SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Addendum to the Final Environmental Impact Report for the

Ultramar, Inc. Wilmington Refinery
CARB Phase 3 Proposed Project

SCH. No. 2000061113

[Final SEIR Certified August 30, 2002]

March 2010

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1.0 INTRODUCTION

Ultramar, Inc. (a Valero Energy Company) is proposing modifications to a previously approved California Air Resource Board (CARB) Phase 3 Project. Specifically, Ultramar is proposing changes to the Ultramar Marine Terminal, Marine Tank Farm and Olympic Tank Farm, which were components of the CARB Phase 3 Project. Because the proposed project entails modification of a previously approved project, additional analysis pursuant to the California Environmental Quality Act (CEQA) is warranted. As discussed in this Addendum, it was determined that the proposed modifications and related environmental impacts have been comprehensively evaluated in several previously certified CEQA documents.

The Ultramar CARB Phase 3 project was first evaluated in a 2001 Final Environmental Impact Report (EIR) (SCH No. 2000061113). The project evaluated in the 2001 Final EIR included modifications to the existing Wilmington Refinery, including the existing Fluid Catalytic Cracking Unit (FCCU), Selective Hydrogenation Unit, Light Ends Recovery Unit/Naphtha Hydrotreater Unit, and Olefin Treater. A new Fuel Gas Mercaptan Extraction Unit and two new propane propylene bullet tanks were also proposed. Modifications to several storage tanks that handled methyl tertiary butyl ether (MTBE) were proposed. In addition, Ultramar proposed construction of three new ten-inch pipelines between the Refinery and the BP refinery for the transport of isoctane/alkylate, butane, and propane/propylene. Ultramar also proposed at that time the construction of three pipelines from the Refinery to the Olympic Tank Farm.

A modified CARB Phase 3 Project was evaluated in a 2002 Final Subsequent EIR (SEIR) that evaluated modifications to the Ultramar Marine Terminal, Marine Tank Farm, and the Olympic Tank Farm, which included the construction of three pipelines from the Refinery to the Olympic Tank Farm. The currently proposed project modifications involve modifications to storage tanks at the Olympic Tank Farm that were included in the 2002 Final SEIR. Other project modifications evaluated in the 2002 Final SEIR included a new gasoline storage tank at the Refinery.

An Addendum to the 2002 Final SEIR was prepared in July 2003 because Ultramar decided to modify the contents of the storage tank proposed to be constructed at the Refinery to include gasoline, gasoline blending components, and Fluid Catalytic Cracking (FCC) gasoline. The 2002 Final SEIR included a proposal to store gasoline and gasoline blending components only in the new storage tanks. Further, the storage tank was proposed to be an internal floating roof tank, rather than an external floating roof tank.

Ultramar Inc. is currently proposing additional changes to the Olympic Tank Farm, Marine Terminal, and Marine Tank Farm. Ultramar has leased the Marine Tank Farm from the Los Angeles Department of Water and Power (LADWP) since 2001. At that time, Ultramar relocated heavy oil storage from the Marine Terminal (leased from the Port of Los Angeles) to the Marine Tank Farm. Currently, heavy oils used to produce gasoline and other petroleum products, are delivered to the Ultramar Marine Terminal via ship and transported to the Marine Tank Farm via pipeline for initial storage prior to transport to the Ultramar Inc. Wilmington Refinery (also via pipelines) for further refining.

In 2002, the City of Los Angeles announced the Wilmington Waterfront Project, which would require the demolition of the Ultramar Marine Tank Farm. As a result, Ultramar must vacate the Marine Tank Farm prior to April 2011, when the current lease expires. Therefore, Ultramar is proposing modifications to the Olympic Tank Farm, which it also leases from LADWP, to replace the storage tank capacity that will be lost when it vacates the Marine Tank Farm. Ultramar is proposing to modify three existing storage tanks and replace four existing storage tanks with four new storage tanks at the Olympic Tank Farm. The proposed project will comply with the South Coast Air Quality Management District's (SCAQMD) best available control technology (BACT), as applicable, for control of volatile organic compounds (VOCs) emissions from storage tanks. As discussed further in this document, the impacts associated with the currently proposed modifications are within the scope of the analysis in the previous CEQA documents prepared for the Ultramar CARB Phase 3 project. The details of the proposed project modificiations are explained in Section 5.4 of this Addendum.

The SCAQMD has evaluated the changes to the proposed project (as detailed in Section 5.4 of this Addendum) and determined that the proposed modifications do not create any new significant adverse environmental impacts or make substantially worse any existing significant adverse environmental impacts identified in the August 2002 Final SEIR, and only minor additions or changes are necessary to make the previous August 2002 Final SEIR adequate for the revised project. Therefore, when considering the effects of the currently proposed project modifications, the SCAQMD has concluded that an Addendum is the appropriate document to be prepared in accordance with CEQA in order to evaluate potential environmental impacts associated with the current proposed project modification.

2.0 BASIS FOR DECISION TO PREPARE AN ADDENDUM

The SCAQMD was the lead agency responsible for preparing the 2001 Final EIR, August 2002 Final SEIR, and Addendum to the August 2002 Final SEIR, and is the public agency that has the primary responsibility for approving the currently proposed project modifications. Therefore, the SCAQMD is the appropriate lead agency to evaluate the potential environmental effects of the currently proposed project modifications that are the subject of this Addendum.

The SCAQMD has evaluated potential impacts from the proposed project to all environmental topic areas identified in Appendix G of the CEQA Guidelines. Based on that evaluation, two environmental topic areas were identified that could be adversely affected by the currently proposed project, air quality and hazards. These two environmental topic areas are further evaluated in Section 6.0. The evaluation further concluded that all remaining environmental topic areas on the environmental checklist would not be adversely affected by the currently proposed modifications. The rationale for this conclusion for each remaining environmental topic area is discussed in Section 7.0. The August 2002 Final SEIR identified significant adverse air quality and hazard impacts. As indicated in Section 6.0, the currently proposed project modifications would not change these conclusions: significant adverse air quality impacts during construction and operations and hazards from the CARB Phase 3 Project would still occur under the proposed changes to the project. However, as shown in Subsection 6.2.1 of this Addendum, the currently proposed project modifications will not result in new significant adverse air quality or hazards impacts or increase the severity of significant adverse air quality impacts previously identified in

the August 2002 Final SEIR. The currently proposed project modifications will not change any conclusions in the Addendum to the 2002 Final SEIR because the modifications evaluated in the 2002 Addendum were limited to storage tank modifications at the Refinery only. The Refinery storage tanks modifications evaluated in the Addendum to the 2002 Final SEIR have already been completed.

Under the currently proposed project, air quality impacts during construction would be reduced because construction activities would be reduced. Fewer storage tanks would be constructed at the Olympic Tank Farm and the amount of pipeline required to be installed would be less. The air quality impacts during operation would also be reduced because gasoline and gasoline blending components would not be stored at the Olympic Tank Farm under the currently proposed project modifications and the Marine Tank Farm would cease operations. Finally, hazards related to the storage of gasoline and gasoline blending components would be eliminated from the Olympic Tank Farm so hazard impacts associated with the CARB Phase 3 Project would be reduced.

CEQA Guidelines §15164(a) allows a lead agency to prepare an Addendum to a Final EIR if all of the following conditions are met.

- Substantial changes with respect to the circumstances under which the project is undertaken do not require major revisions to the previous Final EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

- No new information becomes available which shows new significant effects or significant effects substantially more severe than previously discussed.

- The project proponent agrees to adopt mitigation measures which are different from those analyzed in the previous EIR that would substantially reduce one or more significant effects on the environment.

- Only minor technical changes or additions are necessary to make the Final EIR under consideration adequate under CEQA.

- The changes to the Final EIR made by the Addendum do not raise important new issues about the significant effects on the environment.

The currently proposed project modifications will result in no new significant adverse effects or substantially increased severity of significant effects previously identified. Further, the currently proposed project modifications consist of only minor changes to the August 2002 Final SEIR that do not raise important new issues about the previously analyzed significant environmental effects. Thus, the currently proposed project modifications meet all of the conditions in the CEQA Guidelines §15164(a) for the preparation of an Addendum. Because the currently proposed modifications meet all of the conditions for preparing an Addendum, neither a subsequent nor a supplemental EIR pursuant to CEQA Guidelines §15162 and §15163, respectively, is required. This conclusion is supported by substantial evidence as explained in Sections 6.0 and 7.0 of this Addendum.

3.0 BACKGROUND CEQA DOCUMENTS

The activities associated with the Ultramar Refinery CARB Phase 3 Project were evaluated sequentially in the following CEQA documents. Summaries of each of these CEQA documents are provided below. The CEQA documents, including the August 2002 Final SEIR, can be obtained by contacting the SCAQMD's Public Information Center at (909) 396-2039 or they can be downloaded from the SCAQMD's CEQA Webpage at the following Internet address:

http://www.aqmd.gov/ceqa/documents/2002/nonaqmd/ultramar/final/ultFEIR.html

Notice of Preparation of an Environmental Impact Report (EIR) (SCAQMD, June 2000): A Notice of Preparation (NOP) and Initial Study for the Ultramar CARB Phase 3 Project were released for a 30-day public review and comment period on June 23, 2000. The Initial Study included a project description, project location, an environmental checklist, and a preliminary discussion of potential adverse environmental impacts. The NOP requested public agencies and other interested parties to comment on the scope and content of the environmental information to be evaluated in the Draft EIR.

Draft EIR (SCAQMD, June 2001): The Draft EIR was released for a 45-day public review and comment period on June 6, 2001. The Draft EIR included a comprehensive project description, a description of the existing environmental setting, analysis of environmental topic areas (including cumulative impacts), that could be adversely affected by the proposed projects mitigation measures, project alternatives, and all other relevant topics required by CEQA. The Draft EIR also included a copy of the NOP and Initial Study, copies of the six comment letters received on the NOP and Initial Study, and responses to all comment letters received on the NOP and Initial Study. It was concluded in the Draft EIR that the Ultramar proposed CARB Phase 3 Project may have significant adverse impacts on air quality and hazards in spite of implementing mitigation measures.

Final EIR (SCAQMD, December 2001): The Final EIR was prepared by revising the Draft EIR to incorporate applicable updated information and to respond to comments received on the Draft EIR. The Final EIR contained six comment letters and responses to comments received on the Draft EIR. The changes included in the Final EIR did not constitute significant new information relating to the environmental analysis or mitigation measures that required recirculation of the Draft EIR. The Final EIR was certified on December 19, 2001.

Draft Subsequent EIR (SCAQMD, March 2002): The Draft Subsequent EIR (SEIR) was released for a 45-day public review and comment period on March 6, 2002. The Draft SEIR included a comprehensive description of the proposed modifications to the original CARB Phase 3 Project, a description of the existing environmental setting that could be adversely affected by the revised project, analysis of potential adverse environmental impacts (including cumulative impacts), mitigation measures, project alternatives, and all other relevant topics required by CEQA. It was concluded in the Draft SEIR that the Ultramar CARB Phase 3 Proposed Project, as revised, may have significant adverse impacts on air quality and hazards in spite of implementing mitigation measures.

Final Subsequent EIR (SCAQMD, August 2002): The Final SEIR was prepared by revising the Draft SEIR to incorporate applicable updated information and to respond to comments received on the Draft SEIR. The Final SEIR contained approximately 180 comment letters and responses to comments received on the Draft SEIR. The changes included in the Final SEIR did not constitute significant new information relating to the environmental analysis or mitigation measures that required recirculation of the Draft EIR. The Final SEIR was certified on August 30, 2002.

Addendum to the Final Subsequent EIR (SCAQMD, July 2003): An Addendum to the Final SEIR was prepared because Ultramar proposed modifications to a storage tank and the material to be stored in the tank at the Refinery that was part of the CARB Phase 3 Project. The proposed modifications did not trigger any conditions identified in CEQA Guidelines §15162, so an addendum was determined to be the appropriate document for the proposed modifications. The Addendum was certified on July 11, 2003.

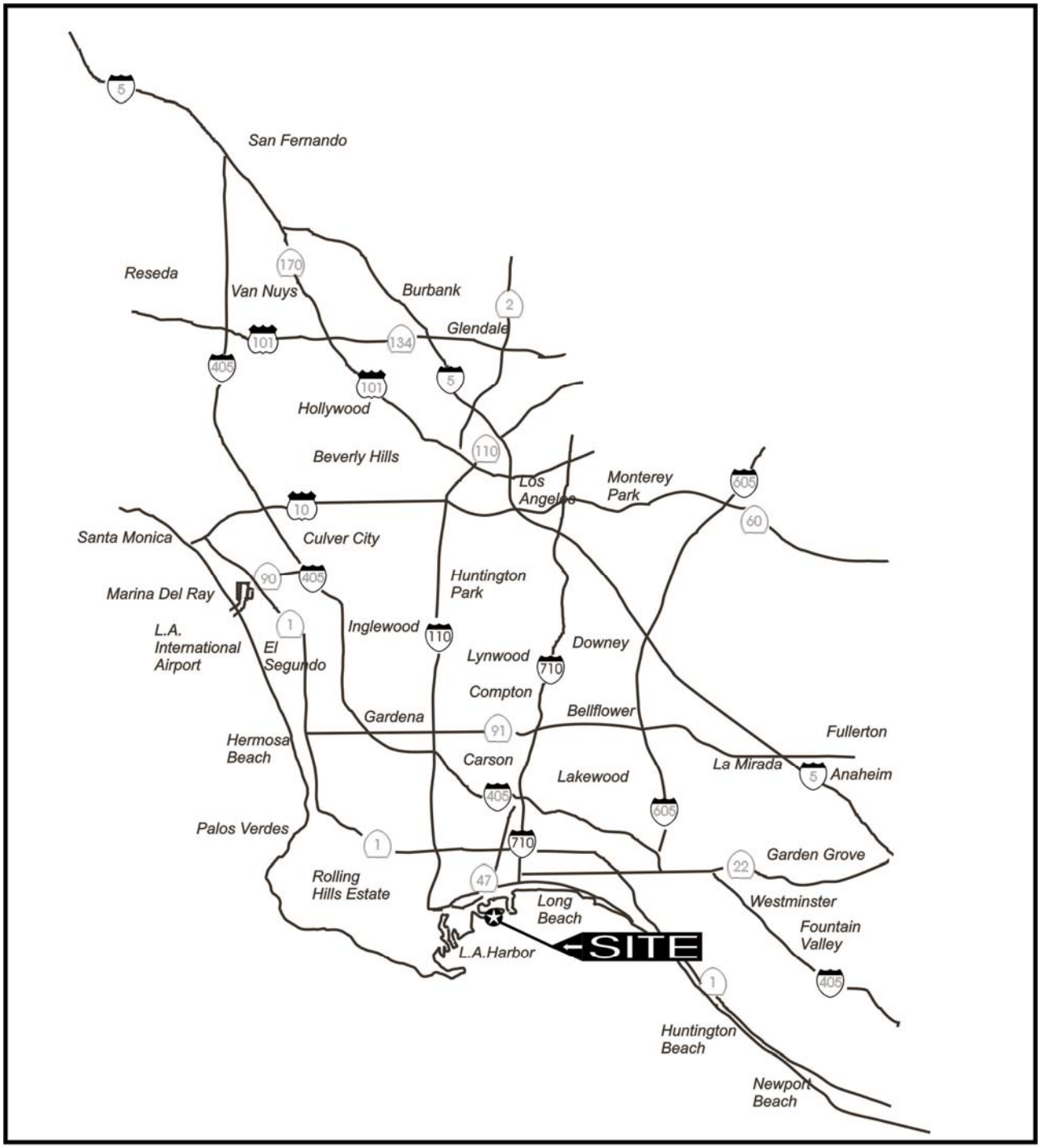
4.0 PROJECT LOCATION

The proposed project modifications will occur at three locations: (1) the Marine Terminal located at 961 La Paloma Avenue, Wilmington; (2) The Marine Tank Farm located at 130 "A" Street, Wilmington; and (3) the Olympic Tank Farm located at 1220 N. Alameda Street, Wilmington. All three facilities are located within the Wilmington district of the City of Los Angeles in the southern portion of Los Angeles County (see Figures 1 and 2).

The Marine Terminal is located at Berth 164 on Mormon Island in the Port of Los Angeles. The channel is located on the northwest side of the facility. La Paloma is located on the east and Shore Terminal Company is located northeast of the Marine Terminal. The marine terminals for other oil companies are also located on Mormon Island including Shell and Kinder Morgan.

The Marine Tank Farm is located about one-half mile northeast of the Marine Terminal and is bounded by "A" Street to the north, Avalon Boulevard to the east, Harbor Belt Lane to the south, and Fries Avenue to the west.

The Olympic Tank Farm is located about one and one-half miles northeast of the Marine Tank Farm near the Alameda Street/Pacific Coast Highway intersection. The Olympic Tank Farm is bounded by Alameda Street to the west, railroad tracks to the south, the Tesoro Truck Terminal and Refinery to the east, and various land uses to the north, that are predominately commercial and industrial.



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REGIONAL MAP

N

Project No. 2599

Figure 1

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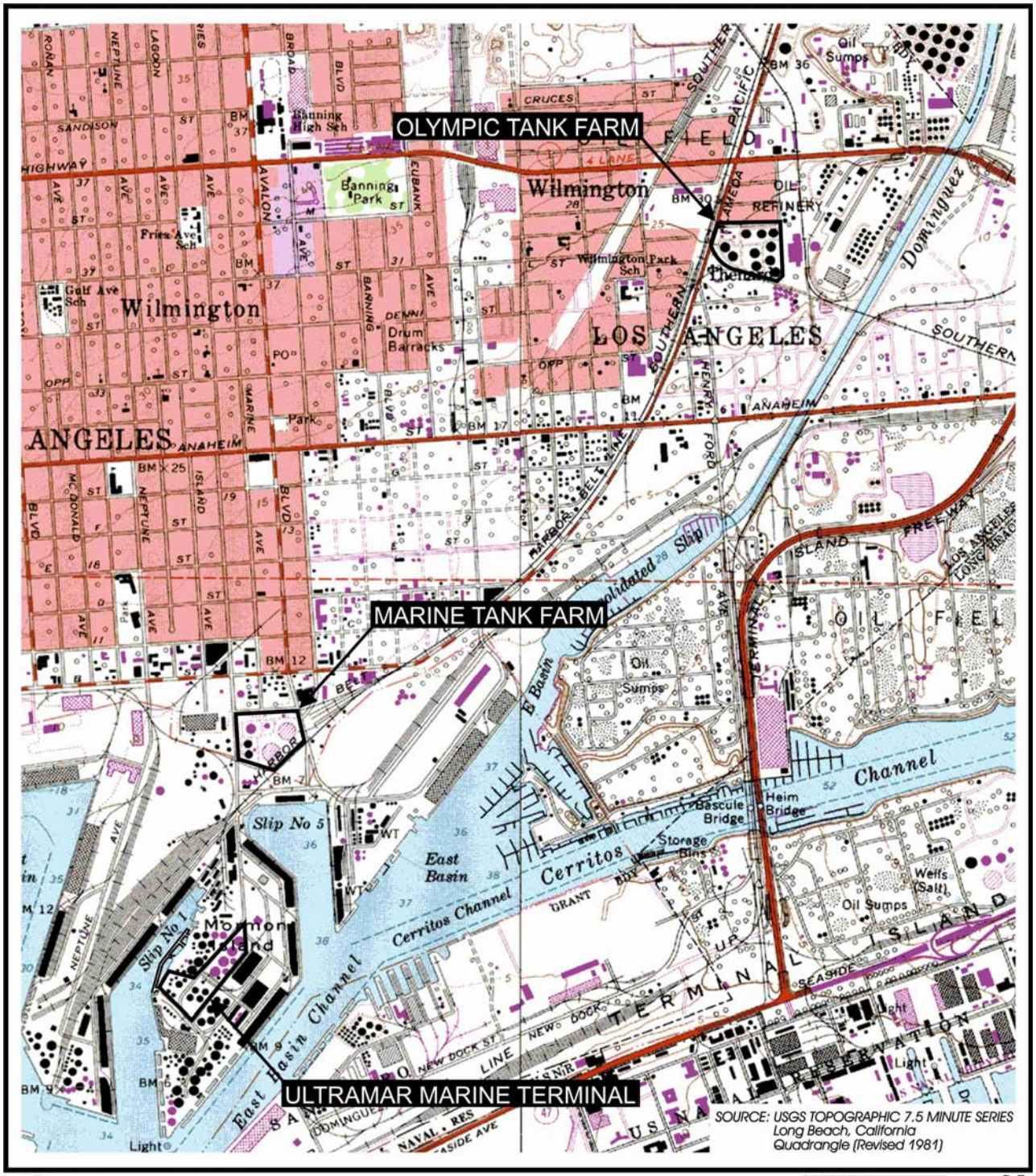

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SITE PROXIMITY MAP

Project No. 2599

Figure 2

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5.0 PROJECT DESCRIPTION

This section presents a description of the Ultramar CARB Phase 3 Project as evaluated in the August 2002 Final SEIR, as well as a description of the currently proposed project modifications.

5.1 Proposed Project Identified in the December 2001 Final EIR

The modifications to the Ultramar Wilmington Refinery need to comply with the CARB RFG Phase 3 requirements were evaluated in the December 2001 Final EIR. The proposed project included modifications to the existing FCCU, Selective Hydrogenation Unit, Light Ends Recovery Unit/Naphtha Hydrotreater Unit, and Olefin Treater. A new Fuel Gas Mercaptan Extraction Unit and two new propane propylene bullet tanks were also proposed. The service of several storage tanks that handled MTBE was proposed to be modified and the throughput of the tanks was expected to change. In addition, Ultramar proposed construction of three new ten-inch pipelines between the Ultramar Wilmington Refinery and the BP refinery for the transport of isoctane/alkylate, butane, and propane/propylene. Ultramar also proposed the construction of three pipelines from the Refinery to the Olympic Tank Farm. Modifications to the Refinery needed to comply with CARB RFG Phase 3 requirements have been completed.

5.2 Proposed Project Modifications Analyzed in August 2002 Final SEIR

In the August 2002 Final SEIR, Ultramar proposed to add a storage tank at the Refinery, modify two storage tank farms (including the Marine Tank Farm and the Olympic Tank Farm), and modify the Marine Terminal, as described below. In addition, these changes required modifications to tank operations, and installation of new auxiliary equipment. The project changes evaluated in the August 2002 Final SEIR are described in more detail in the following paragraphs.

Modifications to the Ultramar Wilmington Refinery: The modifications to the Ultramar Wilmington Refinery included the installation of a new 150,000 barrel storage tank with an external floating roof equipped with primary and secondary seals. The tank was to store gasoline and gasoline blending components. Piping modifications and new blending pumps were also required.

Modifications to the Marine Tank Farm: The modifications to the Marine Tank Farm included modifications to one existing storage tank for the installation of a secondary seal (the tank was equipped with an external floating roof with a primary seal), tank modifications to allow for a low pump-out heel, and a change of service that allowed the storage of various products including naphtha. New pipeline pumps were proposed to be installed and piping modifications were required.

Modifications to the Olympic Tank Farm: A number of modifications were required for the Olympic Tank Farm. Three existing tanks were proposed to be removed and replaced. The replacement tanks were expected to be 150,000-barrel capacity welded tanks with external floating roofs and primary and secondary seals and a dome. The service of these three tanks was proposed to be changed to gasoline and gasoline blending components.

A new 150,000-barrel storage tank was proposed to be installed with an external floating roof equipped with primary and secondary seals and a dome. This new tank was proposed to be in gasoline and gasoline blend component service and include a leak detection system.

An existing storage tank was proposed to be modified to install an internal floating roof with primary and secondary seals. The service of this tank was proposed to be changed from fuel oil/water to store various products including naphtha.

Four existing storage tanks were proposed to be replaced with four new 100,000-barrel capacity welded tanks with external floating roofs equipped with primary and secondary seals and a dome. The service of the tanks was proposed to change to gasoline and gasoline blending components. A leak detection system was proposed to be installed on all four tanks.

Two tanks were proposed to be modified to install internal floating roofs with primary and secondary seals. The service of the tanks was proposed to be changed from fuel oil/water to gasoline and gasoline blend components. Double bottoms also were proposed to be installed on these storage tanks. Other modifications to the Olympic Tank Farm include new pipeline pumps, new firewater pumps, and piping modifications. Overall, the proposed changes were expected to result in about a 42 percent increase in storage capacity at the Olympic Tank Farm.

Modifications to the Marine Terminal: As a result of lease negotiations with the Port of Los Angeles, the size of the Ultramar Marine Terminal was proposed to be reduced. The Marine Terminal provides storage facilities for various petroleum products. A number of storage tanks were closed and dismantled. The August 2002 Final SEIR evaluated modifications to one existing storage tank including the installation of an external floating roof and a change of service from organic liquid/naphtha to gasoline and gasoline blending components.

