benzene)										1.18E-06		1.18E-06	
Xylene, m-										1.47E-07		1.47E-07	
Xylene, o-										6.01E-08		6.01E-08	
Total	2.33E-08		1.54E-06	1.54E-05	2.33E-08		1.31E-05		2.33E-08	1.60E-05		1.38E-06	

Rule 1470	**Requirements For Stationary Diesel-Fueled Internal Combustion And Other Compression Ignition Engines** **June 1, 2007**
	This rule applies to any person who owns or operates a stationary CI engine in AQMD with a rated brake horsepower greater than 50(50bhp), except as provided in subdivision (h).
1470(c)(2)(A)	Does not apply, engines will not be located 500 feet or less from a school.
1470(c)(2)(B)	Does not apply; engines will not operate in response to the notification of an impending rotating outage.
1470(c)(2)(C)	(i) New stationary emergency standby diesel-fueled engines (>50 bhp), shall: (I) emit diesel PM at a rate less than or equal to 0.15 g/bhp-hr; or (II) meet the diesel PM standard specified in the Off-Road Compression Ignition Engine Standards for off-road engines with the same maximum rated power (Title 13 CCR Section 2423), whichever is more stringent; and (III) not operate more than 50 hours per year for maintenance and testing. This engine is EPA Tier 2 certified with a PM emission factors less than the requirement of the rule of 0.15 g/bhp-hr and the engine will be limited to 50 hours per year for maintenance and testing. Therefore, compliance is expected.
	(ii) Alternative standard was not requested.
	(iii) Does not apply; engine will not be located 100 meters or less from a school.
	(iv) New stationary emergency standby diesel-fueled CI engines (> 50 bhp) must meet the HC, NOx, NMHC + NOx, and CO Standards as specified in the Off-Road Compression-Ignition Engine Standards (Title 13, CCR, Section 2423). In accordance to Title 13, CCR, Section 2423, Table 1a, the applicable exhaust emission standards for the proposed IC engine are:

Maximum Rated Power, kW	Tier	Model Year	NMHC+NOx	CO	PM
				gram/kW-hr	
kW>560	2	2006-2010	6.4	3.5	0.20
Cummins 2000 kW	2	2010	3.94	0.37	0.07

The exhaust emissions from the engine is below the tier limits of Title 13, CCR, Section 2423, Table 1a. Compliance is expected.

Since the project will commence in the future, the operator may select a newer model. If they do select a newer model they would need to comply with Title 13, CCR, Section 2423's newer standards. This requirement will be added to the permit conditions to ensure compliance.

1470(d)	The operator is subject to the recordkeeping, reporting, and monitoring

Rule 1470	**Requirements For Stationary Diesel-Fueled Internal Combustion And Other Compression Ignition Engines** **June 1, 2007**
	requirements of this subdivision. The operator has provided the information required in subparagraph (d)(1)(C) with the permit application. Subparagraph (d)(7)(A) requires installation of a non-resettable hour meter . Subparagraph (d)(9)(A) requires a monthly operating log. Permit conditions will be added to enforce the requirements of this rule. Compliance is expected.

Regulation XVII	**PREVENTION OF SIGNIFICANT DETERIORATION (PSD)**
	Please refer to the MASTER evaluation under AN 451893 for rule analysis.

Rule 2005	**New Source Review for RECLAIM** **May 6, 2005** **Application Deem Complete Date: October 20, 2008**
	Pacific LA Terminal is ***not*** part of the NOx and SOx RECLAIM program. Therefore, the requirements of this regulation do not apply.

Regulation XXX	**Title V** **March 16, 2001**
	Please refer to the MASTER evaluation under AN 451893 for rule analysis.

PART 3 FEDERAL REGULATIONS

Subpart Kb:	***Standards of Performance for Liquids Storage Vessels for Petroleum***
	For which construction, Reconstruction or Modification commenced after July 23, 1984. The subject of this application is to construct a horizontal tank. Construction is defined in 40 CFR 60 Subpart A §60.2 as "*Construction* means fabrication, erection, or installation of an affected facility". § 60.110b Applicability and designation of affected facility. (a) the affected facility to which this subpart applies is each storage vessel with a capacity greater than or equal to 75 cubic meters (m^3) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984. The purpose of the tank is to store stormwater with an oily sheen, not store VOCS. Therefore, the requirements of this regulation do not apply.

Part 60, NSPS	**Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines** **July 11, 2006**
§60.4200 - §60.4219	Subpart IIII regulates stationary compression ignition (CI) IC engines such as the one proposed at Pacific LA Terminal. a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (3) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator. (1) Manufacturers of stationary CI ICE with a displacement of less than 30 liters per cylinder where the model year is: (i) 2007 or later, for engines that are not fire pump engines, For engines with a maximum engine power greater than or equal to 50 HP, §60.4202(a)(2) of this subpart states the engine shall not exceed the certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112* and 40 CFR 89.113* for all pollutants beginning in model year 2007. 40 CFR 89.112 (Oxides of nitrogen, carbon monoxide, hydrocarbon, and particulate matter exhaust emission standards) contains the exhaust emission standards from nonroad engines for nitrogen, carbon monoxide, hydrocarbon, and particulate matter. These emission standards are the same for CCR (see R1470 evaluation) 40 CFR 89.113 (Smoke emission standard) specifies that the exhaust opacity from compression-ignition nonroad engines must not exceed: (1) 20 percent during the acceleration mode; (2) 15 percent during the lugging mode; and (3) 50 percent during the peaks in either the acceleration or lugging modes. For the life of the engine, §60.4206 requires the operator to operate and maintain the engine according to the manufacturer's written instructions or procedures. §60.4207(a) and (b) requires the engine to only be fueled with diesel that meets minimum federal requirements. §60.4209(a) requires the installation of a non-resettable hour meter. Maintenance checks and testing is limited to 100 hour per year in accordance with §60.4211(e). NSPS initial notification under Subpart A and Subpart IIII is waived for emergency stationary engines (§60.4214(b)). *A permit condition ensures compliance with these requirements.* Compliance is expected

Part 60, NSPS	**Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines** **July 11, 2006**
	since the Subpart IIII requirements are equivalent or superseded by more stringent District rules.

Part 63, NESHAP	**Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines** **January 18, 2008**
§63.6580 - §63.6675	Subpart ZZZZ, otherwise known as RICE MACT, regulates stationary reciprocating internal combustion engines (RICE) if the facility owns or operates a stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand. The facility is considered an area source of HAP emissions; therefore, the requirements of this regulation do apply. §63.6590(c)(1)-The engine meets the following criteria *Stationary RICE subject to Regulations under 40 CFR Part 60.* An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part. (1) A new or reconstructed stationary RICE located at an area source Since the engine will be subject to 40 CFR part 60 Subpart IIII, the requirements of this regulation will be met. The engine will be tagged with a *permit condition to ensure compliance with these requirements*

CONCLUSION:

Based on the above evaluation PLAMT is expected to continue to comply. Therefore, it is recommended that a Permit to Construct be issued for the following applications:

A/N	Recommendation
512041	Issue Permit to Construct with conditions listed in the Conditions Section
513781	Issue Permit to Construct with conditions listed in the Conditions Section

Determination of Emission Reduction Credit from Shutdown and Actual Emission Decreases (Rule 1306(e)(2) and 1306(c))

Given: A company shuts down a sand handling system which emits particulate emissions. The subject equipment is uncontrolled and was installed prior to 1976 when no new source rule existed. Therefore, there is no NSR entry for this equipment. This equipment was shut down on Oct 1, 1090 and it was only used intermittently. Current BACT is a baghouse. This requires BACT adjusted 2-year average emissions to be calculated. Assume control efficency of 98% for PM_{10}. The emission factor for PM_{10} particulates form sand is 0.1 lbs/ton. Company records indicate the following usage of sand:

Period 1: Oct 1, 1989 to Oct 1, 1990
Total days operated = 40
Actual sand usage = 160,000 tons/year

Period 2: Oct 1, 1988 to Oct 1, 1989
Total days operated = 29
Actual sand usage = 87,000 tons/year

Procedure: The usage factors from 1306(c):
1.0 when operated 180 days or more,
0.5 when operated 30 to 179 days, and
0.0 when operated less than 30 days.

Actual daily emissions:

Period 1:
PM_{10} = ((160,000 tons/year)(0.1 lbs/ ton)(0.5)) / 40 total days operated/yr = 200 lbs/day

Peroid 2:
PM_{10} = ((87,000 tons/year)(0.1 lbs/ ton)(0.0)) / 29 total days operated/yr = 0 lbs/day

PM_{10} average = (200 lbs/day + 0.0 lbs/day) / 2 = 100 lbs/day

The BACT-adjusted emissions are:

PM_{10} BACT adjusted = 100 lbs/day x (1-0.98) = 2 lbs/day

Attachment II

PACIFIC L.A. MARINE TERMINAL LLC

September 13, 2010

Mr. Khang Nguyen
Senior Air Quality Engineer
SCAQMD
21865 E. Copley Drive
Diamond Bar, CA 91765-4182

SUBJECT: STATEWIDE COMPLIANCE
PACIFIC L.A. MARINE TERMINAL LLC AND AFFILIATES
FACILITY IDS 146810 AND 164564

Dear Mr. Nguyen:

Pacific L.A. Marine Terminal LLC (PLAMT) is a wholly owned and California operated subsidiary of Plains All American Pipeline, L.P.

To the best of my knowledge and public record, PLAMT and its affiliated companies operating in California are in compliance with all applicable emissions limits and standards under the Clean Air Act.

Should you have any questions or require additional information, please contact Mr. Ngiabi Gicuhi at 562-728-2024.

Respectfully,

Thomas J. McLane
Director, Environmental & Regulatory Compliance

cc: Jay Chen, SCAQMD
Tran Vo, SCAQMD
Paul Park, SCAQMD
Jordan R. Janak, Plains All American Pipeline/PLAMT
Nestor A. Taura, Plains All American Pipeline/PLAMT
John F. Russell, Plains All American Pipeline/PLAMT
David E. Wright, Plains All American Pipeline/PLAMT

5900 Cherry Avenue ■ Long Beach, California 90805-4408 ■ 562-728-2816 ■ Fax 562-728-2823

Khang Nguyen

From: Connie Cunningham [ccunningham@e2managetech.com]
Sent: Wednesday, February 02, 2011 10:02 AM
To: Khang Nguyen
Cc: Glenn Mayer; Nestor A Taura; Gicuhi, Ngiabi; Thomas J McLane
Subject: Plains Title V Facilities

Khang—

Below is a list of Title V facilities under the Plains ownership. Note each entities name.

Plains Marketing
Pentland
3600 Bowman Court
Bakersfield CA 93308
Facility S-1199/S-254

[redacted]lains Atlantic Terminals
[redacted]Martinez
2801 Waterfront Road
Martinez CA 94533
Plant # 17559

Plains West Coast Terminals
Dominguez Hills
2500 E Victoria Street
Compton CA 90220
Facility ID 800417

Plains West Coast Terminals
Long Beach
[redacted]685 Seaside Blvd
[redacted]ong Beach CA 90802
Facility ID 800420

Plains West Coast Terminals
West Hynes
5900 Cherry Ave
Long Beach CA 90805
Facility IDs 121727&148086

Constance M. Cunningham, P.E.

E2 ManageTech
5000 East Spring Street, Suite 720
Long Beach, California 90815
Phone: 866-609-3374 ext. 909

Fax: 419-715-1762
mailto:ccunningham@e2managetech.com

Technology. Management. Solutions. It's all in the people and the process...

Attachment III

Copy to - Tran Charlie
Paul Tom
Khang Amir
Connie

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

Office of District Counsel
P.O. Box 4940
Diamond Bar, CA 91765-0940

Writer's Direct Dial: (909) 396-3453
Fax: (909) 396-2961

October 6, 2006

By Fax and U.S. Mail (213) 576-1100
Ms. Sharon Rubalcava
Weston, Benshoof
Rochefort Rubalcava MacCuish
333 South Hope Street
Sixteenth Floor
Los Angeles, CA 90071

In re: *Rule 1306(g)*
Your client: Pacific Energy Partners
Crude Oil Marine Terminal project

Dear Sharon:

In your July 24, 2006 letter, you ask for AQMD's interpretation of Rule 1306(g) -- relative to calculating offsets for mobile source ship emissions subject to New Source Review. Two issues are raised by your letter and by staff's request for clarification: definitions of "coastal waters" and "nonpropulsion ship emissions" for purposes of Rule 1306(g).

RULE LANGUAGE

Rule 1306(g) Mobile Sources

The following mobile source emission increases or decreases directly associated with the subject sources shall be accumulated:

(1) Emissions from in-plant vehicles; and

(2) All emissions from ships during the loading or unloading of cargo and while at berth where the cargo is loaded or unloaded; and

(3) Nonpropulsion ship emissions within Coastal Waters under District jurisdiction.

ISSUES

(1) How should the term "coastal waters under District jurisdiction" be defined?
(2) What ship emissions are "nonpropulsion" emissions for purposes of R1306(g)?

DISCUSSION

(1) Coastal Waters

Our interpretation is that for purposes of Rule 1306(g), "coastal waters" extend to the 3 mile limit, consistent with the federal definition of "seaward boundary," contained at 43 U.S.C.A. 1312, enacted in 1953, which states:

> "The seaward boundary of each original coastal state is approved and confirmed as a line 3 geographical miles distant from its coast line...."