Changes to Material Transport: The project modifications evaluated in the 2002 Final SEIR were expected to result in an increase in gasoline blending stocks transported to the Marine Terminal via marine vessel. About 32 marine vessels per year transported MTBE to the Marine Terminal. The proposed project included eliminating the use of MTBE as the oxygenate in RFG fuel. The proposed modifications were estimated to require 97 marine vessels per year to transport other gasoline blending stocks. Therefore, the proposed project was expected to result in an increase of about 65 marine vessels per year compared to baseline conditions. Ultramar receives materials at the Marine Terminal and transfers the materials to its tank farms and Refinery via pipeline. The materials are blended at the Refinery and transferred to third party terminals via pipeline.

Ultramar proposed increasing the amount of gasoline blending components imported to the Marine Terminal to meet oxygenate specifications and make up for the loss associated with the removal of MTBE from gasoline. No increase in the amount of gasoline produced by Ultramar was expected.

The materials stored at the Marine and Olympic Tank Farms and Marine Terminal were proposed to be transported to/from the Refinery via existing and new pipelines. The impacts of the construction of the new pipelines were evaluated in the Ultramar CARB Phase 3 EIR (SCAQMD, 2001f).

5.3 Proposed Project Modifications Analyzed in the July 2003 Addendum

The August 2002 Final SEIR included the construction and operation of a new 150,000 barrel storage tank with an external floating roof equipped with primary and secondary seals at the Ultramar Refinery. The tank was proposed to store gasoline and gasoline blending components. The July 2003 Addendum modified the proposed 150,000 barrel storage tank to a tank of the same size with an internal floating roof (instead of external floating roof with a dome) and the service was changed from gasoline and gasoline blending components to gasoline, gasoline blending components and FCCU gasoline. The storage tank modifications evaluated in the July 2003 have been completed.

5.4 Currently Proposed Modifications

The changes to the Olympic Tank Farm that were proposed in the August 2002 SEIR have not yet been implemented. Ultramar is currently proposing changes to the Olympic Tank Farm as described in this section. Ultramar has leased the Marine Tank Farm and Olympic Tank Farm from LADWP since 2001. At that time, Ultramar relocated heavy oil storage from the Marine Terminal (leased from the Port of Los Angeles) to the Marine Tank Farm. Currently, heavy oils used to produce gasoline and other petroleum products, are delivered to the Ultramar Marine Terminal via ship and transported to the Marine Tank Farm via pipeline for initial storage, prior to transport to the Ultramar Inc. Wilmington Refinery (also via pipelines) for further refining.

In 2002, the City of Los Angeles announced the Wilmington Waterfront Project, which would require the demolition of the Ultramar Marine Tank Farm to develop a community greenbelt/park and also provide the Port of Los Angeles with a more direct link to the Alameda Corridor via a grade separation. As a result, Ultramar must vacate the Marine Tank Farm by April 2011 when the current lease with LADWP expires.

To replace the storage tank capacity that will be lost when the Marine Tank Farm is vacated, Ultramar operators are proposing modifications to the Olympic Tank Farm, which is also leased from LADWP. Specifically, Ultramar is proposing to modify three existing storage tanks and replace four existing storage tanks with four new storage tanks at the Olympic Tank Farm. The proposed project will comply with the SCAQMD's BACT requirements, as applicable, for control of volatile organic compounds (VOCs) emissions from refinery storage tanks. As discussed further in this document, the impacts associated with these modifications are within the scope of the environmental analyses in the previous CEQA documents prepared for the Ultramar CARB Phase 3 project. The details of the previously proposed Olympic Tank Farm modifications are described in Section 5.2 of this Addendum.

Ultramar is proposing to replace the storage tanks at the Marine Tank Farm with replaced and modified storage tanks at the Olympic Tank Farm, although logistically, the types of materials stored and the throughput capacity will not change. The entire operation that is currently at the Marine Tank Farm will be relocated to the Olympic Tank Farm. When its current lease with LADWP expires in April 2011, Ultramar will turn the Marine Tank Farm back over to LADWP and LADWP is expected to demolish the Marine Tank Farm as part of the Wilmington Waterfront Development Project. The proposed project does not include the demolition of the Marine Tank

Farm because Ultramar must return the site to LADWP in the condition agreed upon in the lease (with all existing facilities in place) and will have no control over the Marine Tank Farm and related activities after that point. The demolition of the Marine Tank Farm will occur after Ultramar returns the site to LADWP, and after all other construction activities associated with the currently proposed project are complete. The demolition of the Marine Tank Farm is included as part of the Wilmington Waterfront Development Project, which is being analyzed in a separate EIR by the Port of Los Angeles. The Final EIR for the Wilmington Waterfront Development Project has been completed and was certified by the Port of Los Angeles June 18, 2009.

As part of the currently proposed modifications, offloading of heavy oil vessels at the Marine Terminal will change. Currently, heavy oil is offloaded at Berth 164 and then pumped to the Marine Tank Farm for storage. In the future, the Marine Tank Farm will no longer be used by Ultramar. Under the currently proposed project, heavy oil will be offloaded at Berth 164 into an existing storage tank at the Marine Terminal, and then pumped with new pumps into existing pipelines and transported directly to the Olympic Tank Farm. In order to go directly from the Marine Terminal to the Olympic Tank Farm, a new tie-in (pipeline) around the Marine Tank Farm will be installed on the existing pipelines.

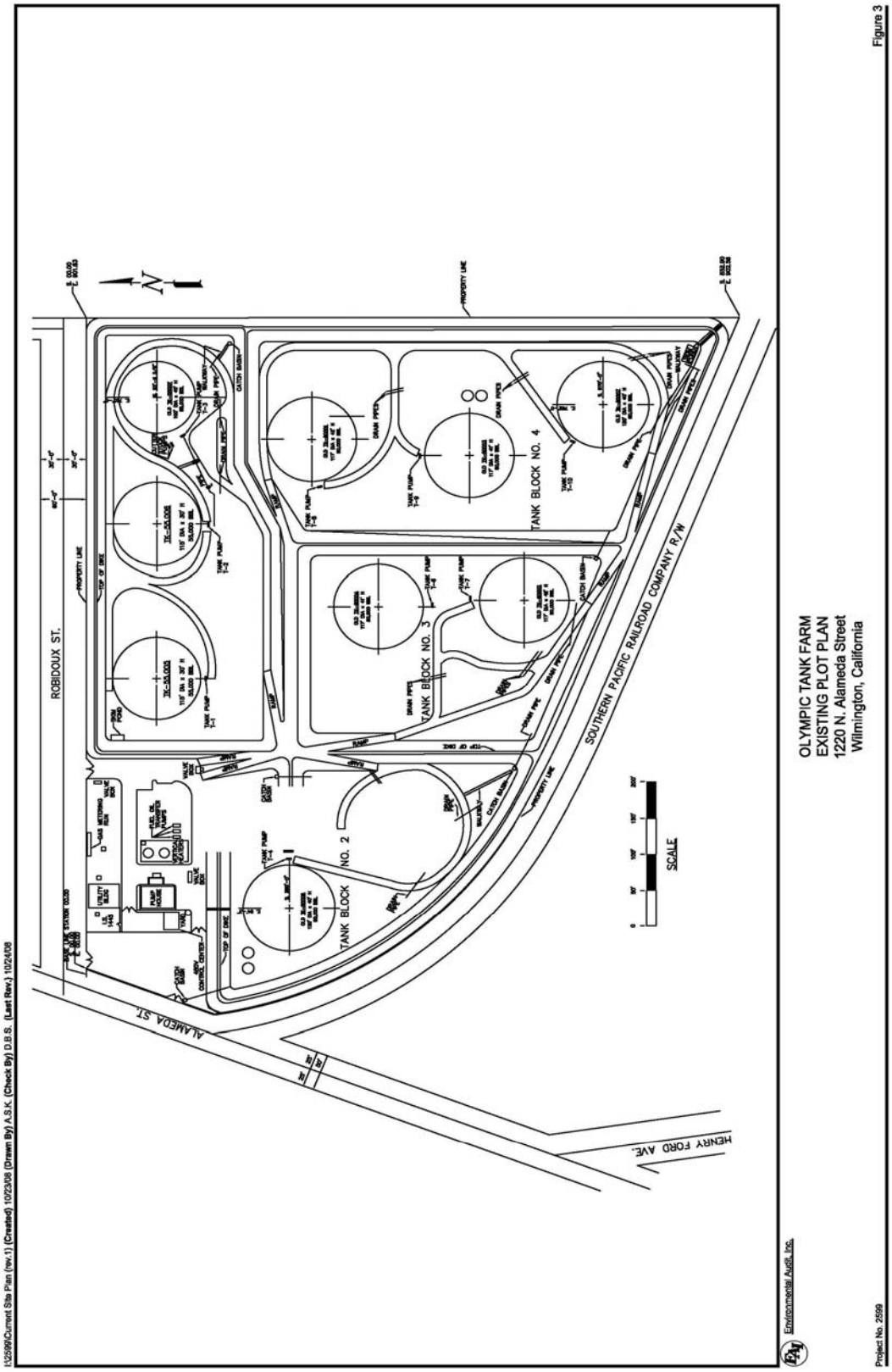
The current configuration of the Olympic Tank Farm is shown in Figure 3. The proposed configuration of the Olympic Tank Farm is shown in Figure 4. The currently proposed project primarily involves changes to the Olympic Tank Farm which are discussed below in more detail.

5.4.1 Olympic Tank Farm Modifications Addressed in the August 2002 Final SEIR

The modifications proposed to the Olympic Tank Farm in the August 2002 Final SEIR are summarized in Table 1. Four existing tanks were proposed to be removed (Tanks 55005, 55006, 8001, and 80004) and replaced with new 150,000 barrel capacity welded tanks (Tanks 299-TK-1501, 299-TK-1502, 299-TK-1504, and 299-TK-1505) with external floating roofs and primary and secondary seals. The service of these tanks was proposed to be changed from fuel oil/water to gasoline and gasoline blending components. A new 150,000 barrel new storage tank (299-TK-1002) was proposed to be installed with an external floating roof and placed in gasoline and gasoline blending component service.

An existing 50,000 barrel capacity tank (55007) was proposed to be modified to install an internal floating roof and the service of the tank was proposed to be changed from fuel oil/water to various products including naphtha.

Three existing storage tanks (80002, 80003, and 80005) were proposed to be removed and replaced with new 100,000 barrel capacity tanks (299-TK-1003, 299-TK-1004, and 299-TK-1001) with external floating roofs. The service of the tanks was proposed to be changed from fuel oil/water to gasoline and gasoline blending components. All three tanks were proposed to be equipped with a dome.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ALAMEDA ST.
HENRY FORD AVE.
SOUTHERN PACIFIC RAILROAD COMPANY R/W
TANK BLOCK NO. 2
TANK BLOCK NO. 3
TANK BLOCK NO. 4
SCALE
OLYMPIC TANK FARM
EXISTING PLOT PLAN
1220 N. Alameda Street
Wilmington, California
Figure 3
Project No. 2599
Environmental Audit, Inc.
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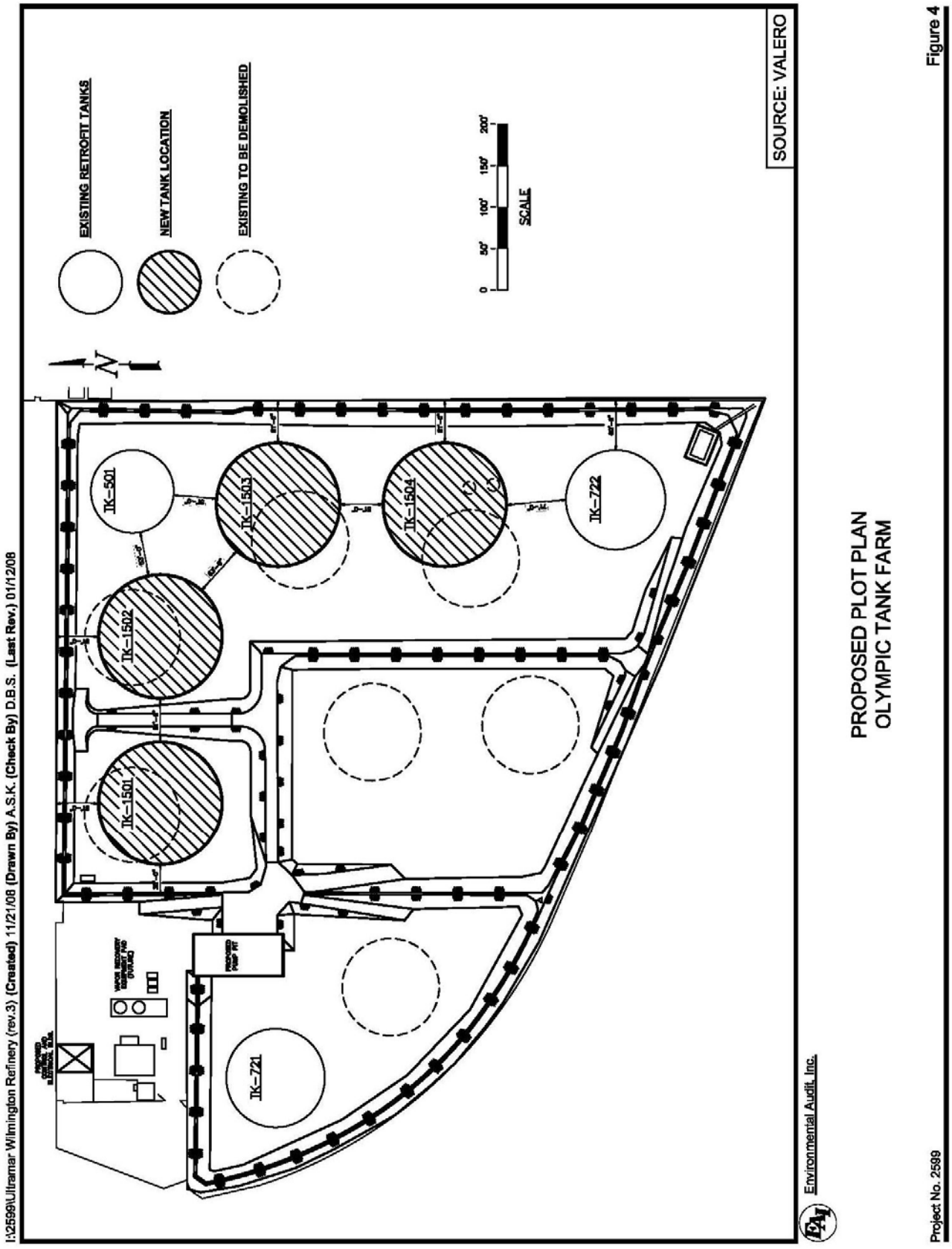
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EXISTING RETROFIT TANKS
NEW TANK LOCATION
EXISTING TO BE DEMOLISHED
0
50'
100'
150'
200'
SCALE
SOURCE: VALERO
TK-501
TK-1503
TK-1504
TK-722
TK-1502
TK-1501
TK-721
PROPOSED PLOT PLAN
OLYMPIC TANK FARM
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Project No. 2599
Figure 4

TABLE 1

Comparison of Olympic Tank Farm August 2002 Final SEIR Project and Currently Proposed Project Modifications

Existing Tank ID	Proposed Tank ID	Current Contents	Proposed Contents	Diameter (ft)	Tank Volume (bbls)	Annual Thruput (mmbbls)
PROJECT EVALUATED IN THE AUGUST 2002 FINAL SEIR						
55005	299-TK-1501[3]	Fuel Oil/Water	Gasoline/Gasoline Blend Components	150	150,000	5
55006	299-TK-1502[3]	Fuel Oil/Water	Gasoline/Gasoline Blend Components	150	150,000	5
80004	299-TK-1503[3]	Fuel Oil/Water	Gasoline/Gasoline Blend Components	150	150,000	5
80001	299-TK-1504[3]	Fuel Oil/Water	Gasoline/Gasoline Blend Components	150	150,000	5
55007	299-TK-501[2]	Fuel Oil/Water	Organic Liquid/Naphtha	100	50,000	3
80002	299-TK-1003[3]	Fuel Oil/Water	Gasoline/Gasoline Blend Components	135	100,000	3
80003	299-TK-1004[3]	Fuel Oil/Water	Gasoline/Gasoline Blend Components	135	100,000	3
New	299-TK-1002[1]	Fuel Oil/Water	Organic Liquid/Naphtha	135	100,000	3
80005	299-TK-1001[3]	Fuel Oil/Water	Gasoline/Gasoline Blend Components	135	100,000	3
80006	299-TK-721[2]	Fuel Oil/Water	Gasoline/Gasoline Blend Components	120	72,000	2
80007	299-TK-722[2]	Fuel Oil/Water	Gasoline/Gasoline Blend Components	120	72,000	2
				Total:	1,194,000	39
CURRENTLY PROPOSED PROJECT MODIFICATIONS						
55005	TK-1501[3]	Fuel Oil/Water	Heavy Oil[4]	150	158,311	4.8
55006	TK-1502[3]	Fuel Oil/Water	Heavy Oil[4]	150	158,311	4.8
80001	TK-1503[3]	Fuel Oil/Water	Heavy Oil[4]	150	158,311	4.8
80003	TK-1504[3]	Fuel Oil/Water	Heavy Oil[4]	150	158,311	4.8
55007	TK-501[2]	Fuel Oil/Water	Heavy Oil[4]	100	48,956	0.62
80002	TK-1003	Existing Tank Proposed to be Demolished		--	--	--
80004	TK-1004	Existing Tank Proposed to be Demolished		--	--	--
NA	TK-1002	No Longer Proposed to be Built		--	--	--
80005	TK-1001	Demolished		--	--	--
80006	TK-721[2]	Fuel Oil/Water	Heavy Oil[4]	120	70,497	0.89
80007	TK-722[2]	Fuel Oil/Water	Heavy Oil[4]	120	70,497	0.89
				Total:	823,191	21.6

1. Proposed new tank.
2. Proposed modifications to an existing storage tank.
3. Existing tank proposed to be removed and replaced.
4. Includes gas oil, distillate, light cycle oil, decant and diesel.

Two existing tanks (80006 and 80007) were proposed to be modified to install internal floating roofs. The tank numbers were proposed to be changed to Storage Tanks 299-TK721 and 299-TK-722. The service of the tanks was proposed to be changed from fuel oil/water to gasoline and gasoline blending components. One existing 50,000 barrel capacity tank (55007) was proposed to be modified to install an internal floating roof, the tank number was proposed to be changed to 299-TK-501, and the service of the tank was proposed to be changed from fuel oil/water to organic liquid/naphtha.

Other modifications to the Olympic Tank Farm included new pipeline pumps, new firewater pumps, and piping modifications.

5.4.2 Currently Proposed Project Modifications to the Olympic Tank Farm

The proposed project will require the demolition and replacement of four existing storage tanks with new internal floating roof storage tanks. In addition, three existing storage tanks will be modified. At the Olympic Tank Farm, gas oil will be stored in new or modified storage tanks as summarized in Table 2. The currently proposed modifications are compared to the modifications proposed to the Olympic Tank Farm in the August 2002 Final SEIR in Table 1.

TABLE 2

Summary of Currently Proposed
Storage Tank Modifications Olympic Tank Farm

Parameter	TK-1501	TK-1502	TK-1503	TK-1504	TK-721	TK-722	TK-501
Construction	Replaced	Replaced	Replaced	Replaced	Modified	Modified	Modified
Diameter (ft)	150	150	150	150	120	120	100
Shell Height (ft)	55.5	55.5	55.5	55.5	40	40	40
Maximum Volume (bbls)	158,311	158,311	158,311	158,311	70,497	70,497	48,956
Working Volume (bbls)	141,271	141,271	141,271	141,271	62,277	62,277	43,364
Throughput, bbl/month	400,000	400,000	400,000	400,000	74,175	74,175	51,650
Throughput, mmbbl/year	4.8	4.8	4.8	4.8	0.89	0.89	0.62
Service(1)	Heavy Oil	Heavy Oil	Heavy Oil	Heavy Oil	Heavy Oil	Heavy Oil	Heavy Oil

(1) Includes gas oil, distillate, light cycle oil, decant and diesel.

The currently proposed project will require the demolition of four existing (Tanks 55005, 55006, 80001 and 80003) and replacement of the four existing storage tanks (TK-1501, TK-1502, TK-1503 and TK-1504) with new internal floating roof storage tanks with a capacity of about 158,400 barrels. The storage tanks are proposed to store heavy oil (includes gas oil, distillate, light cycle oil, decant and diesel fuels). Tank TK-1002 is no longer proposed to be built.

Existing tank (55007) is proposed to be renumbered to TK-501 and modified to install new internal floating roofs. The service of TK-501 will be heavy oil and it will have a capacity of about 49,000 barrels. Two existing tanks (80002/TK-1003 and 80004/TK-1004) are existing tanks that are currently proposed to be demolished and not rebuilt. Tank 80005/TK-1001 has already been demolished and is not proposed to be rebuilt.

Two existing tanks (80006 and 80007) will be renumbered to TK-721 and TK-722 and will be modified to install internal floating roofs. The service of the tanks is proposed to be changed from fuel oil/water to heavy oil.

The proposed modifications to the Olympic Tank Farm will have the same approximate working volume of 733,000 barrels as does the Marine Tank Farm. However, due to recent tank design code changes, the total maximum volume at the Olympic Tank Farm will be higher (824,000 barrels) than the Marine Tank Farm (819,000 barrels).

Other changes to the Olympic Tank Farm include new piping to connect the new storage tanks to the existing pipeline (including additional valves, pumps and fittings), and new instrumentation to measure volumes of materials transported, received and stored on-site. The modifications also include the installation of two emergency diesel fire water pumps (one operational and one spare) that were evaluated in the August 2002 Final SEIR. A computer-based program will be used to track inventory in the tank farm including tank levels, pressures, temperature, pump status, valve position, etc. The computer program will allow Ultramar to oversee and coordinate the transfer of products between the terminal, tank farm and Refinery.

The heavy oil will be sent from the Olympic Tank Farm to the Refinery using a new pumping system and existing pipelines. The proposed project modifications will require the relocation of the aboveground portion of the pipeline that is currently at the Marine Tank Farm to a location to be agreed upon with LADWP. The new pipeline tie-in around the Marine Tank Farm is expected to be an underground pipeline in the vicinity of the Marine Tank Farm. No changes are required to the Refinery associated with the currently proposed project modifications.

The currently proposed project modifications at the Olympic Tank Farm are within the scope of the August 2002 Final SEIR. Table 1 compares the currently proposed modifications at the Olympic Tank Farm with the proposed modifications evaluated in the August 2002 Final SEIR. The modifications evaluated in the August 2002 Final SEIR included 11 storage tanks that would store gasoline and gasoline blending components, with a total capacity of 1.19 million barrels and an estimated annual throughput of 39 million barrels. The currently proposed modifications includes seven storage tanks that would store heavy oil, with a total capacity of about 0.82 million barrels and an estimated annual throughput of 21.6 million barrels. Therefore, the currently proposed modifications will result in fewer storage tanks, the storage of heavy oil (which has a much lower vapor pressure than gasoline and gasoline blending components), a reduced storage capacity, and a reduced total facility throughput, similar to the current operations at the Marine Tank Farm.

6.0 IMPACT ANALYSIS

The following sections present a description of the impact analysis contained in the August 2002 Final SEIR, as well as the analysis of the impacts of the currently proposed project modifications. A full description of the impacts evaluated in the August 2002 Final SEIR is presented to provide a clear understanding of the previously proposed project as well as the currently proposed project.

This section sequentially presents the initial project evaluated in the August 2002 Final SEIR and the currently proposed project to show the chronology of the impact analysis, and to show the comparison of the currently proposed modifications with the August 2002 Final SEIR project.

6.1 Summary of Impacts in the August 2002 Final SEIR

The NOP/IS prepared for the December 2001 Final EIR and relied upon for the August 2002 Final SEIR evaluated all environmental topics in accordance with CEQA and determined that eight of the 17 environmental topic areas identified in the environmental checklist (CEQA Guidelines, Appendix G) would not be significantly adversely affected by the proposed project. These topics were aesthetics, agricultural resources, biological resources, cultural resources, energy, mineral resources, population and housing, public services, and recreation. Six comment letters were received on the NOP/IS. However, none of the comments received expressed concerns about the eight topics that the NOP/IS determined would not be significantly affected by the proposed project. Thus, these less than significant environmental topics were not addressed further in the December 2001 Final EIR and the August 2002 Final SEIR.

Nine of the 17 environmental topic areas in the environmental checklist required further evaluation in the EIR including air quality; energy; geology/soils; hazards and hazardous materials; hydrology and water quality; land use and planning; noise; solid and hazardous waste; and transportation and traffic, required further evaluation in the EIR. The August 2002 Final SEIR concluded that six of the eight environmental topics evaluated in the SEIR would not be significantly adversely affected by the proposed project or could be mitigated to a level of insignificance. Section 7.0 of this Addendum discusses the effects of the currently proposed modifications on the environmental topics not found to be significant and the environmental topics mitigated to a level of insignificance as concluded in the August 2002 Final SEIR. The analysis shows that these environmental areas would not be substantially affected by the currently proposed modifications. Therefore, the conclusions for these environmental topic areas from the August 2002 Final SEIR do not change as a result of implementing the currently proposed modifications.

As discussed in the following paragraphs, the August 2002 Final SEIR identified potentially significant adverse impacts after the implementation of feasible mitigation measures for two environmental topic areas: 1) air quality (construction and operational emissions); and 2) hazards (from the modifications to several Refinery units and storage tanks at the Olympic Tank Farm).

The August 2002 Final SEIR indicated that the Ultramar CARB Phase 3 Proposed Project would result in the following significant unavoidable adverse impacts:

- Emissions of volatile organic compounds (VOC), nitrogen oxides (NOx), and particulate matter less than 10 microns in diameter (PM10) were expected to exceed mass daily significance thresholds during construction; therefore, construction air quality impacts were considered to be significant.

- Emissions of VOCs and NOx were expected to exceed mass daily emission significance thresholds during project operation.

- The hazard analysis concluded that proposed modifications to several Refinery units and storage tanks at the Olympic Tank Farm had the potential to create a hazard that could extend off-site under "worst-case" assumptions. Therefore, the potential hazard impacts associated with the proposed project were considered to be significant because there is the

potential for additional individuals to be exposed to potential hazards that would exceed the significance thresholds for hazards.

6.2 Analysis of Impacts from the Currently Proposed Modifications

This Addendum includes an evaluation of all 17 of the environmental topics identified in the environmental checklist (CEQA Guidelines Appendix G) and concluded that two environmental topic areas would be affected by the currently proposed project modifications - air quality and hazards. The following subsection presents the results of the evaluation of the air quality and hazard impacts associated with the currently proposed project modifications. Section 7.2 presents the analysis of the remaining 15 environmental topic areas where the impacts of the currently proposed modifications were evaluated in the Addendum and found not to be potentially significant.

6.2.1 Air Quality

Both construction and operational air quality impacts were evaluated in the August 2002 Final SEIR. Air quality impacts that equal or exceed the significance thresholds identified in Table 3 are considered to be potentially significant adverse air quality impacts.

Construction Emissions (Criteria Pollutants)

August 2002 Final SEIR

The construction impacts were analyzed for each month during the construction period of the CARB Phase 3 Project, because construction activities and the resulting emissions vary from one month to another. The months with the peak emissions were included in the August 2002 Final SEIR. Each month of the construction schedule was evaluated to determine the anticipated peak daily emissions during construction, which were anticipated to occur in the first month of construction for all pollutants, except VOCs. Peak VOC emissions were estimated to occur during Month 8 of the construction period. The August 2002 Final SEIR concluded that peak daily unmitigated emissions of CO, VOC, and NOx would exceed the CEQA significance thresholds for construction. Feasible mitigation measures to reduce emissions during construction were identified. Peak daily mitigated construction emissions from the August 2002 Final SEIR are summarized in Table 4. Table 4 shows that mitigated peak daily VOC, NOx, and PM10 emissions would continue to exceed the CEQA significance thresholds for construction. The construction emissions in Table 4 include construction activities at the Refinery, Marine Tank Farm, Olympic Tank Farm, and Marine Terminal.

TABLE 3
Air Quality Significance Thresholds

Mass Daily Thresholds		
Pollutant	**Construction**	**Operation**
NO_x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
PM2.5	55 lbs/day	55 lbs/day
SOx	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants and Odor Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk $\geq$ 10 in 1 million Hazard Index $\geq$ 1.0 (project increment) Cancer Burden $\geq$ 0.5	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality for Criteria Pollutants[(a)]		
NO_2 1-hour average annual average	In attainment; significant if project causes or contributes to an exceedance of any standard: 0.18 ppm (state) 0.053 ppm (federal)	
PM10 24-hour annual geometric mean annual arithmetic mean	 10.4 $\mu g/m^3$ (recommended for construction)[(b)] 2.5 $\mu g/m^3$ (operation) 1.0 $\mu g/m^3$ 20 $\mu g/m^3$	
PM2.5 24-hour average	 10.4 $\mu g/m^3$ (construction) & 2.5 $\mu g/m^3$ (operation)	
Sulfate 24-hour average	 1 $\mu g/m^3$	
CO 1-hour average 8-hour average	In attainment; significant if project causes or contributes to an exceedance of any standard: 20 ppm (state) 9.0 ppm (state/federal)	
Greenhouse Gases		
CO_2 eq[(c)]	10,000 metric tons per year for industrial projects for which the SCAQMD is the lead agency	

(a) Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated. The NO_2,1-hour average, CO 1-hour and 8-hour average, and PM10 and PM2.5 24-hour averages also apply as Localized Significance Thresholds (LST).

(b) Ambient air quality threshold based on SCAQMD Rule 403.

(c) Includes carbon dioxide (CO_2), methane (CH_4), Nitrous Oxide (N_2O), fluorinated gases (hydrofluorcarbon, perfluorocarbon, and sulfur hexafluoride)

Notes: ppm = parts per million; $\mu g/m^3$ = microgram per cubic meter; mg/m^3 = milligram per cubic meter; lbs/day = pounds per day; $\geq$ greater than or equal to

TABLE 4

Peak Daily Construction Emissions Following Mitigation from the August 2002 Final SEIR (lbs/day)[1]

ACTIVITY	CO	VOC	NOx	SOx	PM10[2]
Unmitigated Emissions	894	743	634	106	416
SCAQMD Threshold Level	550	75	100	150	150
SIGNIFICANT?	**YES**	**YES**	**YES**	**NO**	**YES**
Amount Needed to Reduce Emissions Below Significance Level	343	668	534	--	316
MITIGATION MEASURES					
Use Electric Welders	-7	-1	-11	-1	-1
Water Active Construction Sites	--	--	--	--	-90
Maintain Engines in Proper Tune	-35	-14	-30	-5	-2
Use of Alternative Diesel Fuel[3]	--	--	-83	--	-35
Use of Electricity Instead of Generators	-385	-14	-1	--	--
Require Tanks to be Pre-painted	--	-315	--	--	--
Total Emission Reductions	-427	-344	-125	-6	-128
Total Emissions After Mitigation	467	399	509	100	288
SIGNIFICANT AFTER MITIGATION?	NO	YES	YES	NO	YES

(1) See Table 4-16 of the August 2002 Final Subsequent EIR.
(2) PM2.5 was not calculated in the August 2002 Final Subsequent EIR. PM2.5 emissions associated with the project evaluated in the August 2002 Final SEIR have been estimated for the Olympic Tank Farm (only) in Table 6.
(3) Alternative diesel fuel, e.g., Lubrizol, is no longer commercially available.

Currently Proposed Modifications

Construction emissions have been revised in this Addendum to reflect the construction activities associated with the currently proposed modifications. Other portions of the CARB Phase 3 Project have been completed and only construction activities associated with the currently proposed modifications will occur.

Construction activities associated with the currently proposed modifications would result in emissions of VOCs, CO, NOx, SOx, PM10, and PM less than 2.5 microns in diameter (PM2.5). Construction activities include demolition of existing storage tanks, construction of new foundations, installation of the new storage tanks, and a new pumping system at the Olympic Tank Farm and installation of additional piping near the Marine Tank Farm. The Olympic Tank Farm

site is already graded, so no major grading activities are expected. Grading is limited to earthwork associated with the construction of containment berms surrounding storage tanks. As noted above, some of the existing storage tanks will need to be demolished in the early construction phase so that the new storage tanks can replace them in similar locations (see Figure 4) so demolition and construction activities are not expected to overlap.

Daily construction emissions were calculated for the proposed construction period, which is estimated to require about 17 months. Construction activities at the Olympic Tank Farm include tank demolition and tank construction, which cannot occur at the same time as the existing tanks will be removed before construction on the new tanks can begin. Construction activities also include pipeline installation near the Marine Tank Farm and the installation of minor equipment at the Marine Terminal. It was determined that the peak day construction emissions would occur during Month 10, for all pollutants except PM2.5 and PM10 (detailed calculations can be found in Appendix A and include mitigation measures). Peak day emissions of PM2.5 and PM10 are expected to occur during the early stages of construction activities (about Month 4) when more grading and earthwork activities are required. Peak day emissions are the sum of the highest daily emissions from construction equipment, vehicle emissions, fugitive construction emissions, and painting activities at all affected facilities for the construction period. The peak day is based on the day in which the highest emissions occur for each pollutant. The criteria pollutant emissions for that peak day were then compared to their respective significance thresholds. Construction emissions for the proposed modifications are provided in detail in Appendix B and the peak construction emissions are summarized in Table 5.

TABLE 5

Currently Proposed Modifications Peak Construction Emissions

Source/Activity	Construction Emissions (lbs/day) [1]					
	CO	NOx	VOC	SOx	PM10	PM2.5
Construction Equipment	73.82	143.43	22.39	0.14	8.37	7.70
Vehicle Emissions	12.73	19.33	2.19	0.03	0.51	0.19
Fugitive Construction	--	--	--	--	19.29	11.18
Paint	--	--	11.08	--	--	--
Total Emissions	86.55	162.76	35.66	0.17	28.14	19.07
SCAQMD Regional Threshold	550	100	75	150	150	55
Regionally Significant?	No	Yes	No	No	No	No

(1) See Appendix B for further details and calculation methodology.

The emissions during the construction phase associated with the proposed modifications are compared to the SCAQMD CEQA significance thresholds for construction in Table 5. The peak construction emissions are expected to be less than the SCAQMD CEQA significance thresholds for CO, VOC, SOx, PM10, and PM2.5. Construction emissions associated with NOx are expected to exceed the SCAQMD CEQA significance threshold for NOx.

As can be seen in Table 6, the total estimated construction emissions for the currently proposed modifications are less than the construction emissions considered in the August 2002 Final SEIR. Table 6 also demonstrates construction emissions from the currently proposed modifications do not substantially worsen significant adverse impacts, because peak daily mitigated emissions of CO, VOC, NOx, SOx, and PM10 for the currently proposed modifications are less than the peak daily mitigated emissions in the August 2002 Final SEIR. PM2.5 emissions were not required to be calculated as part of the August 2002 Final SEIR. However, PM2.5 emissions associated with the Olympic Tank Farm construction activities evaluated in the August 2002 Final EIR have been estimated in Appendix D of this Addendum. As shown in Table 6, PM2.5 emissions from construction activities associated with the currently proposed project modifications are less than estimated PM2.5 emissions from construction activities evaluated in the August 2002 Final EIR. Further, PM2.5 emissions associated with the currently proposed project are less than SCAQMD CEQA significance thresholds and, therefore, less than significant. Therefore, the currently proposed project emissions will not result in a significant increase in emissions or make a significant adverse impact worse.

TABLE 6

Currently Proposed Modifications to the Olympic Tank Farm
Peak Daily Construction Emissions Following Mitigation Compared to
August 2002 Final SEIR (lbs/day)

Source/Activity	Construction Emissions (lbs/day) [1]					
	CO	NOx	VOC	Sox	PM10	PM2.5
Currently Proposed Project Emissions	86.55	162.76	35.66	0.17	28.14	19.07
SCAQMD Threshold Level	550	100	75	150	150	55
SIGNIFICANT?	NO	YES	NO	NO	NO	NO
Mitigated Construction Emissions from 2002 Final SEIR	467	399	509	100	288	83[2]
Peak daily emissions from proposed project modif. above 2002 Final SEIR?	NO	NO	NO	NO	NO	NO

(1) See Appendix B for further details and calculation methodology.
(2) PM2.5 emissions were not included in the August 2002 Final SEIR but have been estimated for construction activities at the Olympic Tank Farm in Appendix D of this Addendum.

Construction Emissions - Localized Impacts (Criteria Pollutants)

The SCAQMD developed the Localized Significant Threshold (LST) Methodology to evaluate the potential localized impacts of criteria pollutants emitted from discrete locations, such as construction sites (SCAQMD, 2003c) subsequent to certification of the August 2002 Final SEIR. Therefore, an LST analysis was not completed as part of the August 2002 Final SEIR. A screening LST analysis was completed for the construction emissions estimated in the August 2002 Final EIR and it was determined that the LST impacts associated with NOx, PM10, and PM2.5 would exceed significance threshold and would be considered significant (see Appendix D). The LST

Methodology requires that the emissions of criteria pollutants associated with the project be evaluated for impacts on ambient air quality at a sensitive receptor, including CO, nitrogen dioxide (NO_2), PM10, and PM2.5.

In order to determine the ground level pollutant concentrations, the U.S. EPA ISCST3 (Version 02035) air dispersion model was used to model the peak day on-site construction emissions and calculate the annual average and maximum 1-hour, 8-hour, and 24-hour concentrations associated with the currently proposed project modifications. The project construction maximum ground level concentrations at the sensitive receptor were compared to the significance thresholds in Table 3 to demonstrate that construction emissions will not cause a violation of any state or national ambient air quality standard at the sensitive receptor. Predicted concentrations of PM10 and PM2.5 were compared to 10.4 micrograms per cubic meter ($\mu g/m^3$), which is comparable to the PM 10 control requirement in Rule 403 (see Table 7). PM10 and PM2.5 are evaluated differently than CO and NO_2 because concentrations of PM10 and PM2.5 in nearly the entire district exceed the state or federal PM10 and PM2.5 standards. The CO 1-hour, CO 8-hour, NO_2 1-hour, and NO_2 annual average ground level concentrations from the proposed project are combined with the maximum ambient concentrations and compared to the most stringent ambient air quality standard. It is assumed that all construction activities occur at the Olympic Tank Farm in order to provide a conservative impact analysis. Only minor construction activities are required at the Marine Tank Farm to reroute existing pipelines. The LST results are presented in Table 7.

TABLE 7

Localized Construction Significance Evaluation for the Currently Proposed Project

Criteria Pollutant	Averaging Period	Ambient Background Conc. (ug/m^3)	Calculated Conc. (ug/m^3)	Total Conc. (ug/m^3)	Most Stringent Air Quality Standard (ug/m^3)	Localized Significance Threshold (ug/m^3)	Exceeds Threshold?
CO	1-hour	4,597.6	395.0	4,992.6	23,000	--	No
	8-hour	4,022.9	131.3	4,154.2	10,000	--	No
NO_2	1-hour	264.3	44.3	308.6	339	--	No
PM10	24-hour	--	5.6	--	--	10.4	No
PM2.5	24-hour	--	5.9	--	--	10.4	No

The localized significance threshold analysis indicated that the currently proposed project does not cause or contributed to an exceedance of any threshold or standard for CO, NO_2, PM10 or PM2.5 during construction activities associated with the currently proposed project. The currently proposed modifications are expected to result in reduced construction emissions for all pollutants, including CO, NO_2, PM10 and PM2.5 (see Table 6). Therefore, the adverse localized construction impacts for the proposed modifications are also less that the project evaluated in the August 2002 Final SEIR, less than the applicable significance criteria, and less than significant.

Operational Impacts (Criteria Pollutants)

August 2002 Final SEIR

Proposed modifications at the Refinery, Marine Tank Farm, Olympic Tank Farm, and Marine Terminal were expected to generate emissions associated with: storage tank additions and modifications; fugitive components; diesel fire water pumps; on-road vehicles associated with new workers; and marine vessels associated with the transport of gasoline blending stocks. The total operational emissions associated with the August 2002 Final SEIR are summarized in Table 8. The operation of the proposed project was not expected to exceed the SCAQMD significance thresholds for direct emissions of NOx and SOx as the proposed project was not expected to result in an increase in these pollutants at the Refinery. The operation of the proposed project was expected to exceed the SCAQMD significance threshold for indirect emissions of NOx and SOx, primarily associated with increased emissions from marine vessels. The operation of the proposed project was also expected to exceed the SCAQMD significance thresholds for VOCs and PM10. Therefore, the air quality impacts associated with operational emissions from the proposed project were considered significant.

Currently Proposed Modifications

The project evaluated in the August 2002 Final SEIR included proposed modifications to the Olympic Tank Farm and these modifications have not been completed. The currently proposed project modifications include modifications to existing storage tanks, fugitive components and the addition of emergency fire pumps at the Olympic Tank Farm. Other portions of the CARB Phase 3 Project have been completed.

The operational emissions associated with the currently proposed modifications are compared to the SCAQMD CEQA significance thresholds for operation in Table 9. The operational emissions are expected to be less than the SCAQMD CEQA significance thresholds for all pollutants and are considered less than significant.

Table 9 also demonstrates that operational emissions from the currently proposed modifications do not substantially worsen significant adverse impacts, because peak daily mitigated emissions of CO, VOC, NOx, SOx, and PM10 for the currently proposed modifications are less than the daily operational emissions in the August 2002 Final SEIR. Further, the operational emissions evaluated for the Olympic Tank Farm in the 2002 Final SEIR are greater than the currently proposed modifications (e.g., 234 lbs/day of VOC emissions as compared to 23.42 lbs/day), primarily because the project evaluated in the 2002 Final SEIR included the storage of gasoline and gasoline blending components at the Olympic Tank Farm. The currently proposed project would allow the storage of gas oil, distillate, light cycle oil, decant and diesel (i.e., heavier oil products). Prior to October 2006, PM2.5 emissions were not required by the SCAQMD to be calculated in CEQA documents in general and the August 2002 Final SEIR in particular. However, as shown in Table 9, all criteria pollutant emissions, including PM2.5 emissions from operational activities associated with the currently proposed modifications are less than the SCAQMD CEQA significance thresholds and, therefore, less than significant. Therefore, the currently proposed project emissions will not result in a significant increase in emissions or make a significant adverse impact worse.

TABLE 8

Stationary Source Operational Emissions Summary
August 2002 Final SEIR
(lbs/day)

ACTIVITY	CO	VOC	NOx	SOx	PM10
BACKGROUND DATA:					
2002 RECLAIM Allocation	--	--	1,315	1,171	--
2001 Final EIR	325	73	213	5	67
Refinery Fugitive Emissions	--	5	--	--	--
Marine Tank Farm Fugitive Emissions	--	8	--	--	--
Olympic Terminal Fugitive Emissions	--	5	--	--	--
Refinery Storage Tank Modifications	--	12	--	--	--
Marine Tank Farm Modifications	--	9	--	--	--
Olympic Terminal Tank Farm Modifications	--	226	--	--	--
Olympic Tank Farm Diesel Pump		3		--	--
Marine Terminal Modifications	--	7	--	--	--
Marine Terminal Emission Reductions	--	-99	--	--	--
Emissions from Worker Vehicles	4	<1	<1	--	<1
Emissions from Additional Marine Vessels	176	71	1,911	2,672	366
Significance Determination for Emissions Subject to RECLAIM Thresholds:					
Project + 2002 RECLAIM Allocation	--	--	1,315	1,171	--
Significance Threshold for RECLAIM Pollutants	--	--	2,383	2,918	--
SIGNIFICANT?	**--**	**--**	**NO**	**NO**	**--**
Significance Determination for Emissions Subject to RECLAIM Thresholds:					
Project Emissions	514	321	2,164	2,678	437
Significance Threshold	550	55	55	150	150
SIGNIFICANT?	**NO**	**YES**	**YES**	**YES**	**YES**

(1) See Tables 4-2, 4-6, 4-7, 4-8 and 4-9 of the August 2002 Final SEIR.

TABLE 9

Currently Proposed Modifications
Peak Daily Operational Emissions Following Mitigation (lbs/day)[1]

Emission Source	CO	NOx	VOC	SOx	PM10	PM2.5
Tank 1501	--	--	2.93	--	--	--
Tank 1502	--	--	2.93	--	--	--
Tank 1503	--	--	2.93	--	--	--
Tank 1504	--	--	2.93	--	--	--
Tank 721	--	--	2.00	--	--	--
Tank 722	--	--	2.00	--	--	--
Tank 501	--	--	1.93	--	--	--
Fugitive Components	--	--	5.27	--	--	--
Emergency IC Engines	1.35	6.21	0.50	0.09	0.44	0.44
Total Emissions	**1.35**	**6.21**	**23.42**	**0.09**	**0.44**	**0.44**
SCAQMD Regional Threshold	550	55	55	150	150	55
Regionally Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Operational Emissions Evaluated in the 2002 Final SEIR for the Olympic Tank Farm	9	39	234	1	3	3[2]
Total Operational Emissions 2002 Final SEIR	514	2,164	321	2,678	437	--

(1) See Appendix B for further details and calculation methodology.
(2) PM2.5 emissions were not included in the August 2002 Final SEIR but have been estimated in Appendix D herein.

Toxic Air Contaminants

August 2002 Final SEIR

A Health Risk Assessment (HRA) was prepared for the revised CARB Phase 3 project August (2002 Final SEIR) for modifications to the Refinery, Marine Tank Farm, Olympic Tank Farm and Marine Terminal to determine if emissions of toxic air contaminants generated by the proposed project would exceed the SCAQMD thresholds of significance for cancer risk. The modifications to the Olympic Tank Farm included 11 storage tanks two diesel-fired internal combustion engines to run fire water pumps and fugitive emissions from pumps and fittings. The results of the previous HRA are summarized in this section. The results of the HRA are shown in Table 10 and indicate that the cancer risk and non-cancer risk did not exceed the applicable significance threshold; therefore, the health risks associated with the CARB Phase 3 project were considered to be less than significant.

TABLE 10

Summary of Health Risk Impacts from the August 2002 Final SEIR

FACILITY	Carcinogenic Health Impacts			Non-Carcinogenic Health Impacts	
	Maximum Exposed Individual Worker	Maximum Exposed Individual Resident	Maximum Exposed Sensitive Receptor	Maximum Chronic Hazard Index	Maximum Acute Hazard Index
Refinery	0.22×10^{-6}	0.035×10^{-6}	0.033×10^{-6}	0.0065	0.0014
Marine Tank Farm	1.0×10^{-6}	0.42×10^{-6}	0.069×10^{-6}	0.0054	0.0038
Olympic Tank Farm	2.77×10^{-6}	4.56×10^{-6}	1.86×10^{-6}	0.033	0.0058
Marine Terminal	0.35×10^{-6}	0.019×10^{-6}	0.012×10^{-6}	0.0049	0.0022
Marine Vessels	0.70×10^{-6}	0.70×10^{-6}	--	0.013	0.015
Significance Threshold(1)	10×10^{-6}	10×10^{-6}	10×10^{-6}	1.0	1.0

(1) See Table 3.

Currently Proposed Modifications

Proposed modifications at the Olympic Tank Farm include modifications to three existing storage tanks and replacement four existing storage tanks with four new storage tanks, two new fire water pumps and fugitive emissions from pumps and fittings. The results of the HRA for the currently proposed modifications are included in Appendix C. The HRA results for the proposed project as modified are summarized in the following paragraph.

Maximum Exposed Individual Worker (MEIW): Based on the air quality modeling and related assumptions, the cancer risk to the MEIW associated with the proposed modifications to the Olympic Tank Farm was calculated to be 1.25×10^{-6} or 1.25 in one million. This result does not exceed the cancer risk significance threshold of 10 per million identified in Table 3. The MEIW is based on a 46-year exposure period. The maximum value was multiplied by 0.15 to account for an occupational exposure period (five days per week, 50 weeks per year for 46 years) per the OEHHA AB2588 requirements that were in place at the time. Although OEHHA and current SCAQMD HRA guidelines suggest using a 40-year exposure period (due to changes in the assumed exposure period), a 46-year exposure period was used to be consistent with the health risk parameters used in the Final SEIR.

Maximum Exposed Individual Resident (MEIR): The predicted maximum cancer risk at the MEIR area due to exposure to air toxics resulting from the proposed modifications to the Olympic Tank Farm was calculated to be 3.22×10^{-6} or 3.22 per million which does not exceed the cancer risk significance threshold of 10 per million in Table 3. The MEIR is based on a 70-year exposure period.

Sensitive Receptors: The maximum cancer risk from the proposed modifications at the Olympic Tank Farm to the maximally exposed sensitive receptor was estimated to be 2.09×10^{-6} or approximately 2.09 per million. This risk estimate is overly conservative as it is based on a 70-year

continuous exposure period. This risk does not exceed the cancer risk threshold of 10 per million identified in Table 3.

Chronic Hazard Index: The highest chronic hazard index for the proposed modifications to the Olympic Tank Farm is estimated to be 0.00573. This result does not exceed the chronic hazard index significance threshold of 1.0 identified in Table 3.

Acute Hazard Index: The highest acute hazard index for the proposed modifications to the Olympic Tank Farm is estimated to be 0.91. The acute health effects are based on maximum hourly emissions of TAC that have acute target endpoints. The acute hazard index for the proposed modifications do not exceed the relevant significance threshold of 1.0 in Table 3.

Table 11 summarizes the results of the HRA from the currently proposed modifications with the HRA results from the Olympic Tank Farm from the August 2002 Final SEIR. The health risks associated with the currently proposed modifications are lower than the health risks from the August 2002 Final SEIR for the MEIW, MEIR and the chronic hazard index. The health risks associated with the currently proposed modifications are higher than the health risks from the August 2002 Final SEIR for the maximum exposed sensitive receptor and the acute hazard index. In all cases, however, the health risks are below the SCAQMD CEQA significance thresholds and the health risks are expected to remain less than significant. The reason for the increase in the maximum exposed sensitive receptor is a small private school has now been identified west of the site, which is now the maximum sensitive receptor location due to its closer proximity to the site. The acute hazard index increase is due to a change in the health risk model used (previous model used was ACE2588, new model is HARP) for the modeling and the inclusion of building downwash effects due to a change in the configuration of the site (i.e., tank locations and engine locations), which produced a new, closer maximum acute receptor location. Nonetheless, the health risks associated with the currently proposed modifications are less than the CEQA significance thresholds in all cases.