This three mile limit was the legal definition of seaward boundary in effect at the time Rule 1306 was adopted in 1979. The original rule, adopted on October 5, 1979, contained no reference to "coastal waters." In the March 7, 1980 amendments, the language "Southern California coastal waters" was added. The current rule language which uses the term "coastal waters under District jurisdiction" was first added to the rule in September 1982. Neither Rule 1306 nor the materials accompanying the rule adoption or amendments, such as staff reports, define the term "coastal waters."

Case law has consistently upheld and reinforced this three-mile limit:

> "A state's seaward boundary generally is set as a line three geographical miles distant from its coastline. Waters landward are internal waters of the state, while waters up to three miles seaward of the coastline are also within a state's boundary...." *U.S. v. Maine* (1985) 469 U.S. 504.

In discussing the Submerged Lands Act, 43 U.S.C.S. §§1301-1315 and a dispute over title and ownership of lands beneath navigable waters, the U.S. Supreme Court notes that the states' boundaries are subject to the limitation that in no event shall the term "boundaries" be interpreted as extending from the coastline more than three geographical miles into the Atlantic or Pacific oceans. *U.S. v. California (1965)*, 381 U.S. 139, 85 S. Ct. 1041; 14 L. Ed. 296.

Please note that the "coastal waters limit" for other purposes, e.g., CEQA, may be different in practice, as the criteria for analysis to determine potential significant impacts may be different from the analysis for calculating offsets pursuant to Rule 1306(g).

(2) Nonpropulsion emissions

Your July 24, 2006 letter states that a dispute has arisen regarding what ship emissions will be accumulated for purposes of calculating offsets pursuant to 1306(g). Your contention is that only emissions from the vessel boilers would be unrelated to vessel propulsion, and only emissions from vessel boilers used to offload the crude oil while at berth should be included in the offset calculation. Your search of the historic record for Rule 1306 reveals no specific language regarding the definition of the term, "nonpropulsion emissions."

We do not dispute that the original rule language stated that the ship emissions to be accumulated for offsets were "ship emissions while loading and unloading cargo and while hoteling." (Rule 1306(d)(2)(C) 10/5/79 Rule language). Nor do we dispute that the rule has consistently excluded "propulsion emissions" from accumulation and calculation for offset purposes.

The rule was amended on March 7, 1980 to state that in addition to emissions from loading or unloading cargo and while at berth, "nonpropulsion ship emissions" must also be accumulated. (Rule 1306(a) (5) (B) and (C) 3/7/80 version). The intent was to broaden what must be included in the accumulation.

Webster's Third New International Dictionary, 1976, defines propulsion as:

> "The action of driving out or forth; the action of driving forward or ahead; action or process of propelling."

Thus, activities that drive the ship forward or ahead, and that are involved in the process of propelling would not be included within the definition of "propelling."

This leads us to conclude that your contention that only emissions from the vessel boilers should be included within the accumulation of nonpropulsion emissions is too restrictive an interpretation and is likely not consistent with the intent of the rule language. We agree that emissions resulting from generation of electricity to power the vessel's fuel system (i.e. fuel pumps, oil pumps, etc.) and navigational equipment could be considered as emissions directly related to ship propulsion. Emissions resulting from processes and activities not driving the ship forward or ahead or used in the process of propelling the ship may reasonably be considered nonpropulsion emissions. For example, nonpropulsion emissions include those from HVAC equipment, tank cleaning, emissions directly or indirectly from cargo, breathing or working losses, cargo heating and cooling systems, fire pump systems, inert gas systems, domestic equipment and other processes not part of the action of propulsion. To conclude, as you request, that only the emissions from vessel boilers used to offload the crude oil at berth constitute nonpropulsion emissions would be contrary to the clear rule language that both emissions from ships during loading and unloading of cargo and non-propulsion ship emissions are to be accumulated.

The rule language is clear that both types of mobile source ship emissions are to be accumulated for purposes of offsets. "The meaning of the statute must, in the first instance, be sought in the language in which the act is framed, and if that is plain, the sole function of the courts is to enforce it according to its terms." *Swift v. Co. of Placer*, 153 Cal. App. 3d 209, 200 Cal. Rptr 181 (1984).

An interpretation which results in only one of these types of emissions being included in the accumulation appears contradictory to the rule language and intent to add nonpropulsion ship emissions as a category to be included for accumulation, along with ship emissions during loading and unloading cargo and while at berth.

CONCLUSION

We interpret the limit for defining "coastal waters under District jurisdiction" for purposes of accumulating mobile source ship emissions for calculating offsets for new source review pursuant to Rule 1306(g) as the 3-mile seaward boundary, as defined by federal law. This is the legal definition of boundary (43 USCA §1301, §1312) in effect at the time Rule 1306 was adopted and at the time the reference to "coastal waters" was added.

We conclude that the most reasonable interpretation of the language and intent of Rule 1306(g) are to require the accumulation of mobile source ship emissions while loading and unloading cargo and while at berth and the ship emissions not directly attributable to propelling the vessel. We believe that our interpretation is entitled to deference. Indeed,

the agency's interpretation, particularly of its own rules, is entitled to deference unless it "flies in the face of the clear language and purpose of the interpreted provision." *Communities for a Better Environment vs. State Water Resources Control* Board (2005), 132 Cal.App., 4th 1313, 1330.

Based on the above determination, project proponents should provide AQMD staff additional information related to the fraction or portion of electricity or other forms of energy generated by the auxiliary engines for the activities directly related to ship propulsion versus those related to nonpropulsion, as discussed in this letter. This information will then be used by AQMD staff to determine which ship emissions will be required to be included for a specific project in determining offsets subject to New Source Review. We look forward to speaking with you and your client further.

Thank you.

Best regards,

JERI G. VOGE
Senior Deputy District Counsel

KW/BB/JV/MN/mc

cc: Kurt Wiese
Barbara Baird
Mohsen Nazemi
Larry Bowen
Jay Chen
Carol Coy

WESTON BENSHOOF
ROCHEFORT RUBALCAVA MACCUISH LLP
ATTORNEYS AT LAW

(213) 576-1105
srubalcava@wbcounsel.com

July 24, 2006

VIA EMAIL AND U.S. MAIL

Kurt Wiese
District Counsel
South Coast Air Quality Management District
21965 East Copley Drive
Diamond Bar, California 91765

Re: Rule Interpretation of Rule 1306(g)

Dear Mr. Wiese:

Our office represents Pacific Energy Partners ("Pacific"), which has filed an application for permits to construct for a crude oil marine terminal in the Port of Los Angeles. I am writing to request clarification regarding the requirements of South Coast Air Quality Management District ("District") Rule 1306(g) for accumulating mobile source emissions. Rule 1306(g) requires accumulation of "nonpropulsion ship emissions within Coastal Waters under District jurisdiction" for purposes of calculating offset requirements for new source review.

Pacific does not dispute that vessel emissions at berth must be accumulated, but a dispute has arisen as to what types of emissions must be included as "nonpropulsion ship emissions" within Coastal Waters. The Rule does not define this term, and we believe that only vessel emission sources that do not play a role in vessel propulsion must be counted. In the case of a crude oil tanker, that would be only the vessel boilers.

There are three sources of emissions on a crude oil marine tanker. Large diesel engines are used to propel the tanker. Smaller auxiliary engines are used to provide electricity to power the vessel's fuel system (fuel pumps, oil pumps, air coolers, fresh water coolers filters, fuel purifiers and filters, engine room ventilation), inert gas blowers in the cargo holds, fire pump systems, HVAC equipment, navigational equipment, and domestic equipment. The vessel's boilers are used to offload the crude oil while at berth.

In the applications for permits to construct, Pacific has included emissions calculations for the ship's boilers as they are being warmed up to reach the operating temperatures necessary for off-loading. This occurs while the vessel is approaching the berth and at berth. In addition, emissions have been calculated for the operation of the auxiliary engines associated with hoteling and off-loading operations while the vessel is at berth. Pacific believes that the calculation of emissions in this manner fully complies with the requirement of Rule 1306 (g) to "accumulate non-propulsion ship emissions". However, District staff has alleged that emissions from the auxiliary engines while up to three miles at sea also must be calculated and accumulated for the purpose of determining offsets.

We do not believe that this is an appropriate interpretation of Rule 1306(g) and are requesting your review. As discussed above, vessel auxiliary engines are an essential part of the vessel propulsion system. The auxiliary engines provide power for the vessel's fuel system (fuel pumps, oil pumps, air coolers, fresh water coolers filters, fuel purifiers and filters, engine room ventilation), inert gas blowers in the cargo holds, fire pump systems, HVAC equipment, navigational equipment, and domestic equipment. As such, they are an essential part of the vessel's propulsion system and cannot be classified as "nonpropulsion" ship emissions without running afoul of the clear language of the rule. When a word is preceded by "non", the prefix means "not". Therefore, "nonpropulsion" must mean not related to vessel propulsion. We have researched both Regulation XIII and its legislative history and, as described below, we find nothing that would conflict with the clear language of the rule.

Regulation XIII itself provides no guidance at to what constitutes "nonpropulsion emissions" other than the language of Rule 1306 (g). There is no definition of either "accumulate" or "nonpropulsion ship emissions".

We have done a review of the legislative history of this rule provision and it provides some guidance. As initially enacted, the text of the Rule did not differentiate between nonpropulsion and propulsion ship emissions. The 1979 Rule, as promulgated, reads as follows:

> "Mobile source emission increases to be accumulated are . . . Ship emissions while loading and unloading cargo and while hoteling." Rule 1306(d)(2)(C) (1979).

This language clearly specified that only at-berth emissions were to be counted. In 1980, Rule 1306 was revised to specifically exclude propulsion ship emissions. It is not clear why this change was made but it may have been made in response to comments submitted by the Port of Long Beach that it did not believe the District had authority to regulate beyond the three-mile limit. Summary of Minutes of the Board of SCAQMD at 13 (March 7, 1980). While the SCAQMD Staff Report addressing comments on the proposed changes did not directly respond to this comment, the Report did note that Rule 1306 was being revised to state that "[o]ther mobile source emission accumulations will exclude propulsion emissions." Agenda #1, SCAQMD Board, proposed Amended Regulation XIII at 2 (February 27, 1980). We did not find any discussion in the Staff Report of the term "nonpropulsion emissions".

Based on the rule language and the legislative history, it is difficult to ascertain a clear intent of what was intended to be regulated other than the intent to include vessel emissions during loading and unloading. One could argue that even the boiler emissions as they approach the berth can be excluded since boilers are used to heat the bunker fuel for propulsion, but we have not taken such a restrictive interpretation to date. However, we believe it is clear that emissions from tanker auxiliary engines do not need to be accumulated because the auxiliary engines are clearly necessary to support normal vessel propulsion operations and, thus, cannot be considered nonpropulsion emissions. We also question the wisdom of requiring even more vessel emissions to be "accumulated" for purposes of off-setting. The current banking system is essentially bankrupt of ERCs for several pollutants, such as NOx and SOx.

We look forward to your prompt response as to whether emissions from auxiliary engines, other than while at berth, must be offset. We hope to have permits issued by the end of the year and these permits will need to go through public and EPA review.

Very truly yours,

Sharon Rubalcava

Sharon Rubalcava
WESTON, BENSHOOF,
ROCHEFORT, RUBALCAVA & MacCUISH LLP

SFR/s

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

OFFICE OF DISTRICT COUNSEL

MEMORANDUM

DATE: July 13, 2006

TO: Carol Coy, DEO, Engineering & Compliance
Elaine Chang, DEO, Planning, Rules & Area Sources

FROM: Barbara Baird, Principal Deputy District Counsel Barbara Baird

SUBJECT: Rule Interpretation - Rules 1303(b) and 1306(g): Emissions from Ships and In-plant Vehicles

Question Presented

Does Rule 1306(g)'s requirement to "accumulate" emissions from in-plant vehicles and certain ship emissions apply for purposes of modeling or only for purposes of offsets?

Answer

Rule 1306(g)'s requirement to "accumulate" emissions from in-plant vehicles and certain ship emissions applies only for purposes of offsets, and not for purposes of modeling under Rule 1303(b). This interpretation applies only for purposes of Regulation XIII, not for purposes of CEQA. (CEQA staff will determine the appropriate modeling for CEQA purposes.)

Analysis

Rule 1306(g) provides as follows:

"The following mobile source emissions increases or decreases directly associated with the subject sources shall be accumulated:

(1) Emissions from in-plant vehicles; and
(2) All emissions from ships during the loading or unloading of cargo and while at birth where the cargo is loaded or unloaded; and
(3) Non-propulsion ship emissions within coastal waters under District jurisdiction."

However, Rule 1306(g) does not state for what purposes these emissions must be accumulated.[1]

[1] It seems clear that these mobile source emissions are not considered for purposes of determining applicability of Best Available Control Technology (BACT), since BACT is required for a "source" which results in an emissions increase (Rule 1303(a)(1)) and as discussed below the term "source" is limited to permitted equipment. (Rule 1302(ao).)

According to the District's past and present modeling staff, the District has interpreted Rule 1306(g) to not require modeling of in-plant vehicle or ship emissions for over 20 years, and so far as they know, has always so interpreted it. Indeed, the District has required modeling only of emissions from equipment required to hold permits, not other permit-exempt equipment or processes. In contrast, permit-exempt emissions have been included for purposes of offsets, according to engineering staff. Courts must give great weight to an administrative agency's interpretation of the rules governing its powers and responsibilities, particularly where the interpretation is of long standing (*Mason v Ret. Bd. of San Francisco*, 111 Cal. App. 4th 1221, 1228 (2003)). Where a consistent and longstanding interpretation has been relied upon by third parties, deference is particularly warranted. (*Id.*) In this case, the District's interpretation is consistent and longstanding and has been relied upon by numerous sources that have received permits based on modeling only of emissions from equipment requiring permits. Therefore, the district's interpretation is entitled to deference. Indeed, the agency's interpreatiation, particularly of its own rules, is entitled to deference unless it "flies in the face of the clear language and purpose of the interpreted provision." *Communities for a Better Environment vs. State Water Resources Control Board*, 132 Cal. App. 4th 1313, 1330.

Support for the District's interpretation is also found in the use of the term "accumulated" in Rule 1306(g). Currently, the term "accumulated" is not found in either the portion of the rule dealing with modeling or that dealing with offsets. However, prior to the December 7, 1995 amendments, Rule 1303(b)(2) stated in part: "The accumulated emissions in the NSR Balance at the subject facility shall be offset by emission reductions." Thus, the term "accumulated" refers to a tallying of emissions for purposes of offsets. No similar language nor use of the term "accumulated" is found in the discussions of modeling. Rule 1306(h) of the pre-1995 version of Regulation XIII was identical to today's Rule 1306(g). Thus, prior to the 1995 amendments, there was a direct tie between the requirement to accumulate certain mobile source emissions and the calculations of offsets. There is no reason to believe the 1995 amendment was intended to change this interpretation, although the use of the term "accumulated" was dropped from the discussion of offsets. *See* Memo dated January 2, 1996 from Anupom Ganguli to Stationary Source Compliance Managers regarding New Source Review Implementation: "Calculation Procedures in effect before the December 7, 1995 amendments remain in effect after February 1, 1995 (sic: 1996)" (copy attached). Therefore, the District's interpretation of Rule 1306(g) as applying only to offsets should be upheld, because it is supported by the use of the term "accumulated" to refer to offsets in earlier versions of the rules.

As noted above, the District has consistently interpreted the modeling requirement to apply only to equipment requiring permits, which would by definition exclude ships and in-plant vehicles. This is a longstanding interpretation entitled to deference. As will be discussed below, a contrary argument could be made based on the language of Rule 1303(b), but since that language is ultimately ambiguous, the District's interpretation must be given great weight. *Mason, supra*, at 1228. The District's interpretation is also supported by the language of the rules. Rule 1303(b) provides in part that the Executive Officer shall "deny the permit to construct for any new or modified source which results in a net emission increase of any nonattainment air contaminant at a facility" unless specified requirements are met, including modeling. This language states that the increase must come from a "source," which is defined as "any permitted

individual unit, piece of equipment, article, machine, process, contrivance or combination thereof, which may emit or control an air contaminant. This includes any permit unit at any non-RECLAIM facility and any device at a RECLAIM facility." (Rule 1302(ao).) The term "source" is therefore limited to permitted equipment. Thus, since modeling applies to emissions from "sources," it appears that modeling applies only to equipment requiring permits.

There is, however, other language in the rule which could be considered to cast doubt on the conclusion that modeling is required only for permitted equipment emissions. Rule 1303(b)(1) provides that the Executive Officer shall deny a permit for a source which causes an emissions increase unless: "the applicant substantiates with modeling that the new facility or modification will not cause a violation, or make significantly worse an existing violation according to Appendix A...." This language appears to state that the "facility" will not cause or contribute to a violation of an air quality standard. However, the reference to "facility" is qualified by the requirement that modeling be performed according to Appendix A.

The term "facility" means "any source or group of sources or other air contaminant-emitting activities" located on contiguous property and owned or operated by the same person or persons under common control. (Rule 1302(p).) Thus, non-permitted "other air contaminant-emitting activities" are part of a "facility." This language could be read as requiring that emissions from non-permitted equipment be modeled.[2] However, such an interpretation would be incorrect. Pursuant to Rule 1303(b)(1), modeling is to be done "according to Appendix A" of that rule. Appendix A provides in pertinent part: "SCREENING ANALYSIS: Compare the emissions from the source you are applying for to those in Table A-1. If the emissions are less than the allowable emissions, no further analysis is required. If the emissions are greater than the allowable emissions, a more detailed air quality modeling analysis is required." Thus, Appendix A requires analysis only of emissions from the "source" (i.e. permitted equipment).

Legislation should be construed so as to harmonize its various elements, and potentially conflicting provisions should be reconciled in order to carry out the overriding legislative purpose as gleaned from a reading of the entire act. *Viking Ins. v. State Farm,* 17 Cal. App. 4th 540, 546 (1993). In reading the rule as a whole, including Appendix A, it appears that only emissions from the "source" (i.e. permitted equipment) need to be modeled. While this interpretation reads Rule 1303(b)(1) as though it used the phrase "source at a facility" instead of just "facility," the rule does use the word "source" in two other places as the subject of modeling and such interpretation is necessary to harmonize all provisions of the rule. Moreover, "the mere literal construction of a section in a statute ought not to prevail if it is opposed to the intention of the legislature apparent by the statute." *Marina Village v. California Conservation Com.*, 61 Cal. App. 3d 388, 393 (1976), citation omitted. Thus, a possible literal reading of the rule's reference to "facility" should be rejected, and modeling should be required only for emissions from the "source," i.e. permitted equipment.

Based on a review of the rule as a whole, and its legislative history, Rule 1303(b)(1) should be interpreted to require modeling only of emissions from the "source" (i.e. permitted equipment).

---

[2] Even if that were the case, ship emissions would likely not be modeled, since they are probably not located on contiguous property.

This interpretation is consistent with the District's longstanding administrative interpretation, which is entitled to deference.

Finally, staff has inquired with EPA whether there is any federal requirement for modeling ship and in-plaint vehicle emissions under nonattainment New Source Review. EPA replied that there is no such requirement. (Their answer did not address Prevention of Significant Deterioration (PSD) requirements for attainment pollutants.) (See copy of EPA e-mail attached.) Accordingly, since there is no federal requirement for modeling ship and in-plant vehicle emissions, the District's longstanding interpretation that such emissions are counted only for offsets and not for modeling should be upheld.

BB:pa
e:\share\barbara\nsr & psd\1306(g).doc

cc: Mohsen Nazemi, Assistant DEO, Engineering & Compliance
Laki Tisopulos, Assistant DEO, Planning, Rules & Area Sources
Pang Mueller, Sr. Manager, Refinery/Energy
Tom Chico, Program Supervisor, Air Quality Modeling
Kurt Wiese, District Counsel

Attachment

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

STATIONARY SOURCE COMPLIANCE

MEMORANDUM

DATE: January 2, 1996

TO: SSC Managers and AQACS

FROM: Anupom Ganguli

SUBJECT: New Source Review (NSR) Implementation

This memorandum summarizes the amendments to Regulation XIII - New Source Review, and provides preliminary implementation guidance. Except for the forgiveness of NSR debt, the effective date of the December 7, 1995 NSR amendments is February 1, 1996. This memorandum also lists the items deferred to 1996 by the Governing Board.

You are also requested to attend a meeting on January 11, 1996 at 3:30 p.m. in conference room 3 north to further discuss NSR implementation issues.

Positive NSR Balances

Effective December 7, 1995, the requirement to offset positive NSR balances was eliminated. The existing Computer Assisted Permit Processing System (CAPPS) is capable of supporting this amendment. Processing permit engineers can adjust a facility's positive balance to zero by using the POSBALREM and ADJ2ZERO NSR transaction codes.

Facility Exemption

Rule 1304(d). Effective February 1, 1996, the Community Bank is eliminated and replaced with a facility exemption of 4 tons per year for VOC, NO_x, SO_x, and PM_{10}, and 29 tons per year for CO. As agreed by all permit processing managers, the implementation of this amendment will be based on the summation of the facility's permitted emissions based on permitted and registered equipment, excluding equipment registered pursuant to Rule 2100 - Registration of Portable Equipment. The applicable units for permitted emission will remain pounds per day. The new NSR Tracking System will be ready to support this amendment by February 1, 1996.

Applications deemed complete on or after February 1, 1996 will be subject to the December 7, 1995 version of Regulation XIII. However, as agreed by all permit

processing managers, an applicant whose application was deemed complete before February 1, 1996 may elect to have it processed under the December 7, 1995 version of Regulation XIII by submitting a request letter. There is no fee required for this application modification.

Ozone Depleting Compounds

This is a limited exemption from VOC offsets for the replacements of ODCs to be implemented on a case-by-case basis following the attached Ozone Depleting Guidelines.

Trading Zones

Unless the credits are obtained from the Priority Reserve, a facility located in zone 1, may only obtain credits generated in Zone 1. There are no trading restrictions for Zone 2A facilities.

Calculation Procedures

Calculation procedures in effect before the December 7, 1995, amendments remain in effect after February 1, 1996. The amendments to rule language clarify AQMD existing procedures and ensure the rule contains the language necessary to be approved into the State Implementation Plan (SIP).

Offset Ratios

Except for CO in the SEDAB, the external offset ratio of 1.2-to-1 remains in effect for all pollutants. The external CO emission offset ratio is for facilities located in the SEDAB is 1.0-to-1.0. The applicable internal offset ration is 1.0-to-1.0 for all pollutants.

ERC Generation

Application for emission reduction credits (ERCs) must, after February 1, 1996, include the following:

- the amount and type of emission reductions;
- the applicable date for the emission reduction;
- the applicable trading zone;
- the reason for the ERC (i.e., process change, shutdown);
- AQMD operating permits for ERC resulting from facility or equipment shutdown; and,
- all supporting data and documentation.

Utility Displacement Credits

This type of credit is no longer available. This section has been eliminated from Rule 1309.

Inter-pollutant, Inter-Basin, and Inter-District Offsets

Rule 1309 contains language that allows these types of transactions. It is important to note that all of these transactions are on a case-by-case basis and subject to the review and approval of ARB and EPA.

Mobile Source Credits

Mobile source credits will now be issued in accordance with Regulation XVI rules.

Public Notice Requirements

The public notification requirements for new or modified facilities with emission increases greater then the old Community Bank thresholds have been increased. In addition to the requirements of subdivision (d), new or modified facilities with emissions greater then the Community Bank thresholds must also comply with the requirements of subdivision (g).

Portable Equipment and Portable ICE

Portable equipment and portable internal combustion engines (ICEs) will no longer be required to provide offsets at the initial location and may stay at one location for up to one year. Furthermore, these types of equipment are also exempt from modeling.

Emergency ICEs

Applicants will be able to permit ICEs as emergency equipment even when participating in utility voluntary demand reduction programs.

Requirements for New or Modified Major Sources

The existing version of Regulation XIII contained, by reference, additional requirements for new or modified major sources. The December 7, 1995, version of Regulation XIII specifically states the additional requirements for major sources. These requirements include: (1) Alternative analysis and (2) State-Wide compliance. The Alternative analysis may be complied with through the California Environmental Quality Act (CEQA) process. If the proposed new or modified source is exempt from CEQA, qualifies for a negative declaration, or undergoes an environmental assessment, the proposed new or modified source is deemed in compliance with requirement of Alternative analysis. The state-wide compliance will be met by the applicant signing a statement prepared by the AQMD.

SSC Managers and AQACS January 2, 1995

1996 Amendments to Regulation XIII and Regulation II

The following items were deferred by the Governing Board for further analysis. These items will be brought back to the Board as amendments to Regulation XIII.

- Federal Class I areas, visibility protection analysis and Federal Land Manager Notification;
- Definition of allowable preconstruction activities;
- Priority Reserve offsets availability for "for-profit" entities;
- Portable equipment storage, location definition and stationary source definition; and,
- Use of actual emissions for facility offset exemption and BACT determinations.

Additional information on these issues was provided to you in a December 11, 1995 memorandum to the NSR Administrative File, Subject: Summary of Public Hearing on Regulation XIII - New Source Review (NSR) and Rule 212 - Standards for Approving Permits, which was copied to all SSC managers.

If you need additional information or clarifications, please contact Jill Whynot at X3104.

JW:RAR

cc: Pat Leyden
Jack Broadbent
Carol Coy
Robert Kwong
Chris Marlia
Elaine Chang
Ricardo A. Rivera
Gopinath Shah
Greg Wood

Attachment

(MASTERFILE/RARJAN96/NSRSUM.DOC)

Barbara Baird

From: Lyons.Ann@epamail.epa.gov
Sent: Monday, January 30, 2006 5:07 PM
To: Barbara Baird
Cc: Kurt Wiese
Subject: Re: Modeling of Ship Emissions.

That is correct Barbara. We are not aware of any such federal regulations.

Ann Lyons
USEPA, R9, Office of Regional Counsel
ph: 415-972-3883
email: lyons.ann@epa.gov

Barbara Baird <BBaird@aqmd.gov>

01/26/2006 05:05 PM

To: Ann Lyons/R9/USEPA/US@EPA
cc: Kurt Wiese <KWiese@aqmd.gov>
Subject: Modeling of Ship Emissions.