TABLE 11
Comparison of Health Risk Impacts from Currently Proposed Modifications to the August 2002 Final SEIR

FACILITY	Carcinogenic Health Impacts			Non-Carcinogenic Health Impacts	
	Maximum Exposed Individual Worker	Maximum Exposed Individual Resident	Maximum Exposed Sensitive Receptor	Maximum Chronic Hazard Index	Maximum Acute Hazard Index
Olympic Tank Farm from August 2002 Final SEIR	2.77×10^{-6}	4.56×10^{-6}	1.86×10^{-6}	0.033	0.0058
Olympic Tank Farm Currently Proposed Project Modifications	1.25×10^{-6}	3.22×10^{-6}	2.09×10^{-6}	0.0057	0.91
Significance Threshold(1)	10×10^{-6}	10×10^{-6}	10×10^{-6}	1.0	1.0

(1) See Table 3

No modifications are currently being proposed for the Ultramar Refinery so there are no changes to the health risk estimates prepared in the August 2002 Final SEIR (see Table 10), which concluded that the health impacts associated with TAC emissions would be less than significant. The proposed changes to the Marine Terminal (replacement of an existing pump) is not expected to result in a change in emissions, therefore, there are no changes to the health risk estimates prepared in the August 2002 Final SEIR (see Table 10), which concluded that the health impacts associated with TAC emissions would be less than significant. The currently proposed project will result in modifications to the Olympic Tank Farm, to replace the storage tank capacity that will be lost when Ultramar vacates the Marine Tank Farm and returns it back to LADWP. It is expected that LADWP will demolish the Marine Tank Farm so that all TAC emissions associated with the CARB Phase 3 project (see Table 10), would be eliminated.

Ultramar is proposing modifications to the Olympic Tank Farm, which it also leases from LADWP, to replace the storage tank capacity that will be lost when it vacates the Marine Tank Farm. Ultramar is proposing to modify three existing storage tanks and replace four existing storage tanks with four new storage tanks at the Olympic Tank Farm. The proposed project will comply with the SCAQMD's best available control technology (BACT), as applicable, for control of VOC emissions from storage tanks. As discussed further in this document, impacts associated with the currently proposed modifications are within the scope of the environmental analyses in the previous CEQA documents prepared for the Ultramar CARB Phase 3 project. The details of the proposed project changes are explained in Section 5.2 of this Addendum.

Cumulative Air Quality Impacts

The list of cumulative projects that could overlap with the construction activities at Ultramar's Olympic Tank Farm has been updated (see Table 12). The projects that have been eliminated as cumulative projects since completion of the August 2002 Final SEIR (because they are complete or abandoned) include: (1) the Tosco Ethanol Import and Distribution Project; (2) the Exxon Mobil RFG Phase 3 Project; (3) the Equipment RFG Phase 3 Project; (4) The Chevron RFG Phase 3 Project; (5) the BP RFG Phase 3 Project; (6) Metro 2000 Project; (7) Port of Los Angeles/Long Beach 2020 Plan (replaced with more specific port projects); (8) the ACTA projects (replaced with more current ACTA projects); (9) 223rd Re-Development Project; (10) City of Long Beach projects; and (11) Third Party Terminals (replaced by specific projects for Kinder Morgan and Chemoil).

TABLE 12

Other Nearby Projects in the Wilmington/Carson Areas

No.	Project	Address/Location	Project Type	Distance from Proposed Project
1	BP Safety, Compliance and Optimization Project	1801 East Sepulveda Blvd., Carson	Refinery/ Industrial	1.5 miles
2	Kinder Morgan	2000 East Sepulveda Blvd., Carson	Tank Farm/Industrial	1 mile
3	Chemoil Project	2365 East Sepulveda Blvd., Carson	Tank Farm/Industrial	1.25 mile
4	ConocoPhillips Tank Project	1520 East Sepulveda Blvd., Carson	Refinery/ Industrial	1 mile
5	Pacific LA Marine Crude Terminal	Berth 408, Port of Los Angeles	Port/Industrial	1 to 4.5 miles
6	BP Crude Logistics Optimization Program	1150 East Sepulveda Blvd., Carson	Tank Farm/ Industrial	1.5 mile
7	Tesoro Regulatory and Compliance Project	2101 East Pacific Coast Highway, Wilmington	Refinery/ Industrial	<0.5 mile
8	Intermodal Container Transfer Facility	Terminus of Terminal Island Freeway and Sepulveda Blvd. (northside)	Container Terminal/ Industrial	<1.5 mile
9	Southern California International Gateway (SCIG) Project	Terminus of Terminal Island Freeway and Sepulveda Blvd. (southside)	Container Terminal/ Industrial	1 mile
10	Smart Energy Transport System Project (Phase I)	Between Wilmington and LAX	Pipeline/ Industrial	1 mile
11	Interstate 710 Expansion	710 Freeway	Transportation	2 miles
12	ACTA – SR-47 Port Access	Terminal Island Freeway	Transportation	0.75 mile

Construction Impacts: In the August 2002 Final SEIR, it was concluded that the cumulative air quality impacts associated with the construction phase of the Ultramar CARB Phase 3 project and other related projects would exceed the CEQA significance thresholds for CO, VOC, NOx, SOx, and PM10. Therefore, the cumulative air quality construction impacts were considered significant. Most of the construction activities associated with the related projects evaluated in the August 2002 Final SEIR are expected to be largely finished.

The peak daily construction emissions for the currently proposed modifications exceed the applicable NOx construction emissions significance threshold. The construction activities associated with some related projects evaluated in the August 2002 Final SEIR are largely finished, although other related projects are expected to be underway. Table 12 outlines the other projects currently going on in the vicinity of the Ultramar Tank Farm.

The projects identified in Table 12 have the potential for construction activities that could overlap with the construction activities at Ultramar's Olympic Tank Farm. Table 13 summarizes the available construction emissions data for the related projects, i.e., the emission estimates are

available from other CEQA documents. Construction emissions for the Ultramar proposed modifications would exceed the thresholds established by the SCAQMD for NOx. Therefore, the air quality construction impacts are considered cumulatively considerable for NOx. The construction emissions for the Ultramar proposed modifications would not exceed the thresholds established by the SCAQMD for CO, VOC, SOx, PM10 and PM2.5. Per CEQA Guidelines §15064(h)(4)), the "mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." Therefore, the air quality construction impacts for the proposed modifications are not cumulatively considerable for CO, VOC, SOx, PM10, and PM2.5.

TABLE 13

Cumulative Construction Air Quality Impacts
(pounds per day)

No.	Project	Type of Project	Estimated Emissions					
			CO	VOC	NOx	SOx	PM10	PM2.5
1	BP Safety, Compliance and Optimization Project[1]	Refinery	1,036	250	1,633	117	208	*
2	Kinder Morgan[2]	Industrial	242	52	477	7	273	*
3	Chemoil Project [3]	Industrial	123	14	75	11	30	*
4	ConocoPhillips Tank Project[4]	Industrial	42	14	71	<1	38	11
5	Pacific LA Marine Crude Terminal[5]	Port-related	3,274	371	5,915	112	310	201
6	BP Crude Logistics Optimization Program[6]	Industrial	205	65	372	**	94	56
7	Tesoro Regulatory and Compliance Project[7]	Industrial	339.2	63.82	432.20	0.56	58.18	27.84
9	Smart Energy Transport System Project (Phase I) [8]	Pipeline	353	48	240	20	31	16
12	ACTA – SR-47 Port Access[8]	Highway Improvement	868	210	1,753	1.9	983	*
Emissions from Cumulative Projects[9]			6,482	1,088	10,968	271	2,025	312
SCAQMD Thresholds			550	75	100	150	150	55
Ultramar Proposed Modifications			86.55	35.66	162.76	0.17	28.14	19.07
Cumulatively Significant?			NO	NO	YES	NO	NO	NO

(1) SCAQMD, 2006; (2) City of Carson, 2005; (3) City of Carson, 2006; (4) SCAQMD, 2008a; (5) POLA, 2008; (6) City of Carson, 2007; (7) SCAQMD, 2009; (8) City of Los Angeles, 2007; (9) Only projects with quantifiable emissions have been included.

* PM2.5 emissions not listed in EIR.

** SOx emissions not listed in EIR.

Operational Impacts: In the August 2002 Final SEIR, it was concluded that the cumulative air quality impacts associated with the operational phase of the Ultramar CARB Phase 3 project and other related projects would exceed the CEQA significance thresholds for CO, VOC, NOx, and SOx. Although, the emission benefits associated with the use of reformulated fuels were expected to provide large regional air quality benefits by reducing NOx and VOC emissions, they were not considered as part of the air quality impacts from the proposed project.

The peak daily operational emissions for the currently proposed modifications are less than significant for all pollutants. Therefore, the proposed modifications to the Olympic Tank Farm will not make a cumulatively considerable contribution to impacts related to CO, VOC, NOx, SOx, PM10, or PM2.5 because the emissions from the proposed modifications will be less than the SCAQMD CEQA significance thresholds. The cumulative facilities for operation are the same as the cumulative facilities evaluated for construction activities (see Table 12). Per CEQA Guideline §15064(h)(4), the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable. Therefore, air quality impacts associated with the operation of the proposed modifications are not cumulatively considerable.

Toxic Air Contaminants: An air toxics analysis is typically a localized analysis of air toxics rather than a regional analysis. The August 2002 Final SEIR concluded that the cumulative impacts associated with the Ultramar CARB Phase 3 Project were below the significance criteria for cancer risk of 10 per million and below the significance criteria for hazard indices of 1.0. Therefore, significant adverse cumulative impacts were not expected from the Project.

The proposed modifications to the Olympic Tank Farm will allow the storage of heavy oil instead of gasoline that was proposed in the August 2002 Final SEIR, which will reduce the potential TAC emissions from the facility. The health risks for the currently proposed modifications are less than significant. Therefore, the proposed modifications to the Olympic Tank Farm will not make a cumulatively considerable contribution to TAC impacts because the emissions from the proposed modifications will be less than the SCAQMD CEQA significance thresholds. Per CEQA Guideline §15064(h)(4), the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable. Therefore, health risks associated with exposure to TAC emissions associated with the operation of the proposed modifications are not cumulatively considerable.

Greenhouse Gas Emissions

Because greenhouse gas emissions are generally considered to affect global climate, applicable impacts are considered to be cumulative impacts. Global climate change refers to changes in average climatic conditions on earth as a whole, including temperature, wind patterns, precipitation and storms. Global warming, a related concept, is the observed increase in average temperature of the earth's surface and atmosphere. One identified cause of global warming is an increase of greenhouse gases (GHGs) in the atmosphere. The six major GHGs identified by the Kyoto Protocol are CO_2, methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), haloalkanes (HFCs), and perfluorocarbons (PFCs). The GHGs absorb longwave radiant energy reflected by the earth, which warms the atmosphere. GHGs also radiate longwave radiation both upward to space and back down toward the surface of the earth. The downward part of this longwave radiation absorbed by the atmosphere is known as the "greenhouse effect." Some studies indicate that the potential effects of global climate change may include rising surface temperatures, loss in snow pack, sea level rise, more extreme heat days per year, and more drought years.

CO_2 is an odorless, colorless natural greenhouse gas. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus;

evaporation from oceans; and volcanic outgassing. Anthropogenic (human caused) sources of CO_2 are from burning coal, oil, natural gas, wood, butane, propane, etc. CH_4 is a flammable gas and is the main component of natural gas. N_2O, also known as laughing gas, is a colorless greenhouse gas. Some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to the atmospheric load of GHGs. HFCs are synthetic man-made chemicals that are used as a substitute for chlorofluorocarbons (whose production was stopped as required by the Montreal Protocol) for automobile air conditioners and refrigerants. The two main sources of PFCs are primary aluminum production and semiconductor manufacture. SF_6 is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF_6 is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Events and activities, such as the industrial revolution and the increased combustion of fossil fuels (e.g., gasoline, diesel, coal, etc.), are believed by some scientists to have contributed to the increase in atmospheric levels of GHGs. As reported by the California Energy Commission (CEC), California contributes 1.4 percent of the global and 6.2 percent of the national GHGs emissions (CEC, 2004). The GHG inventory for California is presented in Table 14 (CARB, 2007). Approximately 80 percent of GHGs in California are from fossil fuel combustion and over 70 percent of GHG emissions are carbon dioxide emissions (see Table 14).

In September 2006, Governor Schwarzenegger signed California's Global Warming Solutions Act of 2006 (AB32). AB32 establishes a cap on statewide greenhouse gas emissions and sets the regulatory framework to achieve the corresponding reduction in statewide emission levels. Ultramar will be regulated under requirements established pursuant to AB32 AB32 will require CARB to:

- Establish a statewide GHG emissions cap for 2020, based on 1990 emissions, by January 1, 2008 (an estimated 33 percent reduction);

- Adopt mandatory reporting rules for significant sources of GHG emissions by January 1, 2008;

- Adopt an emissions reduction plan by January 1, 2009, indicating how emissions reductions will be achieved via regulations, market mechanisms, and other actions; and,

- Adopt regulations to achieve the maximum technologically feasible and cost-effective reductions of GHGs by January 1, 2011.

The rules, requirements, and regulations that will be placed on individual industries and facilities under AB32 are currently unknown because the regulations are currently being developed. It is possible that certain sectors of industry will be required to implement GHG emission reductions once the regulations required under AB32 are developed; however, such reduction requirements are currently unknown. Therefore, no emission reduction credit for future regulations is being taken at this time.

TABLE 14

California GHG Emissions and Sinks Summary (Million metric tons of CO_2 equivalence)

Categories Included in the Inventory	1990	2004
ENERGY	386.41	420.91
Fuel Combustion Activities	381.16	416.29
Energy Industries	157.33	166.43
Manufacturing Industries & Construction	24.24	19.45
Transport	150.02	181.95
Other Sectors	48.19	46.29
Non-Specified	1.38	2.16
Fugitive Emissions from Fuels	5.25	4.62
Oil and Natural Gas	2.94	2.54
Other Emissions from Energy Production	2.31	2.07
INDUSTRIAL PROCESSES & PRODUCT USE	18.34	30.78
Mineral Industry	4.85	5.90
Chemical Industry	2.34	1.32
Non-Energy Products from Fuels & Solvent Use	2.29	1.37
Electronics Industry	0.59	0.88
Product Uses as Substitutes for Ozone Depleting Substances	0.04	13.97
Other Product Manufacture & Use Other	3.18	1.60
Other	5.05	5.74
AGRICULTURE, FORESTRY, & OTHER LAND USE	19.11	23.28
Livestock	11.67	13.92
Land	0.19	0.19
Aggregate Sources & Non-CO_2 Emissions Sources on Land	7.26	9.17
WASTE	9.42	9.44
Solid Waste Disposal	6.26	5.62
Wastewater Treatment & Discharge	3.17	3.82
EMISSION SUMMARY		
Gross California Emissions	433.29	484.4
Sinks and Sequestrations	-6.69	-4.66
Net California Emissions	**426.60**	**479.74**

Source: CARB, 2007.

The analysis of GHGs is a much different analysis than the analysis of criteria pollutants for the following reasons. For criteria pollutants, significance thresholds are based on daily emissions because attainment or non-attainment is based on daily exceedances of applicable ambient air quality standards. Further, several ambient air quality standards are based on relatively short-term exposure effects on human health, e.g., one-hour and eight-hour. Since the half-life of CO_2 is approximately 100 years, for example, the effects of GHGs are longer-term, potentially affecting global climate over a relatively long time frame. As a result, the SCAQMD's current position is to

evaluate GHG effects over a longer timeframe than a single day. GHG emissions in the form of CO_2 will be generated by the off-road equipment and on-road vehicles during the construction phase of the project. CO_2 emissions were estimated using emission factors from CARB's EMFAC2007 and OFFROAD2007 models and EPA's AP-42. The CO_2 emission factors and calculations can be found in the emission calculation spreadsheets in Appendix B.

On December 5, 2008, the SCAQMD adopted an interim GHG Significance Threshold for projects where it is the lead agency using a tiered approach for determining significance. The objective of the SCAQMD's interim GHG significance threshold proposal is to achieve a GHG emission capture rate of 90 percent of all new or modified stationary source projects. A GHG significance threshold based on a 90 percent emission capture rate is considered be more appropriate to address the long-term adverse impacts associated with global climate change because most projects will be required to implement GHG reduction measures. Further, a 90 percent GHG emission capture rate sets the emission threshold low enough to capture a substantial fraction of future stationary source projects that will be constructed to accommodate future statewide population and economic growth, while setting the emission threshold high enough to exclude small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions. The following bullet points describe the basic structure of SCAQMD's tiered interim GHG significance threshold for stationary sources (SCAQMD, 2008b).

- **Tier 1 –** consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA. For example, SB 97 specifically exempts a limited number of projects until it expires in 2010. If the project qualifies for an exemption, no further action is required. If the project does not qualify for an exemption, then it would move to the next tier.

- **Tier 2 –** consists of determining whether or not the project is consistent with a GHG reduction plan that may be part of a local general plan, for example. The concept embodied in this tier is equivalent to the existing consistency determination requirements in CEQA Guidelines §§15064(h)(3), 15125(d), or 15152(a). The GHG reduction plan must, at a minimum, comply with AB 32 GHG reduction goals; include emissions inventory agreed upon by either CARB or the SCAQMD, have been analyzed under CEQA and have a certified Final CEQA document, and have monitoring and enforcement components. If the proposed project is consistent with the qualifying local GHG reduction plan, it is not significant for GHG emissions. If the project is not consistent with a local GHG reduction plan, there is no approved plan, or the GHG reduction plan does not include all of the components described above, the project would move to Tier 3.

- **Tier 3 –** establishes a screening significance threshold level to determine significance using a 90 percent GHG emission capture rate. The 90 percent capture rate GHG significance screening level in Tier 3 for stationary sources was derived using the following methodology. Using the SCAQMD's Annual Emission Reporting (AER) Program, the reported annual natural gas consumption for 1,297 permitted facilities for 2006 through 2007 was compiled and the facilities were rank-ordered to estimate the 90th percentile of the cumulative natural gas usage for all permitted facilities. Approximately 10 percent of facilities evaluated comprise more than 90 percent of the total natural gas consumption,

which corresponds to 10,000 metric tons of CO_2 equivalent emissions per year ($MTCO_2e/yr$) (the majority of combustion emissions are comprised of CO_2). A screening significance thresholds level has been discussed for residential and commercial projects, but were not adopted on December 5, 2008. Staff recommended deferring consideration of the residential and commercial GHG screening threshold proposal pending further evaluation. If a project's GHG emissions exceed the GHG screening threshold, the project would move to Tier 5.

- **Tier 4 –** SCAQMD staff recommended deferring consideration of this tier pending further evaluation and direction from the SCAQMD's Governing Board. Currently, Tier 4 would establish a decision tree approach that would include compliance options for projects which have incorporated design features into the project and/or implement GHG mitigation measures; demonstrate a 30 percent reduction for normal business as usual practices; demonstrate early compliance with AB32 control measures; or comply with sector based performance standards.

- **Tier 5 –** would require projects, that implement offsite GHG mitigation that includes purchasing offsets to reduce GHG emission impacts, to purchase sufficient offsets for the life of the project (30 years) to reduce GHG emissions to less than the applicable GHG screening threshold level.

For detailed information on the interim GHG significance threshold proposal adopted by the Governing Board, please see the December 5, 2008 public hearing agenda item #31 at www.aqmd.gov/hb/2008/December/081231a.htm.

The interim GHG significance threshold that was adopted by the SCAQMD Governing Board only applies to stationary source/industrial projects where the SCAQMD is the lead agency under CEQA. The types of projects that the significance threshold applies to include: SCAQMD rules, rule amendments, and plans, e.g., Air Quality Management Plans. In addition, the SCAQMD may be the lead agency under CEQA for projects that require discretionary approval, i.e., projects that require air quality permits from the SCAQMD and that allow the SCAQMD to exercise discretion with regard to imposing permit conditions, like the currently proposed Ultramar project modifications (SCAQMD, 2008b).

GHGs do not have human health effects like criteria pollutants. Rather, it is the increased accumulation of GHGs in the atmosphere that may result in global climate change. Due to the complexity of conditions and interactions affecting global climate change, it is not possible to predict the specific impact, if any, attributable to GHG emissions associated with a single project. Furthermore, the proposed project's GHG emissions will be small relative to total global or even statewide GHG emissions. Thus, the significance of potential impacts from GHG emissions related to the proposed project has been analyzed for long-term operations on a cumulative basis.

Construction emissions associated with the currently proposed modifications include emissions associated with various construction equipment. The sources of construction emissions include backhoes, compressors, forklifts, welding machines, cranes, and dump/concrete trucks. The construction emissions associated with the currently proposed modifications are less than the

construction emissions evaluated in the August 2002 Final SEIR because construction activities will be predominately those associated with construction activities at the Olympic Tank Farm (see Tables 5 and 6).

Operational and construction emissions for the existing project were not evaluated in the August 2002 Final SEIR. At the time, the SCAQMD had not established any policies or methodologies for analyzing GHG emissions. The GHG emissions associated with construction activities of the project approved in the August 2002 Final SEIR at the Olympic Tank Farm have been estimated for comparison purposes herein (see Appendix D). The peak GHG construction emissions associated with construction activities evaluated in the August 2002 Final SEIR are estimated to be about 2,554 metric tons per year (85 metric tons per year amortized over 30 years).

The total GHG construction emissions associated with the currently proposed modifications are estimated to be 1,679 metric tons over the entire construction period, or 56 metric tons per year amortized over 30 years. Therefore, the construction equipment and related emissions, including GHG emissions, associated with the currently proposed modifications as modified are less than the analysis in the August 2002 Final SEIR.

The operation of the currently proposed project modifications is not a substantial source of GHG emissions. The emergency diesel engines are a potential source of GHGs which are estimated to be 49 metric tons per year. An increase in GHG emissions of about 105 metric tons per year (49 plus 56 metric tons per year from construction) from the proposed project is considered to be less than significant as it is below the GHG significance threshold of 10,000 metric tons per year established by the SCAQMD Governing Board for industrial projects for which the SCAQMD is the lead agency. Since 105 metric tons per year of GHG emissions are well below the established significance threshold of 10,000 metric tons per year, the GHG impacts associated with the proposed modifications are less than significant.

Because project-specific emissions during operation do not exceed any applicable significance thresholds in Table 3, emissions are not considered to be cumulatively considerable pursuant to CEQA Guidelines §15064(h)(1). Construction emissions for the Ultramar proposed modifications would exceed the thresholds established by the SCAQMD for NOx. Therefore, the air quality construction impacts are considered cumulatively considerable for NOx. The construction emissions for the Ultramar proposed modifications would not exceed the thresholds established by the SCAQMD for CO, VOC, SOx, PM10 and PM2.5. The cumulative air quality analysis for the project evaluated in the 2002 August Final SEIR concluded that cumulative air quality impacts during construction were significant for CO, VOC, NOx, SOx, and PM10. Therefore, the currently proposed project modifications are within the scope of the August 2002 Final EIR as only cumulative NOx emissions would be considered significant.

Since GHG emissions are considered cumulative impacts, and the proposed project GHG emissions are well below the 10,000 metric ton per year threshold recently adopted by the SCAQMD. Cumulative adverse GHG impacts from the proposed project are not considered significant.

Mitigation Measures

Mitigation measures were required for the construction emissions in the August 2002 Final SEIR as they exceeded the SCAQMD CEQA significance thresholds. The proposed project modifications also exceed the SCAQMD CEQA significance thresholds for NOx during the construction period. The mitigation measures included in the August 2002 Final SEIR will also be implemented for the proposed modifications and are outlined below. Several changes have been made to the mitigation measures due to changes in regulations and lack of availability of alternate fuels. Additions to the mitigation measures are denoted using italics. Text that has been eliminated is shown using ~~strike outs~~.

On-Road Mobile Sources:

A-1 Develop a Construction Emission Management Plan for the proposed project. The Plan shall include measures to minimize emissions from vehicles including, but not limited to: scheduling truck deliveries to avoid peak hour traffic conditions, consolidating truck deliveries, and prohibiting truck idling in excess of *five* ~~10~~ minutes.

Off-Road Mobile Sources:

A-2 Prohibit trucks from idling longer than *five* ~~10~~ minutes at the Ultramar sites. (*Note: CARB has adopted a regulation that prohibits truck idling longer than five minutes.)*

A-3 Use electricity or alternate fuels for on-site mobile equipment instead of diesel equipment to the extent feasible.

A-4 Maintain construction equipment tuned up and with two to four degree retard diesel engine timing.

A-5 Use electric welders instead of gas or diesel welders in portions of the Refinery, tank farms, and terminal where electricity is available.

A-6 Use on-site electricity rather than temporary power generators in portions of the Refinery, tank farms, and terminal where electricity is available.

A-7 Prior to construction, the project applicant will evaluate the feasibility of retrofitting the large off-road construction equipment that will be operating for significant periods. Retrofit technologies such as selective catalytic reduction, oxidation catalysts, air enhancement technologies, etc., will be evaluated. Such technologies will be required if they are commercially available and can feasibly be retrofitted onto construction equipment.