Hi Ann. Can you please reply to confirm that to the best of your knowledge, federal regulations do not require modeling of ship emissions under nonattainment NSR? I need to get out an interpretive memo on the subject. Thanks.

From: Jay Chen
Sent: Tuesday, August 14, 2007 2:59 PM
To: Thomas Witte; Abdi Majidifar; Al King; Amir Dejbakhsh; Art Arreola; Charles Tupac; Gaurang Rawal; Hassan Namaki; Ken Matsuda; Kim Le; Linda Dejbakhsh; Marco Polo; Sean Cullins; Ted Kowalczyk; Thomas Liebel; Tran Vo; Abe Udobot; Andrew Chew; Angelita Alfonso; Belinda Wan; Bhaskar Chandan; Bob Sanford; Connie Yee; Cynthia Carter; Emmanuel Ruivivar; Hanh Le; Hannea Cox; Jeff Cox; Jessica Nielsen; Johnny Pan; Khang Nguyen; Ngoc Tran; Paul Park; Rafik Beshai; Sawsan Andrawis; Thomas Lee
Subject: FW: PSD Delegation Agreement
Please follow the guidance provided in Mohsen's emails below regarding (1) PSD permitting and (2) NSR procedures for CO. Thanks.
Jay

-----Original Message-----
From: Mohsen Nazemi
Sent: Tuesday, August 14, 2007 1:26 PM
To: Mohsen Nazemi; Kurt Wiese; Barbara Baird; William Thompson; Cher Snyder; Danny Luong; Dave Schwien; Edwin Pupka; Fred Lettice; Jay Chen; Mike Mills; Scott Robins; Angelica Enriquez; Catherine Rodriguez; Elsa Gutierrez; Jeanette Short; Larry Noelker; Lisa Gonzales; Tran Vo; Brian Yeh; Charles Tupac; Danny Luong; Fred Del Rosario; Gary Turner; Hubert Wilson; Mark Liu
Cc: Kurt Wiese; Barbara Baird; Carol Coy; Elaine Chang; Laki Tisopulos; Chris Marlia; William Wong; Larry Bowen; Mitch Haimov; Mohan Balagopalan; George Illes; Phyllis Haimov; Ann Millican
Subject: PSD Delegation Agreement
Importance: High

Just as a follow up to my earlier e-mail below, I would like to inform you that **we have signed a new Limited PSD Delegation agreement with EPA effective July 25, 2007. Therefore, effective July 25, 2007, we have PSD responsibility for all new PSD sources and all modifications to existing PSD sources where the applicant is requesting to use our existing Regulation XVII to determine PSD applicability for a modification (and not the recent calculation methodology adopted by EPA as part of the NSR Reform).** I will forward to you all a copy of the signed PSD Delegation Agreement shortly.

Also please note that we are presently considered attainment for the following criteria pollutants: NO_2, SO_2, CO and Lead. Thanks.

-----Original Message-----
From: Mohsen Nazemi
Sent: Thursday, August 09, 2007 1:39 PM
To: Kurt Wiese; Barbara Baird; William Thompson; Cher snyder; Danny luong; Dave Schwien; Edwin Pupka; Fred Lettice; Jay Chen; Mike Mills; Scott Robins; Angelica Enriquez; catherine herrera; Elsa Gutierrez; Jeanette Short; Larry Noelker; Lisa Gonzales; Tran Vo; Brian Yeh; Charles Tupac; Danny Luong; Fred Del Rosario; Gary Turner; Hubert Wilson; Mark Liu
Cc: Kurt Wiese; Barbara Baird; Carol Coy; Elaine Chang; Laki Tisopulos; Chris Marlia; William Wong; Larry Bowen; Mitch Haimov; Mohan Balagopalan; George Illes; Phyllis Haimov
Subject: CO Attainment Status
Importance: High

As you may already know, effective June 11, 2007 EPA has re-designated South Coast Air Basin (SCAB) as attainment with respect to CO National Ambient Air Quality Standards (NAAQS). Since AQMD was already attainment with State standards and NAAQS for the rest of AQMD, and CO is not identified as a precursor to any non-attainment pollutants in Regulation XIII, the requirements of Regulation XIII (Rule 1303) does not apply to any new or modified source with a net emission increase in CO.

Therefore, for all new permits that we are issuing for equipment with CO emission increases no CO offsets will be required in the form of ERCs and we should not use any NSR codes from the

Priority Reserve or Rule 1304 exemptions to offset emission increases for CO.

However, since the NSR system would still require any CO emission increases to be offset prior to granting approval to a permit, on the "NSR Emission Data" screen, please use the "Exemption" section and under the "District" drop down list pick the code "1301(b)(1)-12/07/95-General [NSR] – attainment air contaminant" to account for any emission increases of CO.

In addition, for combustion sources we will continue to require CO BACT, which is typically an oxidation catalyst, since in most cases an oxidation catalyst would be probably BACT for ROGs any way and since we do not have any continuous monitoring systems or continuous monitoring requirements for ROG and since in most combustion processes ROG and CO emissions typically change in the same direction, the CO controls and CEMS should be used as a surrogate to have a better continuous accounting for ROG emissions. **Therefore, the only exemptions under NSR at this time should be for offsets and modeling.**

Finally, please keep in mind that although we are now in attainment with CO and CO emission increases are not subject to Regulation XIII any more, CO is still subject to PSD regulations. So for all new or modified sources of CO we need to inform the applicant that a PSD determination needs to be also made (unless of course the total facility CO potential to emit is less that the CO major source threshold listed in our Regulation XVII). Furthermore, AQMD presently does not have PSD delegation from EPA. However, we are in the final stages of signing a new PSD Delegation Agreement with EPA Region 9. The proposed new PSD Delegation Agreement will only apply to new sources and to a limited extent to modifications of existing sources. Once such an agreement is finalized you will be notified accordingly, however until then EPA is still in charge of PSD permitting issues.

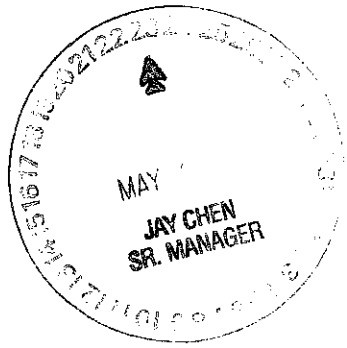
Please pass this on to all of your permitting staff. Thanks

P.S. We are presently having preliminary internal discussions on whether any changes to Regulation XIII is necessary related to CO BACT requirements and once a decision is made you will be notified accordingly.

Mohsen Nazemi, P.E.
Assistant Deputy Executive Officer
Engineering & Compliance Office
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
Tel. (909)396-2662
Fax. (909)396-3895

Copies to: Supvs / Seniors (A+C)
Orig → file (Pier 400) Khang

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov



May 23, 2007

Sharon F. Rubalcava
Weston, Benshoof, Rochefort,
Rubalcava, MacCuish LLP
333 S. Hope Street, 16th Floor
Los Angeles, CA 90071

Re: Pacific L.A. Marine Terminals Pier 400 Project

Dear Ms. ~~Rubalcava~~ Sharon:

This letter is in reference to the Application for a Permit to Construct (A/Ns 451893) filed by Pacific L.A. Marine Terminals (PLAMT) for the Pier 400 Marine Bulk Unloading System project at the Port of Los Angeles (POLA). Confirming our earlier discussion, on April 27, 2007, you sent me an email requesting my assistance in resolving the discrepancy issue with NOx emission factors for marine auxiliary engines using Marine Diesel Oil (MDO) and Marine Gas Oil (MGO). The South Coast Air Quality Management District (AQMD) staff (as well as PLAMT up until June 2006) has proposed a NOx emission factor of 13.9 g/KW-hr. However, you indicated that the POLA has chosen to use 13.23 g/KW-hr in their draft EIR and PLAMT is now requesting the AQMD to stay consistent with the draft EIR in our permit evaluation by using the POLA's NOx emission factor.

I have reviewed and discussed all the relevant information with Mohsen Nazemi, Jay Chen and his staff regarding the NOx emission factor issue, and have determined the following:

The POLA NOx emission factor is based on the Clean Air Action Plan which uses a 10% NOx emission reduction from the baseline emission factor of 14.7 g/KW-hr due to the use of low sulfur fuels. The AQMD's proposed 13.9 g/KW-hr emission factor is based on the USEPA report titled Current Methodologies and Best Practices in Preparing Port Emission Inventory dated January 5, 2006, where the 13.9 g/KW-hr emission factor for the MDO and MGO already accounts for the NOx emission reduction from the use of lower sulfur fuels (Please note that the NOx emission factor for Heavy Fuel Oil (HFO) is 14.7 g/KW-hr.)

In addition, the Clean Air Action Plan also lists NOx emission factors for residual (i.e., HFO) and distillate (i.e., MDO/MGO) as 14.7 and 13.9, respectively. However, this plan applies a 10% NOx discount factor from the 14.7 g/KW-hr baseline in their final calculation from switching from 2.7% sulfur residual fuel to 1.5% sulfur or to 0.5% sulfur distillate fuels. The reason for this reduction is stated as "*The 10% NOx reduction is based on lower N distillate fuel per EPA420-D-02-002, 4/02, Table 8.3.4.*" As the following information shows, we believe that the Clean Air Action Plan incorrectly applied the 10% NOx reduction factor for the distillates. Rather than applying the 10% NOx reduction factor from the 14.7 g/KW-hr baseline, it would have been more appropriate to use the established emission factor of 13.9 g/KW-hr for the distillate fuels.

- Table 8.3-4 of the cited document EPA420-D-02-002[1] is labeled as Potential Emissions Reductions from Using 0.3% Sulfur Fuel for all Vessel Operations Within 175 Nautical Miles of U.S. Coast.
- Page 8-12 of the same report states that "*For the 1.5 percent sulfur residual fuel scenario, our estimates of SOx and PM reductions are based strictly on the reduction of sulfur in the fuel from 2.7 to 1.5 percent. In this case, no NOx reductions are anticipated.*"
- The baseline NOx emission factor used in the EPA report is 12.38 g/HP-hr (which is equivalent to 16.59 g/KW-hr). Therefore, if the 10% reduction factor is to be applied, it has to be applied from the baseline factor of 16.59 g/KW-hr. Thus the final NOx emission factor with the 10% NOx reduction factor would have been 14.9 g/KW-hr, which is even higher than the factor of 13.9 g/KW-hr proposed to be used by the AQMD as part of our permit evaluation .
- EPA420-D-02-002 addresses emissions from Category 3 marine diesel engines which are very large engines used primarily for propulsion power on ocean-going marine vessels such as container ships, tankers, bulk carriers, and cruise. Therefore, the emission factors from this document may not be applicable to medium speed auxiliary engines.

Based on the currently available information, we believe that the use of 13.23 g/KW-hr NOx emission factor cannot be technically justified, and that the most credible NOx emission factor is 13.9 g/KW-hr for marine auxiliary engines using MDO and MGO. Therefore, I concur with the Engineering staff's recommendation and have instructed them to use the 13.9 g/KW-hr NOx emission factor in the permit evaluation.

In closing I would also like to mention that the AQMD Engineering staff has consistently advised PLAMT of the appropriate emission factors during the course of our permit evaluation. AQMD staff had understood that at the June 6, 2006 meeting between PLAMT and AQMD staff, PLAMT had agreed that the 13.9 g/KW-hr NOx emission factor was the appropriate factor to be used for determining NOx emissions from marine auxiliary engineers. If PLAMT have any further questions regarding this matter, we will be happy to go over the basis of NOx emission factor determination with them. Please contact Paul Park at (909) 396-2568/ppark@aqmd.gov or Khang Nguyen at (909) 396-3210/ knguyen@aqmd.gov for questions or comments.

Sincerely,

Carol Coy

Carol Coy
Deputy Executive Officer
Engineering and Compliance

CC:TV:PYP:KN

cc: Peter Greenwald
Elaine Chang
Mohsen Nazemi
Jay Chen

[1] USEPA Draft Regulatory Support Document: Control of Emissions from Compression-Ignition Marine Diesel Engines At or Above 30 Liters per Cylinder (April 2002)

Attachment IV

Khang Nguyen

From: Connie Cunningham [ccunningham@edsgrp.com]
Sent: Tuesday, July 18, 2006 11:01 AM
To: Khang Nguyen
Cc: Reese, Mark; Glenn Mayer; Taura, Nestor
Subject: Crude H2S specs and generic description

Khang,

Attached is the summarized lab results of various crude H2S content in both the liquid and vapor phase for your review per the June 21 meeting notes.

The following is our proposed generic description of partially refined petroleum/intermediate feed stock:
Various petroleum products (gas oil, black oil, bunker oil, residual oil) and other petroleum middle distillates with a TVP at actual storage temperature not to exceed 10 psia.

Let me know if you have any questions.

Connie Cunningham

EDSG - Environmental Data Solutions Group, LLC
26741 Portola Parkway, Suite 1E-245
Foothill Ranch, CA 92610
tel/fax 949-457-3485
ccunningham@edsgrp.com
www.edsgrp.com

The Leader in Integrating IT Innovations to Optimize EHS performance!

Date		7/1/2004	3/21/2005	6/27/2005	8/23/2005	9/2/2005
ASTM Test	**TYPE**	ORIENTE	Basrah Light	Hungo	Ceiba	NAPO
D-5191	**RVP** PSI	1.82	7.70	6.8	2.71	0.74
D-287	**Gravity** API @ 60 F	23.60	30.80	29.20	30.30	19.40
D-445	**VIS.**					
	122F cSt	31.50	6.37	9.041	8.87	145.90
	100F cSt	51.90	9.05	12.12	12.6	225.60
	60F cSt		20.21			
D-97	**POUR** F	10.00	<-5.8	<-5.8	<0	10.00
D-93	**FLASH** F	Ambient	<-5.8	<50	Ambient	Ambient
D-4294	**SULFUR** wt. %	1.63	2.59	0.691	0.650	2.12
D-4007	**W&S** %	0.02	0.05	0.050	0.050	0.30
SCAQMD 315-96	**H2S** Liquid, ppm	7.00	23.00	19.00		30.00

Pacific Energy
Pier 400
Crude Sampling Results
EPA Test Method 8270

Component	Results (mg/kg)								Permitted
	Crude Oil				Intermediate Petroleum Products				
	Oriente	Basrah Lt	Napo	Cold Lake	LSVGO	RGO	CBO	FRGO	
Naphthalene	1,100	670	740	110	50		1,100		
2-Methylnaphthalene	2,100	1,500	1,200	250	230	77	3,500	110	
1-Methylnaphthalene	1,600	1,400	930	170	130		1,900	100	
Phenanthrene				110	56	85	5,500	440	
Chrysene					14	77	8,900	120	
Pyrene					170		9,200	78	
Benzo (a) Pyrene					32		3,500		
Benzo (g,h,i) Perylene					59		1,000		
Benzoic Acid				58					
Fluorene							590		
Anthracene							640		
Fluoranthene							1,200		
Benzo (a) Anthracene							3,700		
Benzo (k) Fluoranthene							780		
Benzo (b) Fluoranthene							1,600		
Benzene									0.38%
Hexane									9.90%

Bold indicates Rule 1401 compounds
Will Not Volatilize

RGO = Raw Gas Oil
LSVGO = Low Sulfur Vacuum Gas Oil
CBO = Carbon Black Oil
FRGO = Raw Gas Oil

Oriente is from Ecuador
Basrah Lt is from Iraq
Napo is from Ecuador
Cold Lake is from British Columbia

			Basis: 100 lb of Int. Pet. Prod.			basis: 1 mol	
Component	True Vapor Pressure (mmHg@20C)	molecular weight	moles	liquid mole fraction	Partial Pressure (mmHg)	vapor mole fraction	vapor mass fraction
Naphthalene	7.80E-02	129	8.53E-04	1.77E-03	1.38E-04	2.66E-07	6.87E-07
2-Methylnaphthalene							
1-Methylnaphthalene							
Phenanthrene	6.80E-04	178	3.09E-03	5.81E-03	3.95E-06	3.82E-06	5.23E-06
Chrysene	6.30E-07	228	3.90E-03	7.34E-03	4.62E-09	4.47E-09	7.84E-09
Pyrene	2.50E-06	202	4.55E-03	8.56E-03	2.14E-08	2.07E-08	3.22E-08
Benzo (a) Pyrene	5.60E-09	252	1.39E-03	2.61E-03	1.46E-11	1.41E-11	2.74E-11
Benzo (g,h,i) Perylene	1.03E-10	276	3.62E-04	6.81E-04	7.02E-14	6.79E-14	1.44E-13
Benzoic Acid	1.0 [@96C]	122	4.75E-05	8.94E-05	8.94E-08	8.64E-08	8.11E-08
Fluorene	3.20E-04	166	3.55E-04	6.68E-04	2.14E-07	2.07E-07	2.64E-07
Anthracene	1.70E-05	178	3.60E-04	6.76E-04	1.15E-08	1.11E-08	1.52E-08
Fluoranthene	5.00E-06	202	5.94E-04	1.12E-03	5.58E-09	5.40E-09	8.39E-09
Benzo (a) Anthracene	2.20E-08	228	1.62E-03	3.05E-03	6.71E-11	6.49E-11	1.14E-10
Benzo (k) Fluoranthene	9.59E-11	252	3.10E-04	5.82E-04	5.58E-14	5.40E-14	1.05E-13
Benzo (b) Fluoranthene	5.00E-07	252	6.35E-04	1.19E-03	5.97E-10	5.77E-10	1.12E-09
Benzene							
Hexane							

Intermediate Petroleum Products	mw mixture liquid	188 lb/lbmol	$P_a=P^{o}x_a$	$y_a=P_a/P$
	total pressure	1.03401 mmHg	Raoult's Law	Dalton's Law
	mw mixture vapor	130 lb/lbmol		
Crude	mw mixture liquid	207 lb/lbmol		
	total pressure	517.0 mmHg		
	mw mixture vapor	50 lb/lbmol		

Pacific Energy
Pier 400
Crude Sampling Results
EPA Test Method 8260

	Results (ug/kg)									
	Crude Oil				Intermediate Petroleum Products					
Component	Oriente	Basrah Lt	Napo	Cold Lake	RGO	LSVGO	CBO	FRGO	Method Blank	Permitted
Benzene	320,000	610,000	240,000	1,800,000	5,200	1,600	33,000	91		0.38%
n-Butylbenzene	140,000	230,000	94,000	66,000	3,200	8,200	30,000	1,200		
sec-Butylbenzene	69,000	100,000	50,000	38,000	1,900	3,400	2,000	500		
Ethylbenzene	430,000	1,100,000	290,000	380,000	9,700	140,000	70,000	610		
Isopropylbenzene	150,000	180,000	110,000	68,000	3,000	2,900	2,800	440		
p-Isopropyltoluene	130,000	120,000	92,000	38,000	2,300	3,200	1,500	1,000		
Naphthalene	330,000	190,000	230,000	83,000	14,000	37,000	180,000	13,000	73	
n-Propylbenzene	200,000	320,000	130,000	1,100,000	4,600	9,000	30,000	1,500		
Toluene	1,000,000	2,600,000	620,000	2,800,000	37,000	18,000	180,000	840	23	
1,2,4-Trimethylbenzene	760,000	1,800,000	460,000	580,000	23,000	40,000	190,000	12,000		
1,3,5-Trimethylbenzene	200,000	530,000	120,000	260,000	6,900	13,000	55,000	2,700		
p/m Xylene	1,100,000	2,900,000	660,000	1,900,000	36,000	46,000	260,000	2,300	22	
o-Xylene	520,000	1,500,000	330,000	620,000	14,000	24,000	110,000	1,500		
Methylene Chloride		310,000	34,000	160,000	2,900	2,800	11,000	3,100	600	
tert-Butylbenzene					130					
Acetone								1,500		
1,2,3-Trichlorobenzene									43	
1,2,4-Trichlorobenzene									39	
Hexane										9.90%

Bold indicates Rule 1401 compounds

RGO = Raw Gas Oil
LSVGO = Low Sulfur Vacuum Gas Oil
CBO = Carbon Black Oil
FRGO = Raw Gas Oil

Oriente is from Ecuador
Basrah Lt is from Iraq
Napo is from Ecuador
Cold Lake is from British Columbia

Max Value				Basis: 100 lb of Int. Pet. Prod.		basis: 1 mol		
	Component	True Vapor Pressure (mmHg@20C)	molecular weight	moles	liquid mole fraction	Partial Pressure (mmHg)	vapor mole fraction	vapor mass fraction
1,800,000	**Benzene**	7.50E+01	78	2.31E-03	1.19E-02	8.95E-01	1.73E-03	2.70E-03
230,000								
100,000								
1,100,000								
180,000								
120,000								
330,000	**Naphthalene**	7.80E-02	129	2.56E-04	1.32E-03	1.03E-04	2.00E-07	5.15E-07
1,100,000								
2,800,000								
1,800,000								
530,000								
2,900,000								
1,500,000								
310,000	**Methylene Chloride**	3.50E+02	85	3.65E-04	1.89E-03	6.60E-01	1.28E-03	2.17E-03
130								
1,500								

mw mixture liquid	207	lb/lbmol	$P_a=P^{\circ}x_a$	$y_a=P_a/P$
total pressure	517.0	mmHg	Raoult's Law	Dalton's Law
mw mixture vapor	50	lb/lbmol		

MICR CALCULATION

Pacific Energy
Pier 400

VOC Emissions from the tanks 102,123 lb/yr

Toxic Air Contaminant	mass fraction	Emissions (lb/yr)	Q (tpy)	Cancer Potency (CP)	Multipath res (MP)	Multipath worker (MP)	MICR (RES)	MICR (Worker)
Benzene (including benzene from gasoline)	2.70E-03	2.76E+02	1.38E-01	1.00E-01	1	1	4.75E-07	1.30E-07
Ethyl benzene		0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0.00E+00
Polycyclic Aromatic Hydrocarbon (PAHs)								
Benz[a]anthracene	1.14E-10	1.16E-05	5.81E-09	3.90E-01	29.76	14.62	2.32E-12	3.12E-13
Benzo[b]fluoranthene	1.12E-09	1.14E-04	5.71E-08	3.90E-01	29.76	14.62	2.28E-11	3.07E-12
Benzo[k]fluoranthene	1.05E-13	1.07E-08	5.34E-12	3.90E-01	29.76	14.62	2.14E-15	2.87E-16
Chrysene	7.84E-09	8.01E-04	4.00E-07	3.90E-02	29.76	14.62	1.60E-11	2.15E-12
Benzo[a]pyrene	2.74E-11	2.80E-06	1.40E-09	3.90E+00	29.76	14.62	5.60E-12	7.52E-13
Napthalene	6.87E-07	7.02E-02	3.51E-05	1.20E-01	1	1	1.45E-10	3.96E-11
Toluene (methyl benzene)		0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0.00E+00
Xylenes (isomers and mixtures)		0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0.00E+00
Methylene chloride (Dichloromethane)	2.17E-03	2.22E+02	1.11E-01	3.50E-03	1	1	1.34E-08	3.65E-09
Hexane (n-)		0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0.00E+00
						TOTAL	**4.88E-07**	**1.34E-07**

MICR = CP x Qtons x X/Q x AFann x MET x DBR x EVF x 10^{-6} x MP

X/Q res:	0.12	> 20 ft stack height at 1000 m distance (Table 5A)
X/Q worker:	0.12	> 20 ft stack height at 1000 m distance (Table 5A)
MET:	0.99	at Long Beach (Table 5B)
AF ann res:	1.0	Table 3C
AF ann worker:	1.4	Table 3C
CP:	*above*	*Table 8A*
MP:	*above*	*Table 8A*
DBR res:	302	Table 9A
DBR worker:	149	Table 9A
EVF res:	0.96	Table 9B
EVF worker:	0.38	Table 9B

Pacific Energy
Pier 400
SCAQMD RELs

Toxic Air Contaminant	CAS NO	cancer			chronic			acute	
		CP $(mg/kg\text{-}dy)^{-1}$	MP_R	MP_W	REL (ug/m^3)	MP_R	MP_W	REL (ug/m^3)	Avg Hrs
Benzene (including benzene from gasoline)	71-43-2	1.00E-01	1	1	6.00E+01	1	1	1.30E+03	6
Ethyl benzene	100-41-4				2.00E+03	1	1		
Polycyclic Aromatic Hydrocarbon (PAHs)	1150&1151	3.90E+00	29.76	14.62					
Benz[a]anthracene	56-55-3	3.90E-01	29.76	14.62					
Benzo[b]fluoranthene	205-99-2	3.90E-01	29.76	14.62					
Benzo[k]fluoranthene	207-08-9	3.90E-01	29.76	14.62					
Chrysene	218-01-9	3.90E-02	29.76	14.62					
Benzo[a]pyrene	50-32-8	3.90E+00	29.76	14.62					
Napthalene	91-20-3	1.20E-01	1	1	9.00E+00	1	1		
Toluene (methyl benzene)	108-88-3				3.00E+02	1	1	3.70E+04	1
Xylenes (isomers and mixtures)	1330-20-7				7.00E+02	1	1	2.20E+04	1
Methylene chloride (Dichloromethane)	75-09-2	3.50E-03	1	1	4.00E+02	1	1	1.40E+04	1
Hexane (n-)	110-54-3				7.00E+03	1	1		

Attachment V

EXPLANATION

SCAQMD PROPOSED PUBLIC NOTICE AREA

NORTH

0 1.5 3

APPROXIMATE SCALE IN MILES

ManageTech SOLUTIONS

PIER 400 PERMITTING
SAN PEDRO, CALIFORNIA

PIER 400
RISK ISOPLETHS AND PUBLIC NOTICE AREAS

Project No: 09-104-002 | Date: AUGUST 2010 | Figure --

FILE NAME: 09-104-002-ISOPLETH4-NMM-E2.DWG

Attachment VI

431.1 – Sulfur Content of Gaseous Fuels

Rule 431.1 addresses the sulfur content of gaseous fuels. This source will burn crude vapors with a sulfur content of less than 40 ppmv and also supplemental natural gas. This source is exempt from this rule per Rule 431.1(g)(8) – less than 5 lb/day of total sulfur will be emitted, calculated as H_2S.