~~A-8 Prior to construction, the project applicant will evaluate the feasibility of using alternative fuels in large off-road construction equipment that will be operating for~~

~~significant periods. Alternative fuels can include fuel additives or modified fuels, e.g., PuriNOx, that have been demonstrated by CARB to result in emission reductions. PuriNOx fuel is comprised of the PuriNOx additive package, purified water and diesel fuel. These components are mixed in a blending unit to produce a finished fuel. The water content promotes an atomization of the mixture during fuel injection and improves combustion, while lowering combustion temperatures, reducing NOx emissions.~~

~~Water emulsion diesel fuels (e.g., PuriNOx) have a much lower energy content than regular diesel fuels which typically translates into a significant loss in fuel economy. This is offset slightly by an increase in thermal efficiency. Lubrizol, the manufacturer of PuriNOx, indicates that its product, containing 20 percent water emulsions, results in a 13 percent reduction in fuel economy. Lubrizol also warns of a power loss when operating with its fuel stating that the equipment should be tolerant of up to a 20 percent loss in power.~~

~~Emulsion-based diesel products do not meet ASTM D-975 specifications for diesel fuel due to their water content. Most manufacturers of diesel engines specify use of a ASTM D-975 compliant fuel in their engine applications. A potential user of an emulsion-based diesel fuel should confirm the suitability of the fuel for use in their specific engine application and ensure that such use would not void any aspect of the engine warrantee.~~

~~PuriNOx can be used in direct injection heavy-duty compression ignition engines, including construction equipment. Lubrizol representatives indicate that a large-scale batch blending unit has been installed in southern California. The blending unit is estimated to have a throughput of 20 million gallons per year. PuriNOx is estimated to result in a 14 percent reduction in NOx and a 63 percent reduction in particulate matter in off-road engines.~~

~~The use of PuriNOx is considered to be a feasible mitigation measure when it becomes commercially available. It is recommended that PuriNOx should be used in construction equipment, if the engine manufacturer indicates that the use of the fuel is compatible with the engine so that the engine warrantee is not voided.~~ *(Note: PuriNOx and other similar emulsified diesel fuel products are no longer commercially available.)*

A-9 Low sulfur diesel is required per state and federal law and SCAWMD Rule 431.2.

A-10 Use CARB certified construction equipment for all construction equipment that requires CARB certification.

A-11 Suspend use of all construction activities that generate air emissions during first stage smog alerts.

A-12 The engine size of construction equipment shall be the minimum practical size.

PM10 Emissions from Grading, Open Storage Piles, and Unpaved Roads:

A-13 Develop a fugitive dust emission control plan. Measures to be included in the plan include, but are not limited to the following: (1) water active construction sites three times per day, except during periods of rainfall. Watering construction sites two times per day complies with SCAQMD Rule 403 and provides about a 50 percent emission reduction. Watering construction sites three times per day will reduce PM10 emissions by an additional 18 percent (total control of 68 percent); (2) enclose, cover, water twice daily, or apply approved soil binders according to manufacturer's specifications to exposed piles (i.e., gravel, dirt and sand) with a five percent or greater silt content. Implementation of this mitigation measure would reduce PM10 emissions 30 to 74 percent (SCAQMD, 1993); (3) suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 mph. The emission reductions associated with this mitigation measure cannot be quantified (SCAQMD, 1993); (4) apply water three times daily, except during periods of rainfall, to all unpaved road surfaces. This mitigation measure would reduce PM10 emissions by a minimum of 45 percent (SCAQMD, 1993); and (5) limit traffic speeds on unpaved roads to 15 mph or less. The emission benefits of this mitigation measure are estimated to be 40 to 70 percent (SCAQMD, 1993). With the exception of watering the site three times, these control efficiencies were reflected in the project emission calculations so no further emission reduction credit has been taken into account herein.

~~Other Mitigation Measures~~

~~AQ-14 Ultramar shall investigate measures to reduce the VOC emissions associated with the use of paints for coating the new storage tanks. Ultramar shall require that the painting of storage tanks be completed prior to delivery to the site to minimize the amount of paint used at the site. Under this mitigation measure paint use is expected to be limited to about 10 gallons per day. Ultramar shall also investigate the use of paints with VOC contents less than 3.5 lbs/gallon.~~ *(Note: This mitigation measure has been removed since the allowable VOC content of paints has been reduced to 0.8 lbs/gallon per the requirements of SCAQMD Rule 1113 and the VOC emissions during the construction phase associated with the proposed modifications are not expected to be significant.)*

6.2.2 Hazards

The impacts associated with hazards will be considered significant if any of the following occur:

- Non-compliance with any applicable design code or regulation.
- Non-conformance to National Fire Protection Association standards

- Non-conformance to regulations or generally accepted industry practices related to operating policies and procedures concerning the design, construction, security, leak detection, spill containment or fire protection.
- Exposure to hazardous chemicals in concentrations equal to or greater than the Emergency Planning Guideline (EPRG) 2 levels.

These are the same hazards significance criteria used in the August 2002 Final SEIR.

August 2002 Final SEIR

The August 2002 Final SEIR included an evaluation of potential hazards and risk of upset scenarios, and the potential impacts on the community and environment if an upset were to occur. No significant hazard impacts were identified during construction. During operation, several upset scenarios were evaluated based on "worst-case" conditions, and feasible mitigation measures were included. The August 2002 Final SEIR concluded that modifications to four of the storage tanks at the Olympic Tank Farm have the ability to create a hazard that could extend further off-site than would be the case with existing equipment (see Table 15). Table 15 summarizes the impacts for the Olympic Tank Farm only as this component of the overall project is the only portion of the analysis affected by the currently proposed modifications.

The modifications to Storage Tanks 299-TK-1504, 299-TK-1003, and 299-TK-1002 were identified as generating potentially significant adverse hazard impacts in the August 2002 Final SEIR due to the change in contents in the storage tank from fuel oil to gasoline and gasoline blending components.

Currently Proposed Project Modifications

Based on the analysis of hazard impacts in this Addendum, the currently proposed modifications at the Olympic Tank Farm are within the scope of the hazards impact analysis in August 2002 Final SEIR. The project evaluated in the August 2002 Final SEIR included 11 storage tanks that would store gasoline and gasoline blending components, with a total capacity of 1.19 million barrels and an estimated annual throughput of 39 million barrels. The currently proposed project includes seven storage tanks that would store heavy oil, with a total capacity of 0.8 million barrels and an estimated annual throughput of 21.9 million barrels. The currently proposed modifications will result in fewer storage tanks, the storage of heavy oil (which has a much lower vapor pressure than gasoline and gasoline blending components), a reduced storage capacity, and a reduced total facility throughput. The hazard impacts associated with the currently proposed modifications are shown in Table 16.

TABLE 15

August 2002 Final SEIR Maximum Hazard Distances for Modifications to the Olympic Tank Farm

Tank Number	Status of Potential Hazard	Tank Contents	Distance (ft) from Tank Center to Pool/Torch Fire Thermal Radiation (1,600 Btu/hr-ft^2)
TK-1501	Existing	Fuel oil/water	285
	New	Gasoline/gasoline blending components	346
299-TK-1502	Existing	Fuel oil/water	285
	New	Gasoline/gasoline blending components	346
299-TK-1503	New	Gasoline/gasoline blending components	346
299-TK-1504	Existing	Fuel oil/water	286
	New*	Gasoline/gasoline blending components	346
299-TK-501	Existing	Fuel oil/water	255
	Modified	Organic liquid/naphtha	195
299-TK-1003	Existing	Fuel oil/water	286
	New*	Gasoline/gasoline blending components	321
299-TK-1004	Existing	Fuel oil/water	286
	New*	Gasoline/gasoline blending components	321
299-TK-1002	Existing	Fuel oil/water	286
	New*	Organic liquid/naphtha	321
299-TK-1001	Existing	Fuel oil/water	286
	Modified	Gasoline/gasoline blending components	321
299-TK-721	Existing	Fuel oil/water	294
	Modified	Gasoline/gasoline blending components	294
299-TK-722	Existing	Fuel oil/water	294
	Modified	Gasoline/gasoline blending components	294

* These hazards have the potential to migrate off-site and would be considered potentially significant.
Source: SCAQMD, 2002

In the long term, the storage tanks at the Marine Tank Farm are expected to be decommissioned and demolished as part of the City of Los Angeles Wilmington Waterfront Project. The demolition of the Marine Tank Farm is included as part of the Wilmington Waterfront Development Project, which is being analyzed in a separate CEQA document by the Port of Los Angeles. The storage capacity at the Olympic Tank Farm is expected to be reduced due to the proposed modifications.

TABLE 16

Maximum Hazard Distances for Currently Proposed Modifications to the Olympic Tank Farm Storage Tanks

Tank Number	Status of Potential Hazard	Tank Contents	Distance (ft) from Tank Center to Pool/Torch Fire Thermal Radiation (1,600 Btu/hr-ft^2)
299-TK-1501	Existing Tank	Fuel oil/water	285
	Replaced Tank	Heavy Oil	285
299-TK-1502	Existing Tank	Fuel oil/water	285
	Replaced Tank	Heavy Oil	285
299-TK-1503	Existing Tank	Fuel oil/water	285
	Replaced Tank	Heavy Oil	285
299-TK-1504	Existing Tank	Fuel oil/water	285
	Replaced Tank	Heavy Oil	285
299-TK-501	Existing Tank	Fuel oil/water	255
	Modified Tank	Heavy Oil	255
299-TK-1003	Existing Tank	Fuel oil/water	286
	Demolished Tank	Heavy Oil	0
299-TK-1004	Existing Tank	Fuel oil/water	286
	Demolished Tank	Heavy Oil	0
299-TK-1002	No Longer Proposed to be Built	N/A	0
299-TK-1001	Demolished	N/A	0
299-TK-721	Existing Tank	Fuel oil/water	294
	Modified Tank	Heavy Oil	294
299-TK-722	Existing	Fuel oil/water	294
	Modified	Heavy Oil	294

Source: SCAQMD, 2002

The currently proposed modifications would eliminate the proposed storage of gasoline and gasoline blending components at the Olympic Tank Farm and the potential significant hazard impacts. Therefore, the current proposed project modification reduces the potential hazards that were analyzed in the August 2002 Final SEIR, but does not change the conclusions from those analyses regarding potential adverse hazard impacts because other modifications, including modifications at the Refinery, associated with the CARB Phase 3 Project would still occur.

Cumulative Hazard Impacts

In the August 2002 Final SEIR, it was concluded that the cumulative hazard impacts associated with the operational phase of the Ultramar CARB Phase 3 project and other related projects would be less than significant because of the distance between the related projects.

Although the related projects have changed since the completion of the August 2002 Final SEIR (see Table 12), the cumulative hazard impacts are expected to remain less than significant for the proposed project modifications. Although other refineries and industrial facilities exist in the general vicinity of the Olympic Tank Farm, the cumulative impacts from and between the onsite

operations of the other industrial projects are not expected to be significant because it is extremely unlikely that upset conditions would occur at more than one facility at a time. Further, it also is unlikely that an upset condition at one facility would create an upset at another nearby facility because of the distance between facilities. The nearest industrial facility to the Olympic Tank Farm is about 1,000 feet away. Cumulative hazard impacts associated with the proposed project modifications are less than significant.

Mitigation Measures

Mitigation measures were required for the hazard impacts in the August 2002 Final SEIR as potentially significant hazard impacts were identified. It was determined that no additional feasible mitigation measures were identified, over and above the existing safety regulations that already applied to the Ultramar facilities. The proposed project modifications are not expected to result in significant hazard impacts so mitigation measures are not required. However, there are a number of rules, regulations, and laws that Ultramar must comply with that serve to minimize the potential adverse impacts associated with hazards at the facility. Under federal OSHA, regulations have been promulgated that require the preparation and implementation of a PSM Program (40 CFR Part 1910, Section 119, and Title 8 of the California Code of Regulations, Section 5189). Risk Management Programs are covered under the California Health and Safety Code Section 25534 and 40 CFR Part 68, and Section 112r, by the Clean Air Act.

A PSM that meets the requirements of the regulations and is appropriately implemented is intended to prevent or minimize the consequences of a release involving a toxic, reactive, flammable, or explosive chemical. A PSM review will be required as part of the proposed modifications. The primary components of a PSM include the following components.

- Compilation of written process safety information to enable the employer and employees to identify and understand the hazards posed by the process;

- Performance of a process safety analysis to determine and evaluate the hazard of the process being analyzed;

- Development of operating procedures that provide clear instructions for safely conducting activities involved in each process identified for analysis;

- Training in the overview of the process and in the operating procedures is required for facility personnel and contractors. The training should emphasize the specific safety and health hazards, procedures, and safe practices; and

- A pre-start up safety review for new facilities and for modified facilities where a change is made in the process safety information.

The above the extensive safety regulations will be implemented as they apply to the Olympic Tank Farm. No significant adverse hazard impacts are associated with the currently proposed project modifications.

7.0 EFFECTS NOT FOUND TO BE SIGNIFICANT

Section 7.0 discusses the remaining environmental topic areas found not to be potentially significant in the previous CEQA documents prepared for the Ultramar CARB Phase 3 Project and the effect of the currently proposed modifications on the conclusions of each environmental topic discussed in those documents. The analyses in the August 2002 Final SEIR were compared to the currently proposed modifications for all environmental resources found not to be potentially significant.

The proposed modifications include upgrading the Olympic Tank Farm due to the proposed closure of the Marine Tank Farm. The Olympic Tank Farm currently consists of nine storage tanks. As currently proposed, the modifications will: (1) refurbish three existing petroleum storage tanks; and (2) remove six existing tanks and replace them with four new external floating roof storage tanks. The existing views of the Olympic Tank Farm consists of nine storage tanks and some smaller pieces of equipment.

The proposed project does not include the demolition of the Marine Tank Farm because Ultramar must return the site to LADWP in the condition agreed upon in the lease (with all existing facilities in place) and will have no control over the Marine Tank Farm and related activities after that point. The demolition of the Marine Tank Farm will occur after Ultramar returns the site to LADWP, and after all other construction activities associated with the currently proposed project are complete. The demolition of the Marine Tank Farm is included as part of the Wilmington Waterfront Development Project, which is being analyzed in a separate CEQA document by the Port of Los Angeles. Therefore, the modifications to the Marine Tank Farm (other than the construction of pipeline connections around the facility) are not part of the currently proposed project modifications.

7.1 Aesthetics

August 2002 Final SEIR: No significant adverse aesthetics impacts were expected due to implementation of the Ultramar Refinery CARB Phase 3 Project. Only minor visual changes to existing industrial areas were expected. New and modified units would be about the same size and profile as existing refinery structures and the appearance of the refinery was not expected to differ significantly from the existing refinery appearances. Further no scenic highways or corridors were located in the vicinity of the Refinery so no significant impacts to aesthetics were expected.

Currently Proposed Modifications: The proposed modifications include upgrading the Olympic Tank Farm due to the proposed closure of the Marine Tank Farm. The proposed modifications will not degrade aesthetics resources at the Olympic Tank Farm because the currently proposed project primarily consists of replacing existing equipment with new, more modern equipment. The Olympic Tank Farm is surrounded by other industrial uses, including the Alameda Corridor to the west, industrial/commercial areas to the north, the Tesoro Refinery and terminal to the east, and additional industrial facilities to the south. The views of the Olympic Tank Farm from adjacent properties are not expected to change appreciably as a result of the proposed modifications because the new storage tanks will be of the same size and shape, and will be of modern construction and freshly painted. The closest residential area is located approximately 400 feet from the north of the Olympic Tank Farm site boundary. The existing Olympic Tank Farm and the proposed

modifications are not visible to the residential areas due to the distance from the Olympic Tank Farm and the presence of other storage tanks and other structures closer to these areas. No significant adverse change in visual characteristics and no significant adverse aesthetic impacts are expected due to the proposed modifications. The views of the Olympic Tank Farm will continue to be of storage tanks and related equipment common in industrial areas. No scenic highways, vistas, or corridors are currently located in the vicinity of either the Olympic Tank Farm or the Marine Terminal. No significant adverse aesthetic impacts are expected.

At the Marine Terminal, changes would include valves and piping, which are not visible from the surrounding area, and will be installed in the same locations as existing equipment. Therefore, there will be no change in the visual characteristics and no damage to scenic resources at the Marine Terminal. At the Marine Tank Farm new pipeline connections will be installed within the right-of-way on local streets locations acceptable to LADWP. These pipeline connections will be below ground and not visible so no aesthetic impacts are expected.

Construction activities are not anticipated to require additional lighting because they are scheduled to take place during daylight hours. However, if the construction schedule requires nighttime activities, temporary lighting may be required. Since the project modifications will be completely located within the boundaries of the existing terminal facilities and industrial areas, additional temporary lighting related to construction activities is not expected to be discernible from the existing permanent night lighting.

Following construction activities, all new and modified equipment will be located within the confines of the existing industrial facilities, which are already lighted at night for nighttime operations, so that no increase in lighting associated with the proposed project is expected, following construction activities. The Olympic Tank Farm is currently lighted for security. Therefore, no significant light and glare impacts are anticipated from the proposed project. No significant adverse impacts from the proposed project on aesthetics are expected.

Since the proposed modifications will not alter the conclusions from the August 2002 Final SEIR, the proposed modifications will not cause significant adverse impacts to aesthetics.

7.2 Agricultural Resources

August 2002 Final SEIR: All modifications would occur within the confines of the existing Refinery and existing industrial areas. The CARB Phase 3 Project was determined to be consistent with the heavy industrial zoning of the area within and surrounding the existing facilities. No agricultural resources or operations on or near the project site were identified, therefore, no significant impact on agricultural resources were identified.

Currently Proposed Modifications: There are no agricultural resources, i.e., food crops grown for commercial purposes, located in or near the vicinity of the Olympic Tank Farm, Marine Tank Farm, or Marine Terminal. The proposed modifications will not involve extensive construction outside of the existing boundaries of the terminal facilities and no agricultural resources are located within these facilities. The pipeline that will be constructed near the Marine Tank Farm is expected to be placed within the right-of-way of local streets, which also do not contain agricultural

resources. The zoning of the Olympic Tank Farm, Marine Tank Farm and Marine Terminal will remain heavy industrial. Storage tanks and related activities are allowed within heavy industrial zones. No existing agricultural land will be converted to non-agricultural land uses. Further, the project will not conflict with a Williamson Act contract. Therefore, the proposed project will have no significant adverse impacts on agricultural resources.

Since the proposed modifications will not alter the conclusions from the August 2002 Final SEIR, the proposed modifications will not cause significant adverse impacts to agricultural resources.

7.3 Biological Resources

August 2002 Final SEIR: All modifications would occur within the confines of the existing Refinery and existing industrial areas. Past development has virtually eliminated all natural habitat within the boundaries of the industrial facilities. No species of rare, threatened, or endangered plants or animal were reported in the vicinity of the project. Because the area within and near the Refinery was devoid of native habitat, the construction/operation of the project would not result in significant impacts to biological resources.

Currently Proposed Modifications: The proposed modifications will be located in a heavy industrial area, within the existing boundaries of the Olympic Tank Farm, Marine Terminal, and near the Marine Tank Farm. The facilities and area around these facilities have been fully developed and are essentially void of vegetation and wildlife. Vegetation onsite or near each affected facility has been eliminated for fire prevention purposes. A pipeline near the Marine Tank Farm will be constructed along the right-of-way of existing streets which is also void of vegetation.

Based on the industrial nature of the existing sites, the proposed modifications are not expected to have a significant adverse effect, either directly or through habitat modifications, on any species identified as a special status species. The proposed modifications will not have an adverse effect, either directly or indirectly or through habitat modifications, on any sensitive biological species, riparian habitat, or other sensitive natural habitat, as no such habitat exists at either of the affected terminal facilities. The proposed modifications are not expected to result in the addition or the elimination of water ponds that could be used by animals or migratory fowl. Further, the proposed project will not adversely affect federally protected wetlands as defined in §404 of the Clean Water Act.

As discussed in Section 7.7 herein, no increase in wastewater or storm water discharge to the Dominguez Channel is expected. The Dominguez Channel is a concrete lined flood control channel near the Olympic Tank Farm. There are no significant plant or animal resources, locally designated species, natural communities, wetland habitats, or animal migration corridors that would be adversely affected by the proposed project.

The Marine Terminal contains hardscape and no biological resources are located at the site so the modifications of existing valves and pumps will have no significant impacts on biological resources.

A site investigation was completed on July 9, 2008 of the Olympic Tank Farm to investigate the potential presence of biological resources. Specifically, western burrowing owls (*Athene cunicularia hypugaea*) have been reported at other tank farms in southern California. The western burrowing owl is a California Species of Special Concern. Habitat suitability assessment and focused surveys for the species are recommended to avoid any impacts to the species. The burrowing owl is protected under Sections 3503 and 3503.5 of California Department of Fish and Game (CDFG) Code. Under this CDFG Code, it is unlawful to take, possess, or needlessly destroy any bird of prey or the nests or eggs of any kind of bird species except as otherwise provided in the CDFG codes and regulations. Disturbance of any active bird nest during the breeding season, including any active owl burrow, would be prohibited by the CDFG Code. The burrowing owl is also protected by the international Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711). When the owl is present on a specific property, implementation of the take provisions requires that project-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle (February 1 through August 31, annually).

The potential habitat at the Olympic Tank Farm was evaluated. Berms surround the storage tanks to provide containment in the event of a tank release. The berms surrounding the tanks contain asphalt. In some places the asphalt has eroded but the soil is firmly packed. Vegetation in the area is non-existent except for an occasional weed. In some cases the floor of the berms also contains all or some hardscape or gravel. Vegetation in the floor of the berms is non-existent and the soil is hard packed. No rodent burrows were found in either the berms or the floor of the berms. Several birds were found flying near or through the site but no burrowing owls were observed.

Since the majority of the project site is compacted and paved or covered in hardscape, no suitable habitat for the burrowing owl is present within the Olympic Tank Farm. Further, additional surveys are not required to conclude presence of absence of the species due to lack of suitable habitat and burrows.

There are no rare, endangered, or threatened species that live within the existing boundaries of the Olympic Tank Farm, Marine Terminal, or near the Marine Tank Farm where the new pipeline will be installed. The proposed modifications would not adversely affect any local policies or ordinances that protect biological resources or conflict with the provisions of a Habitat Conservation Plan or other similar plan. Because the areas in and near each of the tank farms and terminal facility are devoid of native habitat, impacts to other, non-listed species are not expected.

The proposed modifications do not include the acquisition of additional land for use by Ultramar or result in expansion outside of the current boundaries at the Olympic Tank Farm and Marine Terminal and near the Marine Tank Farm, which further eliminates the potential for new adverse biological resource impacts. No significant adverse impacts on biological resources are expected from the proposed modifications.

Since the proposed modifications will not alter the conclusions from the August 2002 Final SEIR, the proposed project will not cause significant adverse impacts to biological resources.

7.4 Cultural Resources

August 2002 Final SEIR: All modifications would occur within the confines of existing Refinery and existing industrial areas which had already been graded. There were no known paleontological archaeological or historical resources on or near the project site. Therefore, no significant adverse impacts on cultural resources were expected due to the CARB Phase 3 project.

Currently Proposed Modifications: CEQA Guidelines state that "generally, a resource shall be considered 'historically significant' if the resource meets the criteria for listing in the California Register of Historical Resources including the following:

A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

B) Is associated with the lives of persons important in our past;

C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values;

D) Has yielded or may be likely to yield information important in prehistory or history" (CEQA Guidelines §15064.5).

Generally, resources (buildings, structures, equipment) that are less than 50 years old are excluded from listing in the National Register of Historic Places[1] unless they can be shown to be exceptionally important. Although some of the storage tanks at the Olympic Tank Farm are more than 50 years old, none of the storage tanks associated with the proposed modifications are listed on registers of historic resources and generally do not meet the eligibility criteria presented above (e.g., associated with historically important events or people, embodying distinctive characteristics of a type, period, or method of construction), and would not yield historically important information. Therefore, no significant impacts to historic cultural resources are expected as a result of implementing the proposed pro**ject.**

The entire Olympic Tank Farm, Marine Terminal sites and the area near the Marine Tank Farm where the new pipeline will be installed have been previously graded and developed.

Specifically, there are no prehistoric or historic structures or objects within the Marine Terminal. The Marine Terminal is constructed on landfill material and berths that are manmade, so no cultural resources are present.

There are no prehistoric or historic structures or objects adjacent to the Marine Tank Farm and the tank farm is constructed on landfill materials that are manmade. Piping and pipeline tie-ins are expected to be constructed within the right-of-ways of existing streets that have already been

[1] The eligibility criteria of the California Register criteria are modeled on those of the eligibility criteria of the National Register of Historic Places.

graded. Construction activities will be comprised of installing a pumping system and tie-in piping. No known human remains or burial sites have been identified at the Marine Terminal or near the Marine Tank Farm during previous construction activities. No significant adverse impacts to cultural resources are expected.