PLAMT will limit crude oil to 70 ppm H_2S or less in the liquid phase. For this case:

70 ppm / 379 ft^3/lbmol * 34 lbH_2S/lbmol * 2 tanks/day * 479,431 gal/tank headspace / 7.48 gal/ft^3 = 0.8 lbH_2S/day

Therefore, the source is exempt from Rule 431.1

463 – Storage of Organic Liquids

This source is being permitted to comply with Rule 463 for the tanks it is connected to. Specific permit conditions are requested in this application to allow the source to comply with 463(d)(2) requirements. These permit conditions have been determined by District staff to meet the intent of the language in this portion of the rule.

Regulation IX – Standards of Performance for New Stationary Sources (NSPS)

No applicable NSPS applies.

Regulation XI - Source Specific Rules

Rule 1149 – Storage Tank Cleaning and Degassing

PLAMT will use this source to control ROG emissions during degassing of the facility's storage tanks. This thermal oxidizer is more than 90% efficient to combust petroleum vapors and thus, complies with the rule requirements.

Rule 1173 – Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants

PLAMT will comply with Rule 1173 inspections, maintenance, recordkeeping, and reporting.

Client: Pacific Pipeline
Attn: Eli Rodriguez

Client's Project: Tank 3 DHPS (SEALHYY Crude), Tracking #5967
Date Received: 06/04/08
Matrix: Air
Units: ppmv

Method 307-91 (Sulfur Compounds in Air)

Lab Number:	A8060404-01
Client Sample I.D.:	Canister 5967
Date Sampled:	06/03/08
Date Analyzed:	06/04/08
Analyst Initials:	VM
QC Batch:	080604GC3A1
Dilution Factor:	1.7

ANALYTE	PQL	RL	Results
Hydrogen Sulfide	0.20	0.35	ND
Carbonyl Sulfide	0.20	0.35	ND
[redacted]thyl Mercaptan	0.20	0.35	ND
[redacted]yl Mercaptan	0.20	0.35	ND
Dimethyl Sulfide	0.20	0.35	ND
Carbon Disulfide	0.20	0.35	ND
Dimethyl Disulfide	0.20	0.35	ND

PQL = Practical Quantitation Limit
ND = Not Detected (Below RL)
RL = Reporting Limit = PQL X Dilution Factor

Reviewed/Approved By: _____ Date: 7/3/08
Mark J. Johnson
Operations Manager

[redacted]

The cover letter is an integral part of this analytical report

Client: Pacific Pipeline
Attn: Eli Rodriguez

Client's Project: Tank 7 DHPS (NAPO Crude), Tracking #6064
Date Received: 06/04/08
Matrix: Air
Units: ppmv

Method 307-91 (Sulfur Compounds in Air)

Lab Number:	A8060403-01
Client Sample I.D.:	Canister 6064
Date Sampled:	06/03/08
Date Analyzed:	06/04/08
Analyst Initials:	VM
QC Batch:	080604GC3A1
Dilution Factor:	1.7

ANALYTE	PQL	RL	Results
Hydrogen Sulfide	0.20	0.35	ND
Carbonyl Sulfide	0.20	0.35	ND
[redacted]thyl Mercaptan	0.20	0.35	ND
[redacted]yl Mercaptan	0.20	0.35	ND
Dimethyl Sulfide	0.20	0.35	ND
Carbon Disulfide	0.20	0.35	ND
Dimethyl Disulfide	0.20	0.35	ND

PQL = Practical Quantitation Limit
ND = Not Detected (Below RL)
RL = Reporting Limit = PQL X Dilution Factor

Reviewed/Approved By: _____ **Date:** 7/3/08
Mark J. Johnson
Operations Manager

The cover letter is an integral part of this analytical report.

Client: Pacific Pipeline
Attn: Eli Rodriguez

Client's Project: Tank 6 DHPS (Vasconia), Tracking #3237
Date Received: 06/05/08
Matrix: Air
Units: ppmv

Method 307-91 (Sulfur Compounds in Air)

Lab Number:	A8060504-01
Client Sample I.D.:	Canister 5217
Date Sampled:	06/04/08
Date Analyzed:	06/07/08
Analyst Initials:	VM
QC Batch:	080607GC3A1
Dilution Factor:	1.7

ANALYTE	PQL	RL	Results
Hydrogen Sulfide	0.20	0.35	ND
Carbonyl Sulfide	0.20	0.35	ND
[redacted]thyl Mercaptan	0.20	0.35	ND
[redacted]yl Mercaptan	0.20	0.35	ND
Dimethyl Sulfide	0.20	0.35	ND
Carbon Disulfide	0.20	0.35	ND
Dimethyl Disulfide	0.20	0.35	ND

PQL = Practical Quantitation Limit
ND = Not Detected (Below RL)
RL = Reporting Limit = PQL X Dilution Factor

Reviewed/Approved By: _____ Date: 1/3/08
Mark J. Johnson
Operations Manager

The cover letter is an integral part of this analytical report.

Client: Pacific Pipeline
Attn: Eli Rodriguez

Client's Project: Tank 10 DHPS (Oriente), Tracking #3237
Date Received: 06/05/08
Matrix: Air
Units: ppmv

Method 307-91 (Sulfur Compounds in Air)

Lab Number:	A8060505-01
Client Sample I.D.:	Canister 6059
Date Sampled:	06/04/08
Date Analyzed:	06/07/08
Analyst Initials:	VM
QC Batch:	080607GC3A1
Dilution Factor:	1.7

ANALYTE	PQL	RL	Results
Hydrogen Sulfide	0.20	0.35	ND
[redacted]rbonyl Sulfide	0.20	0.35	ND
Methyl Mercaptan	0.20	0.35	ND
Ethyl Mercaptan	0.20	0.35	ND
Dimethyl Sulfide	0.20	0.35	ND
Carbon Disulfide	0.20	0.35	ND
Dimethyl Disulfide	0.20	0.35	ND

PQL = Practical Quantitation Limit
ND = Not Detected (Below RL)
RL = Reporting Limit = PQL X Dilution Factor

Reviewed/Approved By: _____ Date: 7/3/08
Mark J. Johnson
Operations Manager

The cover letter is an integral part of this analytical report

Client: Pacific Pipeline
Attn: Eli Rodriguez

Client's Project: Tank 12 DHPS (LSVGO), Tracking #3237
Date Received: 06/06/08
Matrix: Air
Units: ppmv

Method 307-91 (Sulfur Compounds in Air)

Lab Number:	A8060602-01
Client Sample I.D.:	Bag 1000
Date Sampled:	06/05/08
Date Analyzed:	06/07/08
Analyst Initials:	VM
QC Batch:	080607GC3A1
Dilution Factor:	1.0

ANALYTE	PQL	RL	Results
Hydrogen Sulfide	0.20	0.20	ND
Carbonyl Sulfide	0.20	0.20	ND
[redacted]thyl Mercaptan	0.20	0.20	ND
[redacted]l Mercaptan	0.20	0.20	ND
Dimethyl Sulfide	0.20	0.20	ND
Carbon Disulfide	0.20	0.20	ND
Dimethyl Disulfide	0.20	0.20	ND

PQL = Practical Quantitation Limit
ND = Not Detected (Below RL)
RL = Reporting Limit = PQL X Dilution Factor

Reviewed/Approved By: Mark J. Johnson, Operations Manager Date: 7/3/08

The cover letter is an integral part of this analytical report

Client: Pacific Pipeline
Attn: Eli Rodriguez

Client's Project: Tank 4 DHPS (Caof), Tracking #3237
Date Received: 06/06/08
Matrix: Air
Units: ug/L

Method 307-91 (Sulfur Compounds in Air)

Lab Number:	A8060603-01
Client Sample I.D.:	Bag 1001
Date Sampled:	06/05/08
Date Analyzed:	06/07/08
Analyst Initials:	VM
QC Batch:	080607GC3A1
Dilution Factor:	1.0

ANALYTE	PQL	RL	Results
Hydrogen Sulfide	6.8	6.8	ND
Carbonyl Sulfide	12	12	ND
[redacted]thyl Mercaptan	9.6	9.6	ND
[redacted]yl Mercaptan	12	12	ND
Dimethyl Sulfide	12	12	ND
Carbon Disulfide	15	15	ND
Dimethyl Disulfide	19	19	ND

PQL = Practical Quantitation Limit
ND = Not Detected (Below RL)
RL = Reporting Limit = PQL X Dilution Factor

Reviewed/Approved By: [redacted]
Mark J. Johnson
Operations Manager

Date: 6/24/08

The cover letter is an integral part of this analytical report.

Client: Pacific Pipeline
Attn: Eli Rodriguez

Client's Project: Tank 1 LBPS (Basrah Light), Tracking #3237
Date Received: 06/06/08
Matrix: Air
Units: ppmv

Method 307-91 (Sulfur Compounds in Air)

Lab Number:	A8060604-01
Client Sample I.D.:	Bag 1002
Date Sampled:	06/05/08
Date Analyzed:	06/07/08
Analyst Initials:	VM
QC Batch:	080607GC3A1
Dilution Factor:	1.0

ANALYTE	PQL	RL	Results
Hydrogen Sulfide	0.20	0.20	ND
Carbonyl Sulfide	0.20	0.20	ND
[redacted]thyl Mercaptan	0.20	0.20	ND
[redacted]l Mercaptan	0.20	0.20	ND
Dimethyl Sulfide	0.20	0.20	ND
Carbon Disulfide	0.20	0.20	ND
Dimethyl Disulfide	0.20	0.20	ND

PQL = Practical Quantitation Limit
ND = Not Detected (Below RL)
RL = Reporting Limit = PQL X Dilution Factor

Reviewed/Approved By: _____
Mark J. Johnson
Operations Manager

Date: 7/3/08

The cover letter is an integral part of this analytical report

Client: Pacific Pipeline
Attn: Eli Rodriguez

Client's Project: Tank 8 DHPS (RGO), Tracking #3237
Date Received: 06/06/08
Matrix: Air
Units: ppmv

Method 307-91 (Sulfur Compounds in Air)

Lab Number:	A8060605-01
Client Sample I.D.:	Bag 1003
Date Sampled:	06/06/08
Date Analyzed:	06/07/08
Analyst Initials:	VM
QC Batch:	080607GC3A1
Dilution Factor:	1.0

ANALYTE	PQL	RL	Results
Hydrogen Sulfide	0.20	0.20	4.5
Carbonyl Sulfide	0.20	0.20	ND
[redacted]thyl Mercaptan	0.20	0.20	ND
[redacted]l Mercaptan	0.20	0.20	ND
Dimethyl Sulfide	0.20	0.20	ND
Carbon Disulfide	0.20	0.20	ND
Dimethyl Disulfide	0.20	0.20	ND

PQL = Practical Quantitation Limit
ND = Not Detected (Below RL)
RL = Reporting Limit = PQL X Dilution Factor

Reviewed/Approved By: _____ Date: 7/3/08
Mark J. Johnson
Operations Manager

The cover letter is an integral part of this analytical report.

Client: Pacific Pipeline
Attn: Eli Rodriguez

Client's Project: Tank 5 DHPS (M100), Tracking #3237
Date Received: 06/06/08
Matrix: Air
Units: ppmv

Method 307-91 (Sulfur Compounds in Air)

Lab Number:	A8060606-01
Client Sample I.D.:	Bag 1004
Date Sampled:	06/06/08
Date Analyzed:	06/07/08
Analyst Initials:	VM
QC Batch:	080607GC3A1
Dilution Factor:	1.0

ANALYTE	PQL	RL	Results
Hydrogen Sulfide	0.20	0.20	ND
Carbonyl Sulfide	0.20	0.20	ND
[redacted]thyl Mercaptan	0.20	0.20	ND
[redacted]l Mercaptan	0.20	0.20	ND
Dimethyl Sulfide	0.20	0.20	ND
Carbon Disulfide	0.20	0.20	ND
Dimethyl Disulfide	0.20	0.20	ND

PQL = Practical Quantitation Limit
ND = Not Detected (Below RL)
RL = Reporting Limit = PQL X Dilution Factor

Reviewed/Approved By: _____ Date: 7/3/08
Mark J. Johnson
Operations Manager

The cover letter is an integral part of this analytical report.

Attachment VII

SPEC Services, Inc.
17101 Bushard Street
Fountain Valley, California 92708
(714) 963-8077

Valve List
4300C - PPA Pier 400 T-1000 TERMINAL
AQMD List - Valves

TAG NO.	P&ID NO.	P&ID DESCRIPTION	SIZE	CONNECTION	LINE NO.	PRODUCT	COMMENTS
CKV-7839	ST01-D-P-1023	Check Valve	36	300# RF SERIES A	1020	Crude Oil	Dual Plate Check Valve
CKV-7616	B-408-D-M-4103	Check Valve	20	150# RF	0002	Crude Oil	Dual Plate Check Valve
CKV-7626	B-408-D-M-4103	Check Valve	20	150# RF	0004	Crude Oil	Dual Plate Check Valve
CKV-7636	B-408-D-M-4103	Check Valve	20	150# RF	0007	Crude Oil	Dual Plate Check Valve
CKV-7646	B-408-D-M-4103	Check Valve	20	150# RF	0009	Crude Oil	Dual Plate Check Valve
TRV-7701	ST01-D-P-1021	Angle Valve	1	800# THRD x THRD	1001	Crude Oil	Pressure Safety Valve
TRV-7703	ST01-D-P-1021	Angle Valve	1	800# THRD x THRD	1303	Crude Oil	Pressure Safety Valve
TRV-7704	ST01-D-P-1021	Angle Valve	1	800# THRD x THRD	1359	Crude Oil	Pressure Safety Valve
PCV-7718	ST01-D-P-1021	Angle Valve	2	150# RF	1366	Crude Oil	Pressure Safety Valve
TRV-7845	ST01-D-P-1023	Angle Valve	1	800# THRD x THRD	1319	Crude Oil	Pressure Safety Valve
TRV-8011	ST01-D-P-1024	Angle Valve	1	800# THRD x THRD	1312	Crude Oil	Pressure Safety Valve
TRV-8031	ST01-D-P-1025	Angle Valve	1	800# THRD x THRD	1313	Crude Oil	Pressure Safety Valve
TRV-8051	ST01-D-P-1026	Angle Valve	1	800# THRD x THRD	1314	Crude Oil	Pressure Safety Valve
TRV-8071	ST01-D-P-1027	Angle Valve	1	800# THRD x THRD	1315	Crude Oil	Pressure Safety Valve
TRV-7613	B-408-D-M-4103	Angle Valve	1	800# THRD x THRD	0002	Crude Oil	Pressure Safety Valve
TRV-7623	B-408-D-M-4103	Angle Valve	1	800# THRD x THRD	0004	Crude Oil	Pressure Safety Valve
TRV-7633	B-408-D-M-4103	Angle Valve	1	800# THRD x THRD	0007	Crude Oil	Pressure Safety Valve
TRV-7643	B-408-D-M-4103	Angle Valve	1	800# THRD x THRD	0009	Crude Oil	Pressure Safety Valve
TRV-7646	B-408-D-M-4103	Angle Valve	1	800# THRD x THRD	0010	Crude Oil	Pressure Safety Valve
TRV-7674	B-408-D-M-4103	Angle Valve	1	800# THRD x THRD	0010	Crude Oil	Pressure Safety Valve
PCV-7670	B-408-D-M-4103	Angle Valve	1	800# THRD x THRD	0017	Crude Oil	Pressure Safety Valve
TRV-7664	B-408-D-M-4103	Angle Valve	1	800# THRD x THRD	0016	Crude Oil	Pressure Safety Valve
PCV-7680	B-408-D-M-4103	Angle Valve	1	800# THRD x THRD	0032	Crude Oil	Pressure Safety Valve
TRV-7705	B-408-D-M-4104	Angle Valve	1	800# THRD x THRD	0008	Crude Oil	Pressure Safety Valve
TRV-7700	B-408-D-M-4104	Angle Valve	1	800# THRD x THRD	0055	Crude Oil	Pressure Safety Valve
TRV-7712	B-408-D-M-4104	Angle Valve	1	800# THRD x THRD	0036	Crude Oil	Pressure Safety Valve
TRV-7726	B-408-D-M-4104	Angle Valve	1	800# THRD x THRD	0037	Crude Oil	Pressure Safety Valve
TRV-7727	B-408-D-M-4104	Angle Valve	1	800# THRD x THRD	0038	Crude Oil	Pressure Safety Valve
PCV-7720	B-408-D-M-4104	Angle Valve	3	150# RF	0023	Crude Oil	Pressure Safety Valve
V-	B-408-D-M-4109	Angle Valve	1	800# THRD x THRD	1004	Crude Oil	Pressure Safety Valve
SOV-7047	B-408-D-M-4109	Solenoid Valve	1	800# THRD x THRD	1004	Crude Oil	Quick Closing Valve
SOV-7048	B-408-D-M-4109	Solenoid Valve	1	800# THRD x THRD	1004	Crude Oil	Receiver Selecter Valve
V-	B-408-D-M-4109	Angle Valve	1	800# THRD x THRD	1004	Crude Oil	Spring-loaded Backpressure

SPEC Services, Inc.
17101 Bushard Street
Fountain Valley, California 92708
(714) 963-8077

Valve List
4300C - PPA Pier 400 T-1000 TERMINAL
AQMD List - Valves

TAG NO.	P&ID NO.	P&ID DESCRIPTION	SIZE	CONNECTION	LINE NO.	PRODUCT	COMMENTS
CKV-1341	ST01-D-P-1021	Check Valve	2	150# RF	1262	Crude Oil	Swing Check Valve
CKV-1346	ST01-D-P-1021	Check Valve	2	150# RF	1262	Crude Oil	Swing Check Valve
CKV-7819	ST01-D-P-1023	Check Valve	6	150# RF	1356	Crude Oil	Swing Check Valve
CKV-7675	B-408-D-M-4103	Check Valve	3	150# RF	0017	Crude Oil	Swing Check Valve
CKV-7665	B-408-D-M-4103	Check Valve	3	150# RF	0032	Crude Oil	Swing Check Valve
CKV-	B-408-D-M-4103	Check Valve	1 1/2	800# SW x SW	0058	Crude Oil	Swing Check Valve
CKV-	B-408-D-M-4103	Check Valve	4	150# RF	0015	Crude Oil	Swing Check Valve
CKV-	B-408-D-M-4103	Check Valve	1 1/2	800# SW x SW	T-8211	Crude Oil	Swing Check Valve
CKV-7726	B-408-D-M-4104	Check Valve	4	150# RF	0022	Crude Oil	Swing Check Valve
CKV-7725	B-408-D-M-4104	Check Valve	3	150# RF	0023	Crude Oil	Swing Check Valve
CKV-	B-408-D-M-4109	Check Valve	4	150# RF	1004	Crude Oil	Swing Check Valve
PSV-7708	ST01-D-P-1021	Angle Valve	2-1/2 x 4	800# THRD x THRD	1006	Vapors	Pressure Safety Valve
PSV-7711	ST01-D-P-1021	Angle Valve	2 1/2 x 4	800# THRD x THRD	1239	Vapors	Pressure Safety Valve
LV-7710	ST01-D-P-1021	Actuated Ball Valve	6	150# RF	1201	Vapors	Product Segregation
V-7721	ST01-D-P-1031	Butterfly Valve	8	150# RF	1203	Vapors	Quick Closing Valve
V-7724	ST01-D-P-1031	Butterfly Valve	8	150# RF	1203	Vapors	Quick Closing Valve
V-7725	ST01-D-P-1031	Butterfly Valve	8	150# RF	1207	Vapors	Quick Closing Valve
V-7726	ST01-D-P-1031	Butterfly Valve	8	150# RF	1207	Vapors	Quick Closing Valve

SPEC Services, Inc.
17101 Bushard Street
Fountain Valley, California 92708
(714) 963-8077

Valve List
4300C - PPA Pier 400 T-1000 TERMINAL
AQMD List - Connections

ITEM	P&ID NO.	P&ID DESCRIPTION	SIZE	LINE NO.	PRODUCT	COMMENTS
Blind Flange	ST01-D-P-1023	150# RF	16	1002	Crude Oil	Blind Flange on T-7840
Blind Flange	ST01-D-P-1023	150# RF	16	1002	Crude Oil	Blind Flange on T-7840
Flange	ST01-D-P-1021	300# RF SERIES A	36	1001	Crude Oil	Flange on AEL-7705
Flange	ST01-D-P-1021	300# RF	8	1001	Crude Oil	Flange on AEL-7705
Flange	ST01-D-P-1021	300# RF	2	1001	Crude Oil	Flange on AEL-7705
Flange	ST01-D-P-1021	300# RF	2	1001	Crude Oil	Flange on AEL-7705
Flange	ST01-D-P-1021	300# RF	2	1001	Crude Oil	Flange on AEL-7705
Flange	ST01-D-P-1021	300# RF	2	1001	Crude Oil	Flange on AEL-7705
Flange	ST01-D-P-1021	300# RF	6	1201	Crude Oil	Flange on AEL-7705
Flange	ST01-D-P-1021	300# RF	3	1006	Crude Oil	Flange on AEL-7705
Flange	ST01-D-P-1021	300# RF SERIES A	36	1002	Crude Oil	Flange on AEL-7705
Flange	ST01-D-P-1021	150# RF	16	1202	Crude Oil	Flange on V-7706
Flange	ST01-D-P-1021	150# RF	3	1201	Crude Oil	Flange on V-7706
Flange	ST01-D-P-1021	150# RF	2	1366	Crude Oil	Flange on Strainer
Flange	ST01-D-P-1021	150# RF	2	1366	Crude Oil	Flange on Strainer
Flange	ST01-D-P-1021	150# RF	2 1/2	1366	Crude Oil	Flange on P-7713
Flange	ST01-D-P-1021	150# RF	1 1/4	1366	Crude Oil	Flange on P-7713
Flange	ST01-D-P-1021	150# RF	1	1262	Crude Oil	Flange for FSL-7713
Flange	ST01-D-P-1023	150# RF	12	1002	Crude Oil	Flange on T-7840 Suction Line
Flange	ST01-D-P-1023	150# RF	6	1002	Crude Oil	Flange on T-7840
Flange	ST01-D-P-1023	150# RF	8	1002	Crude Oil	Flange on T-7840
Flange	ST01-D-P-1023	150# RF	2	1002	Crude Oil	Flange on T-7840
Flange	ST01-D-P-1023	150# RF	2	1002	Crude Oil	Flange on T-7840
Flange	ST01-D-P-1024	150# RF SERIES A	30	1031	Crude Oil	Flange on Strainer STR-8012
Flange	ST01-D-P-1024	150# RF SERIES A	30	1031	Crude Oil	Flange on Strainer STR-8012
Flange	ST01-D-P-1024	150# RF SERIES A	30	1031	Crude Oil	Flange on P-8000
Flange	ST01-D-P-1025	150# RF SERIES A	30	1032	Crude Oil	Flange on Strainer STR-8032
Flange	ST01-D-P-1025	150# RF SERIES A	30	1032	Crude Oil	Flange on Strainer STR-8032
Flange	ST01-D-P-1025	150# RF SERIES A	30	1032	Crude Oil	Flange on P-8020
Flange	ST01-D-P-1026	150# RF SERIES A	30	1033	Crude Oil	Flange on Strainer STR-8052
Flange	ST01-D-P-1026	150# RF SERIES A	30	1033	Crude Oil	Flange on Strainer STR-8052
Flange	ST01-D-P-1026	150# RF SERIES A	30	1033	Crude Oil	Flange on P-8040
Flange	ST01-D-P-1027	150# RF SERIES A	30	1034	Crude Oil	Flange on Strainer STR-8072

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Valve List
4300C - PPA Pier 400 T-1000 TERMINAL
AQMD List - Connections

ITEM	P&ID NO.	P&ID DESCRIPTION	SIZE	LINE NO.	PRODUCT	COMMENTS
Flange	ST01-D-P-1027	150# RF SERIES A	30	1034	Crude Oil	Flange on Strainer STR-8072
Flange	ST01-D-P-1027	150# RF SERIES A	30	1034	Crude Oil	Flange on P-8060
Flange	B-408-D-M-4103	150# RF	20	0002	Crude Oil	Loading Arm LA-7610 Connection
Flange	B-408-D-M-4103	150# RF	20	0004	Crude Oil	Loading Arm LA-7620 Connection
Flange	B-408-D-M-4103	150# RF	20	0007	Crude Oil	Loading Arm LA-7630 Connection
Flange	B-408-D-M-4103	150# RF	20	0009	Crude Oil	Loading Arm LA-7640 Connection
Flange	B-408-D-M-4103	150# RF	3/4	0008	Crude Oil	Flange for TE-7650
Flange	B-408-D-M-4103	150# RF	4	0010	Crude Oil	Flange for Strainer
Flange	B-408-D-M-4103	150# RF	4	0010	Crude Oil	Flange for Strainer
Flange	B-408-D-M-4103	150# RF	3	0010	Crude Oil	Flange on P-7670
Flange	B-408-D-M-4103	150# RF	3	0017	Crude Oil	Flange on P-7670
Flange	B-408-D-M-4103	150# RF	4	0016	Crude Oil	Flange for Strainer
Flange	B-408-D-M-4103	150# RF	4	0016	Crude Oil	Flange for Strainer
Flange	B-408-D-M-4103	150# RF	3	0016	Crude Oil	Flange on P-7660
Flange	B-408-D-M-4103	150# RF	3	0032	Crude Oil	Flange on P-7660
Flange	B-408-D-M-4103	150# RF	4	0015	Crude Oil	Flange on T-8211
Flange	B-408-D-M-4103	150# RF	1 1/2	0014	Crude Oil	Flange on T-8211
Flange	B-408-D-M-4103	150# RF	2		Crude Oil	Flange on T-8211
Flange	B-408-D-M-4103	150# RF	2		Crude Oil	Flange on T-8211
Flange	B-408-D-M-4104	150# RF	4	0008	Crude Oil	Jet Mix Nozzle
Flange	B-408-D-M-4104	150# RF	6	0008	Crude Oil	Jet Mix Quill
Flange	B-408-D-M-4104	150# RF	4	0023	Crude Oil	Flange for Strainer
Flange	B-408-D-M-4104	150# RF	4	0023	Crude Oil	Flange for Strainer
Flange	B-408-D-M-4104	150# RF	3	0023	Crude Oil	Flange on P-7720
Flange	B-408-D-M-4104	150# RF	3	0024	Crude Oil	Flange on P-7720
Flange	B-408-D-M-4109	150# RF	6	1003	Crude Oil	Flange for Strainer
Flange	B-408-D-M-4109	150# RF	6	1003	Crude Oil	Flange for Strainer
Flange	B-408-D-M-4109	150# RF	6	1003	Crude Oil	Flange on P-7043
Flange	B-408-D-M-4109	150# RF	4	1004	Crude Oil	Flange on P-7043
Flange	B-408-D-M-4109	150# RF	1	1004	Crude Oil	Flange on Sampler Meter
Flange	B-408-D-M-4109	150# RF	1	1004	Crude Oil	Flange on Sampler Meter
Manway	ST01-D-P-1021	300# RF SERIES A	24	1001	Crude Oil	Manway on AEL-7705
Manway	ST01-D-P-1023	150# RF SERIES A	24	1002	Crude Oil	Flange on T-7840