There are no prehistoric or historic structures or objects within the Olympic Tank Farm or adjacent areas. The entire Olympic Tank Farm site has been previously graded and developed. Existing storage tanks and equipment are supported on concrete foundations. Construction activities will be comprised of retrofitting three existing tanks, removing and replacing four tanks, demolishing three tanks, and reconfiguring the containment berms. The activities associated with the proposed modifications will occur in areas of the site where the ground surface has already been disturbed, and this past disturbance reduces the likelihood that previously unknown cultural resources will be encountered. No known human remains or burial sites have been identified at the Olympic Tank Farm during previous construction activities.

If cultural resources were to be encountered unexpectedly during ground disturbance associated with construction of the proposed modifications, proper procedures (i.e., contacting professional archaeologist, temporarily halting disturbance work in vicinity, etc.) will be taken. Further, the Olympic Tank Farm, Marine Terminal, and areas near the Marine Tank Farm do not contain known paleontological resources and thus the proposed project is not expected to impact any sites of paleontological value. No significant adverse impacts to cultural resources are expected.

Since the proposed modifications will not alter the conclusions from the August 2002 Final SEIR, the proposed project will not cause significant adverse impacts to cultural resources.

7.5 Energy

August 2002 Final SEIR: Operation of the CARB Phase 3 Project would require about 14.5 megawatts per day of electricity to be supplied by the Los Angeles Department of Water and Power (LADWP). The increase in electricity use was determined to be a small incremental increase in electricity supplied to the Refinery and represented an extremely small percentage of the total in-basin electricity generating capacity. Operation of the project would also require additional refinery fuel gas and natural gas. Most of the increase could be supplied via the refinery's fuel gas system so that no significant increase in natural gas use was expected.

Currently Proposed Modifications: The proposed modifications are not expected to conflict with any adopted energy conservation plan or existing energy standard. There is no known energy conservation plan or existing energy standard that would apply to the proposed modifications as they involve the replacement of existing storage tanks with new storage tanks.

The Olympic Tank Farm and Marine Terminal are currently served by LADWP, which provides electricity to the facilities. It is not expected that natural gas-fired or electrically-powered construction equipment (other than electric welders) or vehicles will be used because they are not available; therefore, there will be no need for new or substantially altered power or natural gas utility systems during construction of the proposed project. No significant adverse impacts on energy are expected during the construction period.

The proposed modifications will replace existing storage tanks with new storage tanks and modify existing storage tanks. No increase in energy is expected from operation of the proposed modifications because storage tanks require only a minor amount of electricity to operate (e.g., lights and pumps). No increase in lighting that might require additional electricity is expected due to the proposed modifications as nighttime lighting already exists at the Olympic Tank Farm and Marine Terminal. New pumps will be installed at the Marine Terminal to boost the product transported from the Marine Terminal to the Olympic Tank Farm. The new electric pumps (about 2500 horsepower or about 1,900 kilowatts) will enhance the existing pumps so that product can be pumped from the Marine Terminal directly to the Olympic Tank Farm. Therefore, no significant increase in electricity is expected due to the proposed modifications. New emergency, diesel-fired, fire water pumps will be installed at the Olympic Tank Farm in case of emergency. The installation of these pumps was included in the August 2002 Final SEIR. These pumps will run for less than 200 hours per year so no significant increase in the use of diesel fuel (a maximum of an estimated 10,600 gallons per year for both pumps) over that which was considered in the August 2002 Final EIR is required due to the currently proposed project. Operation of the proposed modifications is not expected to increase the amount of natural gas consumption because no new equipment is being installed that requires the use of natural gas at either the Olympic Tank Farm or Marine Terminal.

No significant adverse impacts from the proposed project on energy are expected, therefore, no mitigation measures are required. Since the proposed modifications will not alter the conclusions from the August 2002 Final SEIR, the proposed modifications will not cause significant adverse impacts to energy.

7.6 Geology and Soils

August 2002 Final SEIR

Construction Impacts: No significant topographic changes were expected to the Refinery, Marine Tank Farm or Olympic Tank Farm. The Refinery, Marine Terminal, Marine Tank Farm, Olympic Tank Farm, and pipeline locations of the pipeline routes had already been graded as part of existing industrial operations. The Refinery is essentially flat so that grading was be limited to that required to construct building pads, foundations, and underground utilities. The pipeline route also was essentially flat, and the only grading was to develop the trench for the pipeline. However, once the pipeline had been constructed, the sites along the pipeline route were to be returned to the same conditions as existed before the commencement of the project. Both the Olympic and Marine Tank Farms are essentially flat so that grading was limited to that required to construct building pads, foundations, and underground utilities. Therefore, the topographic changes were expected to be less than significant.

Soil erosion from wind or water could occur during construction as a result of earthmoving activities. As already noted, active grading was limited to sites for building pads, foundations, and underground utilities so the potential for wind or water erosion was limited. Newly exposed soil is expected to be built upon, therefore, any soil erosion is expected to be limited to during

construction activities. Significant water erosion was not expected as the sites were flat which limits the potential for erosion due to water runoff.

No unique geological resources (rock formations, hillsides, mountains, etc.) are present at the Refinery, Marine Tank Farm, Olympic Tank Farm or the Marine Terminal so no significant impacts were expected.

Construction activities at the Refinery, Marine Terminal, Olympic Tank Farm and Marine Tank Farm could have uncovered contaminated soils since petroleum products have been stored at the sites for many years. The total volume of soil that was expected to be graded was about 44,220 cubic yards of which about 10 percent (about 4,422 cubic yards) may have been contaminated. Compliance with existing rules and regulations was expected to minimize project construction impacts to less than significant. Potential adverse impacts of the project evaluated in the August 2002 Final SEIR on geological resources were expected to be less than significant.

Operational Impacts: No faults or fault-related features are known to exist within the confines of the Refinery, Marine Tank Farm, Olympic Tank Farm or Marine Terminal. None of these facilities are located in any Alquist-Priolo earthquake fault zone and are not expected to be subject to significant surface fault displacement. Therefore, no significant impacts to the proposed project facilities were expected from seismically induced ground rupture.

Based on the historical record, it is highly probable that the Los Angeles region will be affected by future earthquakes. Research shows that damaging earthquakes will be likely to occur on or near recognized faults showing evidence of recent geologic activity. The proximity of major faults to the Refinery and pipeline route increases the probability that an earthquake may affect the proposed project. There is the potential for damage to the new structures in the event of an earthquake. The impacts of an earthquake on the project sites were considered to be greater than the environmental baseline conditions since additional structures were proposed to be constructed, although replacement structures would be more structurally sound as they were required to comply with the most current Uniform Building Code requirements. Impacts of an earthquake could include structural failure, spill, etc.

New structures must be designed to comply with the Uniform Building Code Zone 4 requirements since the proposed project was located in a seismically active area. The City of Los Angeles was responsible for assuring that the proposed project complies with the Uniform Building Code as part of the issuance of the building permits and conducts inspections to ensure compliance. The Uniform Building Code is considered to be a standard safeguard against major structural failures and loss of life. The goal of the code is to provide structures that will: (1) resist minor earthquakes without damage; (2) resist moderate earthquakes without structural damage, but with some non-structural damage; and (3) resist major earthquakes without collapse, but with some structural and non-structural damage.

The Uniform Building Code basis seismic design on minimum lateral seismic forces ("ground shaking"). The Uniform Building Code requirements operate on the principle that providing appropriate foundations, among other aspects, helps to protect buildings from failure during earthquakes. The basic formulas used for the Uniform Building Code seismic design require

determination of the seismic zone and site coefficient, which represent the foundation conditions at the site.

Ultramar was required to obtain building permits, as applicable, for all new proposed project structures. Ultramar was required to submit building plans to the City of Los Angeles (or Port of Los Angeles for the Marine Terminal) for review. Ultramar was required to receive approval of all building plans and building permits to assure compliance with the latest Building Code prior to commencing construction activities.

The Refinery, Olympic Tank Farm. Marine Tank Farm, and Marine Terminal are located within an area where there has been historic occurrence of liquefaction or existing conditions indicate a potential for liquefaction (California Division of Mines and Geology, 1999). Therefore, there was the potential for liquefaction induced impacts at the project sites since the appropriate parameters for liquefaction exist at the site, including unconsolidated granular soils and a high water table. The Uniform Building Code requirements consider liquefaction potential and establish more stringent requirements for building foundations in areas potentially subject to liquefaction. Therefore, compliance with the Uniform Building Code requirements were expected to minimize the potential impacts associated with liquefaction. The issuance of building permits from the City or Port of Los Angeles assured compliance with the Uniform Building Code requirements. Therefore, no significant impacts from liquefaction were expected.

No other known geological hazards were identified (e.g., landslide, mudflow, seiche, tsunami or volcanic hazards) at the Refinery, Tank Farm sites or Marine Terminal site so that no other significant geological impacts were expected.

Currently Proposed Modifications: The proposed modifications would not result in any changes to geology and soils impacts that were evaluated in the August 2002 Final SEIR. The proposed modifications are still located within the existing boundaries of the Marine Terminal and Olympic Tank Farms and near the Marine Tank Farm where the new pipeline will be installed. The number of tanks proposed to be constructed at the Olympic Tank Farm is less than the previously proposed project evaluated in the August 2002 Final SEIR (seven storage tanks instead of 11). Also, the currently proposed modifications will primarily use existing pipelines rather than construct new pipelines. Therefore, the pipelines proposed in the August 2002 Final SEIR from the Marine Tank Farm to the Olympic Tank Farm and from the Olympic Tank Farm to the Refinery are not required. Therefore, less grading is expected to be required. The only new pipeline that is part of the currently proposed project is the tie-in from the Marine Terminal around the Marine Tank Farm to the Olympic Terminal. Since the proposed modifications will not alter the conclusions from the August 2002 Final SEIR, the proposed modifications will not cause significant adverse impacts to geology and soils.

Since the proposed modifications will not alter the conclusions from the August 2002 Final SEIR, the proposed modifications will not cause significant adverse impacts to geology and soils.

7.7 Hydrology and Water Quality

August 2002 Final SEIR

Construction Impacts: The Refinery maintains onsite wastewater treatment equipment. Wastewater from the Refinery is treated and sampled in compliance with the County Sanitation Districts of Los Angeles County Industrial Wastewater Discharge Permit. The County Sanitation Districts of Los Angeles County places limitations on wastewater parameters including oil and grease, pH, temperature, heavy metals, organic compounds and so forth. Wastewater that complies with the County Sanitation Districts of Los Angeles County permit requirements is discharged to the sewer. Wastewater that does not comply is returned to the source for further treatment.

Water was expected to be used during the construction phase for control of fugitive dust emissions. Water used for dust control was not expected to exceed 4,000 gallons per day and was not expected to result in significant adverse surface water runoff impacts, because the project sites are generally flat.

Storm water runoff from the construction areas was collected and treated by the existing storm water and/or wastewater treatment systems. Storm water and wastewater discharges from the Refinery, Olympic Tank Farm, Marine Tank Farm and Marine Terminal are discharged under the limitations of existing wastewater discharge permits and/or NPDES permits. Storm water discharges during the construction period were expected to be approximately the same as the discharges considered as the environmental baseline/setting; therefore, no significant impacts were expected from storm water discharges during project construction.

Operational Impacts: The project evaluated in the August 2002 Final SEIR was not expected to significantly adversely affect the quantity or quality of ground water in the area of the Tank Farms or Marine Terminal. There is no beneficial use of ground water in the modified project areas since all aquifers in this area are in hydraulic continuity with San Pedro Bay, i.e., sea water has intruded into and contaminated the ground water in the area. The proposed project would not interfere with the operation of ground water monitoring wells maintained by the Los Angeles County Department of Public Works for the West Coast Basin Barrier Project which were installed to prevent further sea water intrusion of the ground water in the Southern California area.

No underground storage tanks were proposed to be constructed as part of the project evaluated in the August 2002 Final SEIR. New above ground storage vessels were proposed to be constructed using double bottoms and leak detection systems to minimize the potential for leaks and ground water impacts.

The proposed project evaluated in the August 2002 Final SEIR was not expected to result in an increase in wastewater or storm water discharged from the Refinery, Marine Tank Farm, Olympic Tank Farm, Marine Tank Farm, or Marine Terminal since there were no new units that would generate additional wastewater discharge. Wastewater generated by the Refinery will continue to be collected and treated in the Refinery's wastewater treatment system or in compliance with wastewater discharge permits. Further, Ultramar does not routinely accept ship washing or ballast water at the marine terminal and the proposed project was not expected to result in an increase in

the amount of ballast received at the Marine Terminal. Therefore, the impacts on wastewater were considered to be less than significant.

The proposed project evaluated in the August 2002 Final SEIR was not expected to increase the overall surface water runoff from the Refinery, Marine Tank Farm, Olympic Tank Farm or Marine Terminal. Minor changes to the Refinery's rainwater collection system (NPDES) system were expected to include the new storage tank. Storm water at the Refinery would continue to be contained in retention basins, treated in a water treatment system owned and operated by the Port of Long Beach, and discharged in accordance with the NPDES permit for this system.

No increase in storm water was expected to be generated at the Marine Tank Farm as the site was paved. Storm water is contained in retention basins, treated in an oily water separator and discharged to the Los Angeles Harbor in accordance with an existing NPDES permit.

No increase in storm water was expected to be generated at the Olympic Tank Farm as the site was largely paved. Storm water would continue to be contained in retention basins. However, the site was expected to be reconfigured so that the number of tanks and location of retention basins would change, therefore, the NPDES permit needed to be modified to include the new and modified tanks. Storm water would continue to be collected and treated in an oily water separator, prior to discharge to the Dominguez Channel. No significant impacts were expected as storm water would be discharged under the requirements of an NPDES permit.

No increase in storm water was expected to be generated at the Marine Terminal as the site is paved. Further, the project was only expected to result in the change of service in one storage tank. Storm water is contained in retention basins, treated in an oily water separator and discharged to the Los Angeles Harbor in accordance with an existing NPDES permit.

The proposed project evaluated in the August 2002 Final SEIR was not expected to require any additional water for operation since there were no proposed units that would require additional water. Therefore, the impacts of the proposed project on water demand are expected to be less than significant.

The Ultramar Refinery, Marine Tank Farm, Olympic Tank Farm and Marine Terminal have Spill Prevention, Control and Countermeasure (SPCC) Plans, as required by 40 CFR Part 112. These plans establish the management systems to deal with potential releases at each facility. The purpose of these plans is to prevent the discharge of materials into navigable waters and to contain such discharge should it occur. The SPCC describes the spill prevention and containment methods implemented at each facility. The SPCC plans provide for spill prevention systems, on-site and off-site containment measures, the procedures to contain and cleanup a spill once it has occurred, personnel training, public notification of a spill, and other measures. These plans must be amended within six months of the completion of project construction to include the new facilities and related project modifications.

Primary spill prevention methods implemented by Ultramar include automatic tank gauging devices that monitor the level in storage tanks; double bottom tanks; diking around all tanks to contain leaks or spills; spill containment facilities along the Dominguez Channel; and integrity

testing. Ultramar also has maintenance crews, vacuum trucks, pumps, and outside contractors readily available to respond to a spill of any magnitude. Containment facilities are required around storage tanks which minimizes the potential impacts in the event of a spill so that no significant adverse impacts were expected.

Currently Proposed Modifications

Construction Impacts: Construction activities associated with new storage tanks at the Olympic Tank Farm may require water for dust suppression during preparation of the tank foundation. Such activities are expected to be limited to a one to two week period resulting in minimal water use and well below the 4,000 gallons per day waste use estimated for fugitive dust control in the August 2002 Final SEIR, since the 2002 Final SEIR assumed construction activities at the Refinery, Marine Terminal, Marine Tank Farm, Olympic Tank Farm and related pipelines between the Olympic Tank Farm and Refinery would occur concurrently. Water use associated with the construction activities associated with the currently proposed project is expected to be about 1,000 gallons per day. Most storage tanks will be re-built on or near their existing foundations so no major grading activities are expected.

Operational Impacts: The revised project would not result not result in any changes to hydrology and water quality impacts that were evaluated in the August 2002 Final SEIR. The modifications to the storage tanks at the Olympic Tank Farm and the modifications to the Marine Terminal do not use water for operation. Water will be required for hydrostatic testing of the replaced/modified storage tanks. Water is also used for testing of the fire protection system. Such testing is required for existing tanks and fire protection system so no increase in wastewater generation is expected. Further, the existing NPDES permit allows for wastewater discharge of hydrostatic and fire protection test water, assuming it meets all permit requirements. Therefore, the proposed project will not result in an increase in water use or wastewater generated or discharged from the terminals and no significant adverse impacts associated with wastewater discharges at the terminals are expected.

Storm water runoff from the Olympic Tank Farm and Marine Terminal is collected in a drainage system, treated, as necessary, and discharged in accordance with the facilities' NPDES permits. It should be noted that storm water from the Marine Terminal can also be sent to the Refinery wastewater treatment plan via pipeline, treated and then discharged to the LACSD sewer system in accordance with the requirements of the facility's Industrial Wastewater Discharge Permit. The proposed project modifications are not expected to increase the storm water runoff from the either facility. The Olympic Tank Farm and Marine Terminal modifications will occur within the existing storage tank farm and terminal, with no increase in paved areas. The Storm Water Pollution Prevention Plans for both facilities will be updated, as necessary, to reflect operational modifications and include additional Best Management Practices, if required. No new storm drainage facilities or expansion of existing storm facilities are expected to be required. Since storm water discharge or runoff is not expected to change in either volume or water quality, no significant adverse storm water quality impacts are expected to result from the operation of the proposed modifications at the terminal facilities.

Both the Olympic Tank Farm and the Marine Terminal are required to comply with Title 40 of the CFR Part 112 (Oil Pollution Prevention), which sets forth requirements for SPCC Plans. The goal of this rule is to prevent oil discharges from reaching navigable water of the United States through proactive measures. These regulations require, among other things, that containment facilities capable of holding 110 percent of the largest storage tanks be included for all storage tanks, as applicable. In compliance with these regulations, appropriate containment facilities are included for all storage tanks that are part of the proposed project. Therefore, in the event of a leak, the contents of the tank would be collected in the containment facilities on-site and would not impact water resources.

Therefore, since the proposed modifications will not alter the conclusions from the August 2002 Final SEIR, the proposed modifications will not cause significant adverse impacts to hydrology and water quality.

7.8 Land Use and Planning

August 2002 Final SEIR: Portions of the 2002 Final SEIR project were constructed within the confines of the existing Refinery. The Refinery is within and adjacent to heavy industrial areas that are zoned M3-1. Therefore, the proposed project generally conforms to the land use and zoning designation of the general area and the Wilmington-Harbor City Community Plan. Construction of the project increased the intensity of industrial development within an existing industrial area. This was not expected to be a significant adverse impact because the areas surrounding the proposed project site are also heavy industrial. The project was also determined to be consistent with current Port activities and development, so it is consistent with the goals and policies of the California Coastal Act for the Port area and is not expected to have significant adverse impacts on coastal resources.

The modifications to the Marine and Olympic Tank Farms and the Marine Terminal were expected to be made within the confines of the existing tank farms/terminal. The tank farms and terminal are zoned for industrial land uses, which allows for the continued storage of petroleum products. Although construction of the proposed project would increase the intensity of industrial development within the existing industrial area, it was not expected to be a significant adverse impact because the areas surrounding the Tank Farm sites are also heavy industrial. The size of the Marine Terminal was expected to be reduced in size due to lease negotiations with the Port of Los Angeles. A large portion of the Marine Terminal was to be returned to the Port for other port-related uses (i.e., also heavy industrial land uses). Therefore, the proposed project was not expected to have significant impacts with respect to altering the land use or changing the intensity of the land use.

Currently Proposed Modifications: The revised project would not result in any changes in land use impacts that were evaluated in the August 2002 Final SEIR. The proposed project modifications do not adversely impact the land use at the Olympic Tank Farm or Marine Terminal or near the Marine Tank Farm in any way. All proposed modifications will occur within the confines of the existing Olympic Tank Farm and Marine Terminal and will not be expanded outside of its current boundaries. The proposed modifications are consistent with the industrial zoning of the site (M3 – Heavy Industrial Zoning), and with the Wilmington Harbor City Plan

(City of Los Angeles, 1999). The proposed new petroleum storage tanks will be located within the confines of the existing terminal site and would not disrupt or divide an established community. A pipeline connection will also be constructed near the existing Marine Tank Farm, which is currently an industrial area and the pipeline connection will be located underground so no permanent land use impacts are expected. Based on these considerations, no significant adverse impacts to established communities or conflicts with any applicable land use plans are expected.

Since the proposed modifications will not alter the conclusions from the August 2002 Final SEIR, the proposed modifications will not cause significant adverse impacts to land use.

7.9 Mineral Resources

August 2002 Final SEIR: The only significant resource in the Wilmington area is the production of oil from the Wilmington field. While much of the operation for this field has been decommissioned, limited production facilities remain in the vicinity of the Refinery. None of these production facilities would be affected by the project so no significant impacts on mineral resources were expected.

Currently Proposed Project Modifications: Implementation of the proposed modifications would occur entirely within the boundaries of the existing heavily industrialized Olympic Tank Farm, Marine Terminal, or near the Marine Tank Farm currently operated by Ultramar. There are no known mineral resources currently on the project sites. Therefore, the proposed modifications will not be located on a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. Furthermore, because there are no known mineral resources at or near the facilities, the proposed project will not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. No significant adverse impacts from the proposed modifications on mineral resources are expected, therefore, no mitigation measures are required.

Since the proposed modifications will not alter the conclusions from the August 2002 Final SEIR, the proposed modifications will not cause significant adverse impacts to mineral resources.

7.10 Noise

August 2002 Final SEIR: The August 2002 Final SEIR included an evaluation of potential noise impacts during construction and operation of the proposed project. It was concluded, generally because of the industrial nature of the area, that noise impacts during both operation and construction would be less than significant. During construction activities, the noise levels were not expected to increase by more than one decibel in the areas surrounding the Refinery, Marine Terminal, Marine Tank Farm, and Olympic Tank Farm.

Noise generated by project-related equipment during operation of the project was not expected to increase the overall noise levels at the Refinery, tank farms, or terminal (when compared to baseline conditions), i.e., noise increases are expected to be less than one decibel (dBA). Therefore, no significant adverse noise impacts related to project operation were expected. The noise levels in the area are expected to comply with the City of Los Angeles Noise Ordinance. In

general, the noise levels in the Wilmington area near the Ultramar Refinery, Marine Tank Farm, and Olympic Tank Farm are compatible with the industrial nature of the immediately surrounding area with noise levels of about or less than 70 decibels. No increase in noise was expected at the Marine Terminal. Therefore, no significant adverse noise impacts were expected.

Currently Proposed Modifications

Construction Impacts: The currently proposed project modifications are not expected to result in increases in construction noise impacts that were not previously evaluated in the August 2002 SEIR. The Refinery modifications have been completed so no noise impacts are expected from the Refinery.

The Olympic Tank Farm is surrounded by commercial and industrial land uses and Alameda Street on the western boundary. A residential area is located west of Alameda Street. The ambient noise environment in the project vicinity is composed of contributions from equipment and operations within the commercial and industrial areas, and from traffic on roads along property boundaries (Alameda Street and E. Robidoux St.). Construction activity at the Olympic Tank Farm will produce noise as a result of operation of construction equipment. The estimated noise level during equipment installation is expected to be an average of about 80 dBA at 50 feet from the center of construction activity. The closest resident is about 400 feet north of the Olympic Tank Farm. Using an estimated six dBA reduction for every doubling distance, the noise levels at the closest resident are estimated to be 47 dBA and would be within background noise levels so noise increases would be less than one decibel and within the impacts previously evaluated in the August 2002 Final SEIR.

Construction activities at and near the Marine Terminal and the pipeline activities near the Marine Tank Farm will be much less than at the Olympic Tank Farm because only the existing pumping system will be modified and a pipeline connection will be installed. Fewer construction equipment will be required at the Marine Terminal and the noise levels will be less than at the Olympic Tank Farm, i.e., less than 47 dBA at 400 feet. The closest sensitive receptors to the Marine Terminal are over one-quarter mile north and more than 400 feet from the Marine Tank Farm. Most of the construction noise sources will be located near ground level, so the noise levels are expected to attenuate further than analyzed herein. Noise attenuation due to existing structures has not been included in the analysis.

The construction activities at the Olympic Tank Farm near the Marine Tank Farm and at the Marine Terminal sites that generate noise will be carried out during daytime from Monday to Friday or as permitted by the City and Port of Los Angeles. Because of the nature of the construction activities, the types, number, operation time and loudness of construction equipment will vary throughout the construction period. As a result, the sound level associated with construction will change as construction progresses. Construction noise sources will be temporary and will cease following construction activities. Noise levels at the closest residential areas are not expected to increase during construction activities, i.e., background noise levels in residential areas generally are in the range of 55-65 dBA. The noise levels from the construction equipment are expected to be within the allowable noise levels established by the local noise ordinances for

industrial areas, which are about 70 dBA. Noise and groundborne vibration impacts associated with the proposed project construction activities are expected to be less than significant.