Valve List
4300C - PPA Pier 400 T-1000 TERMINAL
AQMD List - Connections

ITEM	P&ID NO.	P&ID DESCRIPTION	SIZE	LINE NO.	PRODUCT	COMMENTS
Manway	B-408-D-M-4103	150# RF	20		Crude Oil	Manway on T-8211
SW X THD	B-408-D-M-4103	800# SW x THRD	2	0017	Crude Oil	THD for FSL-7670
SW X THD	B-408-D-M-4103	800# SW x THRD	2	0032	Crude Oil	THD for FSL-7660
SW X THD	B-408-D-M-4104	800# SW x THRD	1	0008	Crude Oil	THD for TE-7702
SW X THD	B-408-D-M-4104	800# SW x THRD	1	LINE 601	Crude Oil	THD for ZI-7706
SW X THD	B-408-D-M-4104	800# SW x THRD	1	LINE 601	Crude Oil	THD for ZI-7711
SW X THD	B-408-D-M-4109	800# SW x THRD	1	1004	Crude Oil	THD for FSL-7050
SW X THD	B-408-D-M-4109	800# SW x THRD	1	1004	Crude Oil	THD for XE-7049
SW X THD	B-408-D-M-4109	800# SW x THRD	1	1004	Crude Oil	THD for AE-7049
SW X THD	B-408-D-M-4109	800# SW x THRD	1	1004	Crude Oil	THD for AE-7051
SW X THD	B-408-D-M-4109	800# SW x THRD	1	1004	Crude Oil	THD for DE-7046
THD	B-408-D-M-4103	800# THRD x THRD	3/4	0010	Crude Oil	PDIT - Strainer Connection
THD	B-408-D-M-4103	800# THRD x THRD	3/4	0010	Crude Oil	PDIT - Strainer Connection
THD	B-408-D-M-4103	800# THRD x THRD	3/4	0016	Crude Oil	PDIT - Strainer Connection
THD	B-408-D-M-4103	800# THRD x THRD	3/4	0016	Crude Oil	PDIT - Strainer Connection
THD	B-408-D-M-4104	800# THRD x THRD	3/4	0023	Crude Oil	PDIT - Strainer Connection
THD	B-408-D-M-4104	800# THRD x THRD	3/4	0023	Crude Oil	PDIT - Strainer Connection
Flange	B-408-D-M-4109	150# RF	1	1004	Pump Seal Barrier Fluid	Flange on V-7043
Flange	B-408-D-M-4109	150# RF	1	1004	Pump Seal Barrier Fluid	Flange on V-7043
SW X THD	B-408-D-M-4109	800# SW x THRD	1	1004	Pump Seal Barrier Fluid	THD for FSL-7043
SW X THD	B-408-D-M-4109	800# SW x THRD	1	1004	Pump Seal Barrier Fluid	THD for TSH-7043
Flange	ST01-D-P-1021	150# RF	12	1201	Vapors	Flange on V-7706
Flange	ST01-D-P-1021	150# RF	2	1201	Vapors	Flange on V-7706
Flange	ST01-D-P-1021	150# RF	6	1366	Vapors	Flange on V-7706
Flange	ST01-D-P-1021	150# RF	2	1201	Vapors	Flange on V-7706
Flange	ST01-D-P-1021	150# RF	2	1201	Vapors	Flange on V-7706
Flange	ST01-D-P-1021	150# RF	2	1201	Vapors	Flange for FSH-7714
Flange	ST01-D-P-1023	150# RF	16	1002	Vapors	Flange on T-7840
Flange	ST01-D-P-1023	150# RF	12	1002	Vapors	Flange on T-7840 vapor line
Flange	ST01-D-P-1031	150# RF	16	1202	Vapors	Flange on FAR-7720
Flange	ST01-D-P-1031	150# RF	16	1202	Vapors	Flange on FAR-7720
Flange	ST01-D-P-1031	150# RF	8	1207	Vapors	Flange on T-7810
Flange	ST01-D-P-1031	150# RF	14	1208	Vapors	Flange on T-7810

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Pier 400 T-1000 TERMINAL
AQMD List - Exempt Valves

TAG NO.	P&ID NO.	P&ID DESCRIPTION	SIZE	CONNECTION	LINE NO.	PRODUCT	COMMENTS
V-1002	ST01-D-P-1021	Gate Valve	1	800# SW x THRD	1001	Crude Oil	Bellows Seal Gate Valve
V-1003	ST01-D-P-1021	Gate Valve	1	800# SW x SW	1302	Crude Oil	Bellows Seal Gate Valve
V-1006	ST01-D-P-1021	Gate Valve	1	800# SW x THRD	1002	Crude Oil	Bellows Seal Gate Valve
V-1008	ST01-D-P-1021	Gate Valve	1	800# SW x SW	1303	Crude Oil	Bellows Seal Gate Valve
V-1329	ST01-D-P-1021	Gate Valve	6	150# RF	1366	Crude Oil	Bellows Seal Gate Valve
V-1334	ST01-D-P-1021	Gate Valve	2	150# RF	1366	Crude Oil	Bellows Seal Gate Valve
V-1335	ST01-D-P-1021	Gate Valve	2	150# RF	1366	Crude Oil	Bellows Seal Gate Valve
V-1340	ST01-D-P-1021	Gate Valve	2	150# RF	1262	Crude Oil	Bellows Seal Gate Valve
V-1342	ST01-D-P-1021	Gate Valve	3/4	800# SW x THRD	1366	Crude Oil	Bellows Seal Gate Valve
V-1344	ST01-D-P-1021	Gate Valve	1	800# SW x THRD	1366	Crude Oil	Bellows Seal Gate Valve
V-1345	ST01-D-P-1021	Gate Valve	1	800# SW x SW	1359	Crude Oil	Bellows Seal Gate Valve
V-7709	ST01-D-P-1021	Gate Valve	6	300# RF	2301	Crude Oil	Bellows Seal Gate Valve
V-9524	ST01-D-P-1021	Gate Valve	6	150# RF	1366	Crude Oil	Bellows Seal Gate Valve
V-1348	ST01-D-P-1023	Gate Valve	1	800# SW x THRD	1002	Crude Oil	Bellows Seal Gate Valve
V-1349	ST01-D-P-1023	Gate Valve	1	800# SW x SW	1319	Crude Oil	Bellows Seal Gate Valve
V-7818	ST01-D-P-1023	Gate Valve	6	150# RF	1356	Crude Oil	Bellows Seal Gate Valve
V-9403	ST01-D-P-1023	Gate Valve	4	150# RF	1266	Crude Oil	Bellows Seal Gate Valve
V-1040	ST01-D-P-1024	Gate Valve	1	800# SW x THRD	1031	Crude Oil	Bellows Seal Gate Valve
V-1042	ST01-D-P-1024	Gate Valve	1	800# SW x SW	1312	Crude Oil	Bellows Seal Gate Valve
V-1044	ST01-D-P-1024	Gate Valve	1	800# SW x THRD	1031	Crude Oil	Bellows Seal Gate Valve
V-8013	ST01-D-P-1024	Gate Valve	2	150# RF	1306	Crude Oil	Bellows Seal Gate Valve
V-9932	ST01-D-P-1024	Gate Valve	3/4	800# THRD x THRD	9998	Crude Oil	Bellows Seal Gate Valve
V-1070	ST01-D-P-1025	Gate Valve	1	800# SW x THRD	1032	Crude Oil	Bellows Seal Gate Valve
V-1072	ST01-D-P-1025	Gate Valve	1	800# SW x SW	1313	Crude Oil	Bellows Seal Gate Valve
V-1074	ST01-D-P-1025	Gate Valve	1	800# SW x THRD	1032	Crude Oil	Bellows Seal Gate Valve
V-8033	ST01-D-P-1025	Gate Valve	2	150# RF	1320	Crude Oil	Bellows Seal Gate Valve
V-9933	ST01-D-P-1025	Gate Valve	3/4	800# THRD x THRD	9998	Crude Oil	Bellows Seal Gate Valve
V-1090	ST01-D-P-1026	Gate Valve	1	800# SW x THRD	1033	Crude Oil	Bellows Seal Gate Valve

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AQMD List - Exempt Valves

TAG NO.	P&ID NO.	P&ID DESCRIPTION	SIZE	CONNECTION	LINE NO.	PRODUCT	COMMENTS
V-1092	ST01-D-P-1026	Gate Valve	1	800# SW x SW	1314	Crude Oil	Bellows Seal Gate Valve
V-1094	ST01-D-P-1026	Gate Valve	1	800# SW x THRD	1033	Crude Oil	Bellows Seal Gate Valve
V-8053	ST01-D-P-1026	Gate Valve	2	150# RF	1324	Crude Oil	Bellows Seal Gate Valve
V-9934	ST01-D-P-1026	Gate Valve	3/4	800# THRD x THRD	9998	Crude Oil	Bellows Seal Gate Valve
V-1110	ST01-D-P-1027	Gate Valve	1	800# SW x THRD	1034	Crude Oil	Bellows Seal Gate Valve
V-1112	ST01-D-P-1027	Gate Valve	1	800# SW x SW	1315	Crude Oil	Bellows Seal Gate Valve
V-1114	ST01-D-P-1027	Gate Valve	1	800# SW x THRD	1034	Crude Oil	Bellows Seal Gate Valve
V-8073	ST01-D-P-1027	Gate Valve	2	150# RF	1306	Crude Oil	Bellows Seal Gate Valve
V-9935	ST01-D-P-1027	Gate Valve	3/4	800# THRD x THRD	9998	Crude Oil	Bellows Seal Gate Valve
V-7614	B-408-D-M-4103	Gate Valve	4	150# RF	0011	Crude Oil	Bellows Seal Gate Valve
V-7624	B-408-D-M-4103	Gate Valve	4	150# RF	0012	Crude Oil	Bellows Seal Gate Valve
V-7634	B-408-D-M-4103	Gate Valve	4	150# RF	0013	Crude Oil	Bellows Seal Gate Valve
V-7644	B-408-D-M-4103	Gate Valve	4	150# RF	0010	Crude Oil	Bellows Seal Gate Valve
V-	B-408-D-M-4103	Gate Valve	3/4	800# SW x THRD	0002	Crude Oil	Bellows Seal Gate Valve
V-	B-408-D-M-4103	Gate Valve	1 1/2	800# SW x SW	0002	Crude Oil	Bellows Seal Gate Valve
V-	B-408-D-M-4103	Gate Valve	3/4	800# SW x THRD	0004	Crude Oil	Bellows Seal Gate Valve
V-	B-408-D-M-4103	Gate Valve	1 1/2	800# SW x SW	0004	Crude Oil	Bellows Seal Gate Valve
V-	B-408-D-M-4103	Gate Valve	3/4	800# SW x THRD	0007	Crude Oil	Bellows Seal Gate Valve
V-	B-408-D-M-4103	Gate Valve	1 1/2	800# SW x SW	0007	Crude Oil	Bellows Seal Gate Valve
V-	B-408-D-M-4103	Gate Valve	3/4	800# SW x THRD	0009	Crude Oil	Bellows Seal Gate Valve
V-	B-408-D-M-4103	Gate Valve	1 1/2	800# SW x SW	0009	Crude Oil	Bellows Seal Gate Valve
V-	B-408-D-M-4103	Gate Valve	3	150# RF	0010	Crude Oil	Bellows Seal Gate Valve
V-	B-408-D-M-4103	Gate Valve	3/4	800# SW x THRD	0010	Crude Oil	Bellows Seal Gate Valve
V-	B-408-D-M-4103	Gate Valve	1 1/2	800# SW x SW	0010	Crude Oil	Bellows Seal Gate Valve
V-7671	B-408-D-M-4103	Gate Valve	4	150# RF	0010	Crude Oil	Bellows Seal Gate Valve
V-	B-408-D-M-4103	Gate Valve	1	800# SW x THRD	0010	Crude Oil	Bellows Seal Gate Valve
V-	B-408-D-M-4103	Gate Valve	1 1/2	800# SW x THRD	0010	Crude Oil	Bellows Seal Gate Valve
V-	B-408-D-M-4103	Gate Valve	3/4	800# SW x THRD	0010	Crude Oil	Bellows Seal Gate Valve