Operational Noise Impacts: During operations, the petroleum storage tanks will not generate noise beyond what currently exists at the facility. Petroleum storage tanks do not generate noise as part of their operation. The pumping system at the Marine Terminal will be modified; however, new pumps will be located within the port area and over one-quarter mile away from any sensitive receptors. Therefore, no significant adverse noise and groundborne vibration impacts from the proposed project modifications are expected.

Since the currently proposed modifications do not change the conclusions from the August 2002 Final SEIR, the noise impacts would remain less than significant.

7.11 Population and Housing

August 2002 Final SEIR: Construction activities associated with the CARB Phase 3 project would not involve the relocation of individuals, impact housing or commercial facilities, or change the distribution of the population because the project would occur completely at existing industrial facilities. The temporary construction work force would come from the existing labor pool in Southern California. Only eight new permanent employees were expected to be required due to the CARB Phase 3 project. Since all potential impacts would occur at industrial facilities, displacement of housing was not anticipated and no significant impacts on population and housing were expected.

Currently Proposed Modifications: Construction activities at the Olympic Tank Farm and Marine Terminal will not involve the relocation of individuals, adversely impact housing or commercial facilities, or change the distribution of the population because the proposed project modifications will occur completely within the boundaries of existing terminals and existing industrial areas. The construction work force, which is temporary, is expected to come from the existing labor pool in the southern California area. Additionally, once the proposed modifications are complete, operational activities are not expected to require new permanent employees at either the Olympic Tank Farm or Marine Terminal above the levels estimated in the August 2002 Final SEIR (administrative staff or eight workers at the Refinery and eight workers at the tank farms – four at each Tank Farm). No displacement of existing housing or people will occur because the proposed project will occur within the confines of the existing industrial facilities. Therefore, implementation of the proposed modifications are not expected to have a significant adverse impact on population, population distribution, or housing.

Since the proposed modifications will not alter the conclusions from the August 2002 Final SEIR, the proposed modifications will not cause significant adverse impacts to population and housing.

7.12 Public Services

August 2002 Final SEIR: Construction activities were not expected to result in an increased need for fire response services. Compliance with state and local fire codes was expected to minimize the

need for additional fire protection services. The Refinery is served by its own emergency response team long with local fire department and other emergency services. Fire-fighting and emergency response personnel and equipment would continue to be maintained and operated at the Refinery. Additional fire hydrants were expected to be required near new refinery units. No significant impacts of fire services were expected because of the existing fire-fighting capabilities at the Refinery.

The Refinery is fenced and a 24-hour security force would continue to be maintained. Entry and exit of construction work force would be monitored and no additional or altered police protection was expected.

Construction activities would not involve the relocation of individuals, impact housing or change the distribution of population. No significant increase in the number of permanent workers is required as part of the project. Thus, the project would not alter existing or require new schools parks or other public facilities.

Currently Proposed Modifications: To respond to emergency situations, the Olympic Tank Farm and Marine Terminal maintain on-site fire fighting capabilities, which are supplemented by Refinery resources and the public fire departments. The Olympic Tank Farm and Marine Terminal are supported by the Refinery and the City of Los Angeles Fire Department, the closest of which are located at: 1) Station 85 at 1331 W. 253rd Street, Harbor City; 2) Station 38 at 1241 E. "I" Street, Wilmington; 3) Station 36 at 1005 N. Gaffey Street, San Pedro; and 4) Station #49 at 400 Yacht Street, San Pedro.

Ultramar maintains onsite emergency response equipment at the facilities. Compliance with state and local fire codes is expected to minimize the need for additional fire protection services. The facilities have their fire-fighting equipment and manual and automatic fire suppression systems for flammable and combustible materials. Tank farm and terminal staffs are trained in accordance with industry standards and on-site fire training exercises at the Valero Fire School conducted at Texas A&M University and with the Los Angeles City Fire Department.

The proposed modifications will not increase the requirements for additional or altered fire protection. The Marine Terminal will continue to import and the Olympic Tank Farm will continue to store petroleum feedstocks and distillates. Fire-fighting and emergency response personnel and equipment will continue to be maintained and operated at both the Olympic Tank Farm and Marine Terminal. Close coordination with the Refinery and local fire departments and emergency services also will be maintained. No increase in fire protection services is expected at either the Olympic Tank Farm or Marine Terminal. Ultimately, the Marine Tank Farm is expected to be vacated and demolished for the Wilmington Waterfront Development Project so no public services will be required at the site.

The City of Los Angeles Police Department is the responding agency for law enforcement needs in the vicinity of the Olympic Tank Farm and Marine Terminal. The Wilmington-Harbor area is serviced by the Harbor Division police station, located at 2175 John S. Gibson Boulevard, San Pedro. Because police units are in the field, response times vary depending on the location of the nearest unit. The Olympic Tank Farm and Marine Terminal have an existing security department

that provides 24-hour protective services for people and property within the fenced boundaries of both facilities. As part of their regular duties, the security department will monitor construction activities associated with the proposed project since they will occur within the confines of the terminal sites. Along with the existing work force, entry and exit of the construction work force will be similarly monitored. Once implemented, the proposed modifications are not expected to change tank farm and terminal staffing above the levels estimated in the August 2002 Final SEIR (administrative staff of eight workers at the Refinery and four workers at the Olympic Tank Farm or substantially expand existing facilities. Thus, no additional or altered police protection will be required for the proposed project.

Since the proposed modifications are not expected to require additional staffing above the levels estimated in the August 2002 Final SEIR (administrative staff of eight workers at the Refinery and four workers at the Olympic Tank Farm) during operations, an increase in the local population is not expected. Therefore, no impacts are expected to schools, parks, or other public facilities, such as government services, as a result of implementing the proposed modifications.

No significant adverse impacts from the proposed modifications on public services are expected, therefore, no mitigation measures are required. Since the proposed modifications will not alter the conclusions from the August 2002 Final SEIR, the proposed modifications will not cause significant adverse impacts to public services.

7.13 Recreation

August 2002 Final SEIR: The CARB Phase 3 project would not increase the demand for neighborhood or regional parks, or other recreational facilities in the area since the project was not expected to increase the local population. Due to the heavy industrialization of the area, there were no recreational opportunities of significance at or in the immediate vicinity of the project so no significant impacts on recreation were expected.

Currently Proposed Modifications: As discussed in Population and Housing (Section 7.10), the existing labor pool in southern California is sufficient to fulfill the labor requirements for the construction of the proposed project as modified. The operation of the proposed project will not require additional workers above the levels estimated in the August 2002 Final SEIR (administrative staff of eight workers at the Refinery and four workers at the Olympic Tank Farm). Therefore, there would be no significant changes in population densities resulting from the proposed modifications and, thus, no increase in the use of existing neighborhood and regional parks or other recreational facilities.

The proposed project modifications do not include recreational facilities or require the construction or expansion of existing recreational facilities. No significant adverse impacts to recreational facilities are expected. Since the proposed modifications will not alter the conclusions from the August 2002 Final SEIR, the proposed project will not cause significant adverse impacts to recreation.

7.14 Solid and Hazardous Waste

August 2002 Final SEIR

Construction Impacts: The demolition activities during construction of the project evaluated in the August 2002 Final SEIR would result in the generation of solid waste. Demolition debris from the removal of storage tanks would be salvaged or recycled. Material that cannot be salvaged would be taken to a landfill for disposal and contribute to the ongoing reduction of available landfill volumes. It was estimated that the demolition wastes would be about 210 tons, disposed of over about a one and one-half year period. This represents a small portion (less than one percent) of the daily total solid waste received at local landfills. The actual disposal of demolition waste was expected to be distributed throughout the first three months of the construction period. Further, a portion of the estimated 210 tons of demolition wastes was expected to be salvaged for metal content. Therefore, no significant adverse impacts were expected to the existing landfill capacity due to the proposed project.

Operational Impacts: Solid waste generated at the Refinery, Tank Farms, and Marine Terminal are generally from administrative offices. The project evaluated in the August 2002 Final SEIR was expected to result in an increase in administrative staff of eight workers at the Refinery and eight workers at the Tank Farms (four at each Tank Farm) which was not expected to substantially increase the amount of solid waste generated by the proposed project. Therefore, no significant adverse solid waste impacts were expected.

The project evaluated in the August 2002 Final SEIR was not expected to increase the hazardous waste generated by the Refinery processing, Tank Farm or Marine Terminal activities. The proposed project was not expected to change the refining process and only minor changes to refinery units were expected. The waste streams generated by the Refinery, Tank Farms, and Marine Terminal were not expected to be affected. Therefore, the project was not expected to adversely affect the capacity of hazardous waste landfills or facilities. Therefore, the impact of the proposed project on hazardous waste facilities was expected to be less than significant.

Currently Proposed Modifications: The revised project modifications would not result in any changes in the conclusions regarding solid/hazardous waste impacts that were evaluated in the August 2002 Final SEIR. The removal of the existing storage tanks at the Olympic Tank Farm will generate demolition waste, primarily steel and concrete. Concrete is typically recycled into aggregate. Steel is typically recycled as scrap steel. The demolition of these storage tanks was included in the August 2002 Final SEIR. Therefore, demolition wastes are not expected to require landfill disposal of any solid wastes and would not be any different than evaluated in the August 2002 Final SEIR.

During operation, the proposed modifications are not expected to generate significant quantities of solid waste, which are primarily generated from administrative or office activities. The proposed modifications would not result in an increase in permanent employees at either the tank farm or terminal, above the levels estimated in the August 2002 Final SEIR (administrative staff of eight workers at the Refinery and four workers at the Olympic Tank Farm) so no significant increase in solid waste is expected.

As discussed in the August 2002 Final SEIR, the replacement of existing storage tanks with new storage tanks will not result in an increase in the generation of hazardous waste. The operation of storage tanks does not routinely generate hazardous wastes. Periodically, storage tanks are emptied and cleaned out, resulting in a sludge that generally can be put back into the refining process or may require treatment to recover useful product (oil), etc., and disposal (e.g., disposal at a hazardous waste or non-hazardous waste landfill, depending on the concentration of various constituents). Prior to construction activities, accumulated sludge in the storage tanks will need to be removed and put back into the refining process, and if this is not feasible, treated and disposed. However, the storage tanks are scheduled for normal maintenance activities (which would include sludge removal) so the construction activities are not expected to generate any additional sludge. The proposed modifications will reduce the number of storage tanks at the Olympic Tank Farm and will not increase overall product throughput, therefore, no increase in sludge is expected and no increase in hazardous waste is expected. The facility is expected to continue to comply with federal, state, and local statutes and regulations related to solid and hazardous wastes. No significant impacts to waste disposal generated or disposed of are expected and thus no mitigation measures are required.

Since the proposed modifications will not alter the conclusions from the August 2002 Final SEIR, the proposed modifications will not cause significant adverse impacts to solid and hazardous waste.

7.15 Transportation and Traffic

August 2002 Final SEIR

Construction Impacts: Construction and modification activities associated with the proposed project evaluated in the August 2002 Final SEIR at the Refinery, Marine Tank Farm, Olympic Tank Farm and Marine Terminal were expected to take about 21 months. During that time, the level of service (LOS) analysis assumed 350 construction workers would be commuting to the Refinery, during peak construction activities. All construction workers were expected to park at the Refinery since sufficient parking is available at the Refinery. Of the 350 total construction workers, about 150 construction workers would be bused to the Olympic Tank Farm and the Marine Tank Farm. Since the major portion of the construction activities were at the Olympic Tank Farm, most of the workers were expected to be bused to the Olympic Tank Farm.

It was estimated that a maximum of 12 construction trucks would travel to the site during the peak construction day to transport the construction equipment, process equipment, and construction materials to the site. It was anticipated that project construction include eight-hour shifts per day for five days per week, Monday through Friday, with shifts running from 7:00 am to 5:30 p.m. The LOS for the construction traffic impacts did not include the a.m. peak hour because construction activities were scheduled to begin prior to the a.m. peak hour. The a.m. peak hour runs from about 7:00 to 9:00 a.m. Construction workers were expected to arrive at the site by 6:30 a.m. Therefore, the construction traffic associated with the Refinery, Olympic Tank arm, and Marine Tank Farm modifications avoided the peak hour traffic conditions minimizing the potential for traffic impacts during the morning. Construction traffic was expected to leave the site during the evening peak hour.

The traffic analysis indicated that four intersections in the local area would show changes in the LOS due to the construction phase of the proposed project. The Wilmington Avenue/Sepulveda Boulevard and Santa Fe Avenue/Anaheim Street intersections would change from LOS A to LOS A/B. The Alameda Street/Anaheim Street and the Santa Fe/Pacific Coast Highway intersections would change from LOS B to LOS B/C during the construction phase. The traffic changes at these four intersections were not considered to be significant since free-flowing traffic (LOS A/B) would continue and no significance criteria were exceeded. Therefore, the proposed project impacts on traffic during the construction phase were expected to be considered less than significant.

Several segments of the proposed new pipelines were expected to be placed in the right-of-way of streets and/or local cross streets. The pipeline segments were expected to cross Anaheim Street, Pacific Coast Highway, Alameda Street, and Sepulveda Boulevard. The LOS at the intersections near the Refinery was generally A or B indicating that traffic in the vicinity of the Refinery is free-flowing. The proposed project evaluated in the August 2002 Final SEIR could create significant adverse traffic impacts during construction of the pipeline as construction may be required across these busy streets.

A Traffic Control Plan was required by the City of Los Angeles and the City of Carson as part of a franchise permit to construct the pipeline. The Traffic Control Plan was required to specify the permitted hours of construction (generally off-peak hours), method of safeguarding traffic flow, method of re-routing or detouring traffic, if necessary, the placement of traffic control devices (including signs, flashing arrows, traffic cones and delineators, barricades, etc.) and flaggers (if needed), temporary modifications to existing signals and signal timing (if needed), and other details of the pipeline construction. The Traffic Control Plan was required to help to ensure that public safety would not be endangered, and inconvenience will be reduced to a minimum.

Based on the above, the project evaluated in the August 2002 Final SEIR was not expected to result in significant adverse transportation/traffic impacts during the construction phase.

Operational Impacts: The project evaluated in the August 2002 Final SEIR would increase the permanent number of workers at the Refinery by about eight, at the Marine Tank Farm by four, at the Olympic Tank Farm by four, and require an estimated 10 trucks per day traveling to/from the Refinery. The traffic analysis indicated that the project would not result in any changes in LOS at the local intersections during the morning or evening peak hours. Free-flowing traffic would continue at all intersections except the intersection of Wilmington Avenue/223rd Street, which is already at LOS E and F. Therefore, the proposed project impacts on traffic during the operational phase were considered to be less than significant.

The project was expected to increase the number of tanker calls to the Port by about 65 ships per year. This represents less than one percent of the estimated 7,000 ships that visit the port each year. Therefore, no significant adverse impact to the Long Beach/Los Angeles Harbor system was expected.

The proposed project impacts on transportation/traffic during project operation were considered to be less than significant.

Currently Proposed Modifications

Construction Impacts: A maximum of 15 construction workers is expected to be required during peak construction activities at the Olympic Tank Farm. Construction activities are anticipated to occur five days a week (Monday through Friday). The ten-hour work shift is scheduled to begin at 7:00 am and end at 5:30 pm. Traffic attributable to the project construction will arrive at the site before the morning peak traffic period (7:00 to 8:00 a.m.) would begin and will not affect the morning peak hour. Construction traffic is expected to leave at about 5:30 p.m. and is not expected to affect the evening peak hour (4:30 to 5:30 p.m.). Further, traffic on Alameda Street is about 25,000 vehicles per day (City of Carson, 2004). The proposed project is only expected to generate a maximum of 15 peak hour trips per day, which is a small fraction of the total traffic in the area. Trucks delivering or removing materials are expected to occur primarily off-peak hour to avoid congestion and minimize the delivery time for materials. Therefore, traffic impacts during the construction phase at the Olympic Tank Farm are less than significant.

The Marine Terminal is located approximately two miles west of the Terminal Island Freeway and approximately one mile east of the Harbor Interstate 110 Freeway. Access to the facility is via the W. Harry Bridges Boulevard, which can be reached via Wilmington Avenue and Alameda Street, which are north/south four-lane divided roadways. A maximum of 5 to 10 workers is expected to be required during peak construction activities at the Marine Terminal. The ten-hour work shift is scheduled to begin at 7:00 am and end at 5:30 pm and is not expected to affect the evening peak hour (4:30 to 5:30 p.m.). Construction activities associated with the piping in the road right-of-way near the Marine Terminal are expected to be similar to (but less than) the construction activities evaluated for the Marine Terminal in the August 2002 Final SEIR, so no increase in adverse traffic impacts are expected. Therefore, traffic impacts during the construction phase at the Marine Terminal are less than significant.

Parking for the construction workers will be provided within the confines of the existing tank farm and terminal and sufficient parking exists to handle the estimated increase of workers (15) commuting to and from these facilities. Once construction is complete, no increase in permanent workers is expected. Therefore, the proposed modifications will not result in significant parking impacts.

Operational Impacts: The currently proposed project modifications are not expected to result in an increase in employees expected above the levels estimated in the August 2002 Final SEIR (administrative staff of eight workers at the Refinery and four workers at the Olympic Tank Farm) so no increase in peak hour traffic is expected due to the proposed modifications. Further, no increase in truck traffic is expected as products received at the Marine Terminal will be transported to the Olympic Tank Farm and Refinery primarily via existing pipelines and the new pipeline near the Marine Tank Farm. Therefore, once construction activities are complete, no traffic impacts are expected from operation of the proposed project at the Olympic Tank Farm or the Marine Terminal. Finally, no increase in ship traffic is expected due to the proposed modifications.

Since the proposed modifications will not alter the conclusions from the August 2002 Final SEIR, the proposed modifications will not cause significant adverse impacts to traffic and circulation.

8.0 CONCLUSIONS

As shown in Sections 6.0 and 7.0, the analysis of the current proposed project modifications indicated that no new significant adverse impacts would be created for any environmental areas analyzed in the August 2002 Final SEIR or make substantially worse any existing significant adverse impacts. Based on the environmental analysis prepared for the current proposed modifications, the SCAQMD has quantitatively and qualitatively demonstrated that the proposed modifications qualify for an Addendum to the previously certified August 2002 Final SEIR.

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APPENDIX A

AUGUST 2002 FINAL SEIR - CHAPTER 1 - INTRODUCTION AND EXECUTIVE SUMMARY

CHAPTER 1.0

INTRODUCTION AND EXECUTIVE SUMMARY

INTRODUCTION

The proposed project includes modifications to the Ultramar Inc. (a Valero Energy Company) Wilmington Refinery (Refinery), Marine Tank Farm, Olympic Tank Farm, and Marine Terminal necessary to produce cleaner-burning reformulated gasoline for use in motor vehicles. Cleaner-burning gasoline will reduce emissions of criteria and toxic air pollutants and, thereby, help to achieve and maintain federal and state ambient air quality standards in the South Coast Air Basin (Basin). The objective of the proposed project is to comply with California's Phase 3 Reformulated Fuels requirements, which include the phase out of methyl tertiary butyl ether (MTBE).

The California Environmental Quality Act (CEQA) document for the modifications to the Ultramar Wilmington Refinery for the production of California Air Resources Board (CARB) Phase 3 fuels (Final EIR: Ultramar, Inc. Wilmington Refinery CARB Phase 3 Proposed Project) was certified by the South Coast Air Quality Management District (SCAQMD) in December 2001. All documents comprising the Final Environmental Impact Report (EIR) for the proposed project are available at the SCAQMD, 21865 East Copley Drive, Diamond Bar, California, 91765. These documents can be obtained by contacting the SCAQMD's Public Information Center at (909) 396-2039 or by accessing http://www.aqmd.gov/ceqa/nonaqmd.html. State CEQA Guidelines, 14 California Code of Regulations (CCR) §15000 et seq., require additional analysis to a previously prepared and certified EIR if subsequent changes are proposed in the project which involve new significant environmental impacts not previously considered, or new information of substantial importance which was not known and could not have been known becomes available and shows significant effects previously examined will be substantially more severe (CEQA Guidelines §§15153 and 15162).

After Ultramar's existing lease expired at the Mormon Island Marine Terminal in the Port of Los Angeles, the Port of Los Angeles would only renew the lease for a portion of the Marine Terminal's property, which provided storage facilities for various petroleum products. To supplement their storage facilities, Ultramar acquired two tank farms previously used by the Los Angeles Department of Water and Power. Ultramar is proposing modifications to these terminals to allow the storage of petroleum products (primarily gasoline and gasoline blending components). It has been determined that these proposed modifications in support of their CARB Phase 3 project constitute new information of substantial importance which may result in new significant adverse environmental impacts and/or increase the severity of significant adverse impacts identified in the previous Final EIR for Ultramar's CARB Phase 3 project. Consequently, this EIR to be prepared for the proposed project will be subsequent to and compliment the December 2001 Final EIR: Ultramar, Inc. Wilmington Refinery CARB Phase 3 Proposed Project (SCH No. 2000061113), and will be referred to herein as the "Subsequent EIR."

This document constitutes the *Final* Subsequent EIR for the Ultramar California Air Resources Board Reformulated Gasoline Phase 3 (CARB RFG Phase 3) requirements. The *Final* Subsequent EIR includes the revised project description, the environmental setting, environmental impacts and mitigation measures, cumulative impacts, project alternatives, a Health Risk Assessment (Volume II), a Hazards Analysis (Volume III), *and Responses to Comments (Volume IV). All documents comprising the Final Subsequent Environmental Impact Report (EIR) for the proposed project are available at the SCAQMD, 21865 East Copley Drive, Diamond Bar, California, 91765. These documents can be obtained by contacting the SCAQMD's Public Information Center at (909) 396-2039 or by accessing* http://www.aqmd.gov/ceqa/nonaqmd.html.

The Draft SEIR was released for a 45-day public review and comment period beginning on March 6, 2002 and ending on April 22, 2002. Approximately 180 comment letters were received during the comment period for the Draft SEIR. Responses to comments were prepared and are included in Volume IV of this document. Minor modifications were made to the Draft SEIR and incorporated into the Final SEIR. Modifications made in the Draft SEIR to the Final SEIR are made in italics for easier review. The environmental disciplines that were determined to have potentially significant adverse impacts in the previous Final EIR are analyzed in this Subsequent EIR and include air quality, geology/soils, hazards and hazardous materials, hydrology/water quality, land use/planning, noise, solid/hazardous waste, and transportation/traffic. No other environmental disciplines that may be adversely affected by the currently proposed project have been identified. *The environmental resources where significant adverse environmental impacts would occur after implementation of mitigation measures were air quality and hazards. Accordingly, a Statement of Findings and Overriding Considerations has been prepared for these significant adverse impacts and is included as Attachment 1 to this Final SEIR.*

PURPOSE/LEGAL REQUIREMENTS

In accordance with §15121(a) of the State CEQA Guidelines (California Administrative Code, Title 14, Division 6, Chapter 3), the purpose of an EIR is to serve as an informational document that: "will inform public agency decision-makers and the public generally of the significant environmental effect of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project."

The EIR is an informational document for use by decision-makers, public agencies and the general public. It is not a policy document that sets forth policy about the desirability of the project discussed. The proposed project requires discretionary approval from the SCAQMD and, therefore, it is subject to the requirements of CEQA (Public Resources Code, §21000 et seq.).

This Subsequent EIR addresses both project-specific and cumulative impacts of the revised proposed project. The focus of this Subsequent EIR is to address potentially significant adverse environmental issues identified in the previous Final EIR and to recommend feasible mitigation measures, where possible, to reduce or eliminate significant adverse environmental impacts.

SCOPE AND CONTENT

The Notice of Preparation (NOP) and Initial Study (IS) for the previous Final EIR were circulated for a 30-day comment period beginning on June 23, 2000. The NOP and IS were circulated to neighboring jurisdictions, responsible agencies, other public agencies, and interested individuals in order to solicit input on the scope of the EIR. Comments received on the NOP and IS were included in Appendix A of the previous Final EIR. The NOP and IS formed the basis for and focus of the technical analyses in the previous Final EIR and this Subsequent EIR. The following environmental issues were identified in the IS as potentially significant and are addressed in this document:

- Air Quality,
- Geology/Soils,
- Hazards and Hazardous Materials,
- Hydrology/Water Quality,
- Land Use/Planning,
- Noise,
- Solid/Hazardous Waste, and
- Transportation/Traffic.

The IS concluded that the proposed project would not create significant adverse environmental impacts to the following areas: aesthetics, agriculture resources, biological resources, cultural resources, energy, mineral resources, population/housing, public services, and recreation. This conclusion remains valid for the currently proposed project. A discussion of potential cumulative impacts is also provided. The alternatives analysis discussed in Chapter 6 of this Subsequent EIR is prepared in accordance with §15126.6 of the CEQA Guidelines. Chapter 6 describes a range of reasonable alternatives that could feasibly attain the basic objectives of the proposed project and are capable of eliminating or reducing some of the significant adverse environmental effects associated with the proposed project. No feasible alternatives to the proposed project were identified that achieved the basic objectives of the proposed project with fewer or less significant adverse environmental impacts.

LEAD AND RESPONSIBLE AGENCIES

The Lead Agency is the "public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect upon the environment" (Public Resources Code, §21067). For this project, the SCAQMD has the primary discretionary approval authority over the proposed project and was determined to be the Lead Agency (California Code of Regulations §15051(b)). Air quality Permits to Construct/Operate are required for the revised proposed project and are considered to be discretionary. By issuing permits, the SCAQMD is approving the project.

State CEQA Guidelines §15381 defines a "responsible agency" as: "a public agency which proposes to carry out or approve a project, for which a Lead Agency is preparing or has prepared

an EIR or Negative Declaration. For purposes of CEQA, responsible agencies include all public agencies other than the lead agency that have discretionary approval authority over the project."

The California Coastal Commission is a Responsible Agency for the proposed project and has discretionary approval authority as the project will require a Coastal Development Permit or a de minimus waiver. No other agencies have been identified as a Responsible Agency for the proposed project. The following agencies, other than the Coastal Commission, may have ministerial permitting authority for aspects of the Refinery; however, no new permits or permit modifications are expected to be required from these agencies for the proposed project, with the exception that building permits are expected to be required by the Port of Los Angeles and City of Los Angeles. In addition, revised NPDES permits may be required from the Regional Water Quality Control Board (RWQCB).

- California Coastal Commission
- California State Lands Commission (CSLC)
- State Water Resources Control Board (SWRCB)
- Los Angeles Regional Water Quality Control Board
- County Sanitation Districts of Los Angeles (LACSD)
- Department of Toxic Substances Control (DTSC)
- Port of Los Angeles
- City of Los Angeles

For convenience, all the above agencies will be referred to generally as Responsible Agencies in this EIR.

INTENDED USES OF THE SUBSEQUENT EIR

The Subsequent EIR is intended to be a decision-making tool that provides full disclosure of the potential environmental consequences associated with the discretionary actions required to implement the proposed project. Additionally, CEQA Guidelines §15124(d)(1) require a public agency to identify the following specific types of intended uses:

- A list of the agencies that are expected to use the EIR in their decision-making;
- A list of permits and other approvals required to implement the project; and
- A list of related environmental review and consultation requirements required by federal, state, or local laws, regulations, or policies.

To the extent that local public agencies, such as cities, county planning commissions, etc., are responsible for making land use and planning decisions related to the proposed project, they could possibly rely on this EIR during their decision-making process. See the preceding section for a list of public agencies' approval that may be required.

CHAPTER 2 SUMMARY - PROJECT DESCRIPTION

The objectives of the proposed project are as follows:

- Comply with the state mandated phase out of MTBE from gasoline.
- Comply with California's Phase 3 Reformulated Fuels requirements.
- Provide sufficient storage for petroleum products.

Project Applicant

Ultramar Inc., A Valero Energy Corporation (Ultramar)
2402 East Anaheim Street
Wilmington, CA

The proposed project includes modifications to the Ultramar Refinery, Marine Tank Farm, Olympic Tank Farm and Marine Terminal. The Refinery is located at 2402 E. Anaheim Street in the Wilmington district of the City of Los Angeles. The Refinery is bisected by the Terminal Island Freeway, with the larger portion of the Refinery to the north of the freeway and the smaller portion to the south. The Refinery and all adjacent areas are zoned for heavy industrial use. The land use in the vicinity of the Refinery is heavy industrial. Residential land uses are located about three-quarters of a mile northwest of the Refinery. The Marine Tank Farm is located at 130 "A" Street in an industrial area with the nearest residential area located approximately one-quarter of a mile north of the facility. The Olympic Tank Farm is located at 1220 N. Alameda Street in an industrial area with the nearest residential area located approximately 300 feet west of the facility. The Marine Terminal is located at 961 La Paloma Avenue at Berth 164 on Mormon Island in the Port of Los Angeles. The nearest residential area is located approximately one mile north of the Marine Terminal facility.

Project Description

Ultramar is proposing to add new equipment, make modifications to existing equipment, and/or make operational changes to the Wilmington Refinery, Marine Tank Farm, Olympic Tank Farm, and Marine Terminal primarily to comply with CARB Phase 3 requirements. The proposed project description has been divided into two sections: (1) project modifications identified in the previous Final EIR (SCAQMD, 2001f); and (2) project description for the revised CARB Phase 3 project.

Project Modifications Identified in the Previous Final EIR

The modifications associated with the Ultramar CARB RFG Phase 3 project that were evaluated in the previous 2001 Final EIR included modifications to its existing Wilmington Refinery, including the existing Fluid Catalytic Cracking Unit, Selective Hydrogenation Unit, Light Ends Recovery Unit/Naphtha Hydrotreater Unit, Olefin Treater, and the Light Ends Recovery Unit/Naphtha Hydrotreater. A new Fuel Gas Mercaptan Extraction Unit and two new propane propylene bullets were also proposed. The service of several storage tanks that currently handle MTBE will be modified and the throughput of the tanks also is expected to change. In addition, Ultramar proposed construction of three new ten-inch pipelines between the Refinery and British Petroleum (BP, formerly ARCO) refinery for the transport of isoctane/alkylate, butane, and

propane/propylene. Ultramar also proposed the construction of three pipelines from the Refinery to the Olympic Tank Farm (formerly owned by the Los Angeles Department of Water and Power).

Project Description for the Revised CARB Phase 3 Project

Ultramar is proposing to add a storage tank at the Refinery, modify two storage tank farms, and modify the Marine Terminal, as described below. In addition, these changes require modifications to current tank operations, and installation of new auxiliary equipment.

Modifications to the Ultramar Wilmington Refinery: The modifications to the Ultramar Wilmington Refinery include the installation of a new 150,000 barrel storage tank with an external floating roof equipped with primary and secondary seals. The tank will store gasoline and gasoline blending components. Piping modifications and new blending pumps will also be required.

Modifications to the Marine Tank Farm: The modifications to the Marine Tank Farm will include the modifications of one existing storage tank to include the installation of a secondary seal (the tank is currently equipped with an external floating roof with a primary seal), tank modifications to allow for a low pump-out heel, and a change of service that will allow the storage of various products including naphtha. New pipeline pumps will be installed and piping modifications will be required.

Modifications to the Olympic Tank Farm: A number of modifications will be required for the Olympic Tank Farm. The changes will result in about a 42 percent increase in storage capacity at the Olympic Tank Farm. Three existing tanks will be removed and replaced. These tanks will be new 150,000-barrel capacity welded tanks with external floating roofs and primary and secondary seals and a dome. The service of these three tanks will be changed to gasoline and gasoline blending components.

A new 150,000-barrel storage tank is being installed with an external floating roof equipped with primary and secondary seals and a dome. This new tank is proposed to be in gasoline and gasoline blend component service and will include a leak detection system.

An existing storage tank will be modified to install an internal floating roof with primary and secondary seals. The service of this tank will be changed to store various products including naphtha.

Four existing storage tanks will be replaced with four new 100,000-barrel capacity, welded tanks with external floating roofs equipped with primary and secondary seals and a dome. The service of the tanks will be changed to gasoline and gasoline blending components. A leak detection system will be installed on all four tanks.

Two tanks will be modified to install internal floating roofs with primary and secondary seals. The service of the tanks will be changed to gasoline and gasoline blend components. Double bottoms also will be installed on these storage tanks.
Other modifications to the Olympic Tank Farm include new pipeline pumps, new firewater pumps, and piping modifications.

Modifications to the Marine Terminal: As a result of lease negotiations with the Port of Los Angeles, the size of the Ultramar Marine Terminal has been reduced. The Marine Terminal provided storage facilities for various petroleum products. A number of storage tanks will be closed and dismantled. Ultramar has acquired two terminals previously used by the Los Angeles Department of Water and Power in order to provide additional storage (the Olympic and Marine Tank Farms, see above descriptions).

Ultramar will retain the use of a small portion of the existing Marine Terminal and is proposing modifications to this portion of the site. Modifications to one existing storage tank will include the installation of an external floating roof and a change of service that will allow the storage of various products including naphtha.

Changes to Material Transport: The proposed project is expected to result in an increase in gasoline blending stocks transported to the Marine Terminal via marine vessel. About 32 marine vessels per year were associated with the transport of MTBE to the Marine Terminal, which will be eliminated following completion of the proposed project. The proposed modifications are estimated to require 97 marine vessels per year to transport gasoline blending stocks. Therefore, the proposed project is expected to result in an increase of about 65 marine vessels per year compared to existing conditions. Ultramar receives materials at the Marine Terminal and transfers the materials to its tank farms and Refinery via pipeline. The materials will be blended at the Refinery and transferred to third party terminals via pipeline.

Ultramar is proposing to increase the amount of gasoline blending components imported to the Marine Terminal in order to make up for the loss in volume associated with the removal of MTBE from gasoline. No increase in the amount of gasoline produced by Ultramar is expected.

The materials stored at the Marine and Olympic Tank Farms and Marine Terminal will be transported to/from the Refinery via existing and new pipelines. The impacts of the construction of the new pipelines were evaluated in the Ultramar CARB Phase 3 EIR (SCAQMD, 2001f).

CHAPTER 3 SUMMARY – EXISTING ENVIRONMENTAL SETTING

Pursuant to CEQA Guidelines §15125, Chapter 3 – Existing Environmental Setting, includes descriptions of existing environment only for those environmental areas that could be adversely affected by the proposed project. The following subsections briefly highlight the existing settings for the identified environmental areas that could potentially be adversely affected when implementing the proposed project, including Air Quality, Geology/Soils, Hazards and Hazardous Materials, Hydrology/Water Quality, Land Use/Planning, Noise, Solid/Hazardous Waste, and Transportation/Traffic.

Air Quality

Over the last decade and a half, there has been significant improvement in air quality is the SCAQMD's jurisdiction. Nevertheless, several air quality standards are still exceeded frequently and by a wide margin. Of the National Ambient Air Quality Standards (NAAQS) established for six criteria pollutants [ozone, lead, sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), and particulate matter less than 10 microns in diameter (PM10)], the area within the SCAQMD's jurisdiction is in attainment with the state and NAAQS for SO_2, NO_2, and lead. Chapter 3 provides a brief description of the existing air quality setting for each criteria pollutant as well as for toxic air contaminants from a regional perspective. Chapter 3 also provides baseline criteria pollutant emissions and toxic air contaminant risks from each of the facilities that are part of the proposed project.

Geology/Soils

Southern California is characterized by a variety of geographic features that form the basis for subdividing the region into several geomorphic provinces. The Ultramar facilities are located within the Peninsular Range Province, a major physiograhic and tectonic province characterized by a prevailing northwesterly orientation of structural geologic features. The general area within the Los Angeles Basin is about 50 miles long and 20 miles wide and slopes gently in a southwesterly direction to the Pacific Ocean.

The Refinery and surrounding area overlies a portion of the Wilmington Oil Field. The Wilmington Oil Field is a broad, asymmetric anticline, which is broken by a series of transverse faults. These faults created major oil producing zones. The Los Angeles area is a seismically active region. Most of the earthquake epicenters occur along the San Andreas, San Jacinto, Whittier-Elsinore and Newport-Inglewood faults. All of these faults are elements of the San Andreas Fault system.

Hazards and Hazardous Materials

Hazards at a facility can occur due to natural events, such as earthquake, and non-natural events, such as mechanical failure or human error. This section discusses existing hazards to the community from potential upset conditions to provide a basis for evaluating the changes in hazards posed by the proposed project.

The major types of public safety risks at the Refinery, tank farms and terminal consist of risk from releases of hazardous substances and from major fires and explosions. Shipping, handling, storing, and disposing of hazardous materials inherently poses a certain risk of a release to the environment. The regulated substances handled by the Refinery include hydrogen fluoride, chlorine and ammonia. The Refinery, tank farms and terminal also handle petroleum products including propane, butane, isobutane, MTBE, gasoline, fuel oils, diesel and other products, which pose a risk of fire and explosion. Accident scenarios for the existing Ultramar facilities evaluated herein include releases of regulated substances and potential fires/explosions, including transportation risks. The hazards that are likely to exist are identified by the physical and

chemical properties of the materials being handled and their process conditions, including toxic gas clouds, torch fires, flash fires, pool fires, vapor cloud explosions, thermal radiation and explosion/overpressure.

State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of to prevent or mitigate injury to health or the environment in the event that such materials are accidentally released.

Hydrology/Water Quality

The Refinery, tank farms and terminal are located over the Los Angeles Basin ground water aquifer system. Four major aquifers are present within the Los Angeles Basin including the Silverado, Lingo, Gaspur, and Gage aquifers, which are found in the San Pedro formation.

State Water Resources Control Board and the regional water quality control boards (RWQCB) are responsible for protecting surface and ground water supplies in California. These agencies also regulated discharges to state waters through the federal National Pollution Discharge Elimination System (NPDES) permits. Wastewater discharges to publicly-owned treatment works are regulated through federal pre-treatment requirements, which are enforced through the Los Angeles County Sanitation Districts for the Refinery.

Land Use/Planning

The Refinery and tank farms are located in the Wilmington District of the City of Los Angeles within southern Los Angeles County. The Marine Terminal is located within the Port of Los Angeles. The community of Wilmington is generally urbanized and includes a substantial amount of industrial and port-related development. The Ports of Los Angeles and Long Beach are located along the coastal boundary of Wilmington. The Refinery is located within a district zoned by the City of Los Angeles for heavy industrial uses (M3-1-VL). Refinery land uses are compatible within this zoning designation. The tank farms and marine terminal are also located in heavy industrial zones that are compatible with petroleum storage facilities. The Refinery is located within the Coastal Zone, as defined by the California Coastal Act. The California Coastal Commission has reviewed development in the past at the Refinery and has issued a number of coastal act permits and de minimus waivers.

Noise

Noise is a by-product of urbanization and there are numerous noise sources and receptors in an urban community. Noise is usually defined as unwanted sound. The Refinery, tank farms and terminal are subject to the noise ordinances of the City of Los Angeles Municipal. Chapter 3 provides estimates of the existing noise levels in the Wilmington area. The Refinery is surrounded by industrial facilities, commercial activities and transportation corridors. Major contributors to the ambient noise levels in the vicinity of the Refinery, tank farms and marine terminal include local railways, vehicular traffic, industrial facilities, construction activity and numerous port-related activities.

Solid/Hazardous Waste

The Refinery generates about 760 tons per year of material that is classified as hazardous waste. The hazardous waste disposal facilities within the state have about 59 years of life expectancy, based on their current levels of waste receipt. The Tank Farms and Marine Terminal can generate hazardous waste when the tanks are cleaned out. However, the Tank Farms have not been operating for the last few years so no hazardous waste has been generated by the Tank Farms in the last two years. A large portion of the Marine Terminal, including a number of storage tanks, has been closed due to lease negotiations with the Port of Los Angeles.

The Refinery also generates non-hazardous solid or municipal wastes that are disposed of in local landfills. The Tank Farms can generate non-hazardous waste through administrative activities, since small office buildings are located at the sites. However, the Tank Farms have not been operating for the last few years so no non-hazardous waste has been generated by the Tank Farms in the last two years. The Los Angeles County Sanitation Districts anticipates that landfill capacity in the county will be exceeded in the near future.

Transportation/Traffic

The transportation network in the Wilmington area includes roads, highways, freeways, railroads, airports, seaports, and intermodal terminals. Traffic counts including turn counts were taken in 2000 to determine the existing traffic in the area. The traffic analysis indicates typical urban traffic conditions in the area surrounding the Ultramar facilities, with most intersections operating at Level of Services A to B.

CHAPTER 4 SUMMARY - ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This section summarizes the environmental impacts, mitigation measures, and residual impacts associated with the proposed project that are analyzed in Chapter 4. Table 1-1 includes a brief description of the environmental resources that were identified as being potentially significant for the proposed project, potential environmental impacts prior to mitigation, proposed mitigation measures, and residual impacts remaining after mitigation. Impacts are divided into four classifications: Unavoidable Adverse Impacts, Potentially Significant but Mitigable Impacts, Less Than Significant Impacts, and Beneficial Impacts. Unavoidable adverse impacts are significant impacts that require a Statement of Findings pursuant to CEQA Guidelines §15091 and a Statement of Overriding Considerations pursuant to CEQA Guidelines §15093, before the proposed project can be approved. Potentially Significant but Mitigable Impacts are adverse impacts that can be feasibly mitigated to less than significant levels and which require that findings be made in accordance with the CEQA Guidelines §15091 if the proposed project is approved. Less than significant impacts may be adverse but do not exceed any significance threshold levels and do not require mitigation measures. Beneficial Impacts reduce existing environmental problems or hazards.

Unavoidable Significant Adverse Impacts

Air Quality:	Emissions of volatile organic compounds (VOCs), NOx, and PM10 from construction equipment will exceed mass daily emissions significance thresholds during project construction. Emissions of VOCs, NOx, sulfur oxides (SOx), and PM10 will exceed mass daily emission significance thresholds during project operation.
Hazards/Hazardous Materials	The potential for an accidental release of hazardous materials associated with modifications to several of the Refinery units and a storage tank farm have the potential to exceed the Emergency Response Planning Level 2 concentrations and are considered to be significant.

Less Than Significant Impacts

Air Quality:	CO and SOx emissions from the construction phase of the proposed project are expected to be less than significant. *CO emissions from the operational phase of the proposed project are expected to be less than significant.* During the operational phase of the project, ambient concentrations of criteria pollutants (as demonstrated through air quality modeling), carbon monoxide hot spots, emissions of toxic air contaminants and odors are expected to be less than significant.
Geology/Soils:	Adverse project impacts on topography, geological resources, soil contamination, and geological hazards are less than significant.
Hazards and Hazardous Materials:	The proposed project is expected to comply with applicable design codes and regulations, with National Fire Protection Association Standards, and with generally accepted industry practices. The proposed project impacts are expected to be less than significant for transportation hazards, pipeline hazards, and releases of hazardous materials to water bodies.
Hydrology/Water Quality:	The proposed project impacts on ground water resources, surface water, wastewater, and water demand are expected to be less than significant.

Land Use/Planning:	The proposed project complies with the applicable land use zoning ordinances and land use designations, and is compatible with the surrounding land uses. No significant impacts on land use are expected.
Noise:	Adverse noise impacts during the construction and operational phases are expected to be less than significant.
Solid/Hazardous Wastes:	The generation of solid/hazardous waste as part of the construction and/or operational phases of the proposed project are expected to be less than significant.
Transportation/ Traffic:	Adverse traffic impacts during the construction and operational phases are expected to be less than significant.

CHAPTER 5 SUMMARY - CUMULATIVE IMPACTS

A number of projects with the potential to have cumulative impacts with the proposed project were identified, including transportation projects related to the development of the Alameda Corridor and other refinery reformulated fuel projects. These projects and associated cumulative impacts relative to the proposed project are discussed in Chapter 5.

Unavoidable Significant Adverse Cumulative Impacts

Air Quality:	Cumulative emissions of CO, VOCs, NOx, SOx and PM10 from construction equipment will exceed mass daily emissions significance thresholds during project construction. Cumulative emissions of CO, VOCs, NOx, and SOx will exceed mass daily emission significance thresholds during project operation.

Less Than Significant Impacts

Air Quality:	During the operational phase of the project, the cumulative PM10 emissions are less than significant. Cumulative toxic air contaminants impacts are expected to be less than significant.
Geology/Soils:	Adverse cumulative impacts on topography, geological resources, soil contamination, and geological hazards are less than significant.
Hazards/Hazardous	The potential for an accidental release of hazardous

Materials	materials associated with modifications to several of the Refinery units and a storage tank farm have the potential to exceed the ERPG 2 concentrations and are considered to be significant. Sufficient distance exists between the Ultramar facilities and other projects to avoid cumulative impacts.
Hydrology/Water Quality:	The cumulative impacts on ground water resources, surface water, wastewater, and water demand are expected to be less than significant.
Land Use/Planning:	No significant cumulative impacts on land use and zoning are expected.
Noise:	Adverse cumulative noise impacts are expected due to the construction and operation of the Alameda Corridor and Port 2020 plan modifications. The noise impacts associated with the proposed Ultramar project and the other related projects are not expected to be significant or result in cumulative adverse noise impacts during construction or operation that would contribute to the Port 2020 Plan or Alameda Corridor cumulative noise impacts.
Solid/Hazardous Wastes:	The generation of solid/hazardous waste as part of the construction and/or operational phases of the cumulative projects are expected to be less than significant.
Transportation/ Traffic:	Adverse traffic impacts during the construction and operational phases are expected to be significant. for the construction of some of the Port projects and the Alameda Corridor modifications. Traffic impacts associated with general growth in the Wilmington area is expected to be significant. The traffic impacts associated with the related refinery projects are not expected to be significant or result in cumulative adverse traffic impacts during construction or operation that would contribute to the cumulative traffic impacts.

CHAPTER 6 SUMMARY - PROJECT ALTERNATIVES

This EIR identifies and compares the relative merits of a range of reasonable alternatives to the proposed project as required by the CEQA guidelines. According to the guidelines, alternatives should include realistic measures to attain the basic objectives of the proposed project and provide means for evaluating the comparative merits of each alternative. In addition, though the range of alternatives must be sufficient to permit a reasoned choice, they need not include every conceivable project alternative (CEQA Guidelines, §15126.6(a)). The key issue is whether the

selection and discussion of alternatives fosters informed decision making and public participation. PRC §21178(g) exempts projects that will enable the production of CARB RFG Phase 3 compliant fuels from the requirements of analyzing a No Project Alternative and alternative sites.

No alternatives were identified in the previously prepared 2001 Final EIR that would eliminate the potentially significant air quality and hazard impacts of the proposed project as compliance with the CARB Phase 3 requirements will require construction activities and modifications to the Refinery, Olympic Tank Farm, Marine Tank Farm, and the Marine Terminal. Alternatives evaluated in the previous Final EIR were developed by reviewing different methods to eliminate MTBE as an oxygenate. There are a number of other oxygenates besides MTBE and ethanol that could potentially be used in gasoline. However, with the Governor's ban on MTBE and the requirements of the CARB Phase 3 regulations (e.g., vapor pressure limitations), ethanol is the only oxygenate that can be used to replace MTBE at this time (CARB, 2000). Alternative transportation modes were evaluated but would not reduce or eliminate emissions associated with transportation.

Alternatives evaluated in this Subsequent EIR included alternative locations for the storage of petroleum products and alternatives to the transport of gasoline blending components. No feasible alternatives have been identified that would reduce the proposed project's environmental impacts to a less than significant level while achieving the project objectives. Consequently, the proposed project is considered the preferred alternative to ensure that Ultramar will be able to achieve all the objectives of the proposed project, which is to produce reformulated fuels as specified by state regulations, and minimize environmental impacts.

CHAPTERS 7 AND 8 SUMMARY – REFERENCES AND ACRONYMS AND GLOSSARY

Information on References cited (including organizations and persons consulted) and the acronyms and glossary are presented in Chapters 7 and 8, respectively.

TABLE 1-1

SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES AND RESIDUAL IMPACTS

IMPACT	MITIGATION MEASURES	RESIDUAL IMPACT
AIR QUALITY Construction activities will generate emissions of CO, VOCs, NOx and PM10 that are significant. The construction emissions of SOx and PM10 are less than significant.	Develop a Construction Emission Management Plan. The Plan shall include measures to minimize emissions from mobile sources including requiring measures to provide parking, scheduling truck deliveries, consolidating truck deliveries to avoid peak traffic hours, and limit idling to 10 minutes. Prohibit trucks from idling longer than 10 minutes at the Ultramar sites. Use electricity or alternate fuels for on-site mobile equipment instead of diesel equipment, where feasible. Maintain construction equipment tuned up and with two to four degree retard diesel engine timing. Use electric welders to avoid emissions from gas or diesel welders in portions of the Refinery, tank farms, and terminal, where electricity is available. Use on-site electricity rather than temporary power generators in portions of the Refinery, tank farms, and terminal, where electricity is available. Suspend all construction activities during first stage smog alerts.	Construction emissions are expected to remain significant for VOC, NOx and PM10.

TABLE 1-1

SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES AND RESIDUAL IMPACTS

IMPACT	MITIGATION MEASURES	RESIDUAL IMPACT
AIR QUALITY (CONT.)	Evaluate the feasibility of retrofitting large off-road construction equipment with pollution control equipment. Evaluate the feasibility of using alternative fuels in large off-road construction equipment that will be operating for significant periods. Use low sulfur diesel fuels where feasible. Use CARB-certified equipment for all construction equipment that requires CARB certification. The engine size of construction equipment shall be the minimum practical size. Develop a fugitive emission control plan. Minimize the use of paints at the facility and investigate the use of paints with a VOC content less than 3.5 lbs/gallon.	
Operational emissions of criteria pollutants are significant for VOC, NOx, SOx, and PM10.	Project emissions are controlled through the use of BACT (e.g., internal floating roof tanks, sealless pumps, bellow seal valves, etc.). No feasible mitigation measures for emissions from trucks, railcars and marine vessels were identified.	Mass daily emissions are expected to remain significant for CO, VOC, NOx, SOx, and PM10.
Operational emissions of CO are not significant.	*None required since there are no significant impacts.*	
The ambient concentrations of NOx, PM10, and CO from marine vessels at berth are below SCAQMD significance threshold levels and are less than significant.	None required since no significant impacts were identified.	Concentrations of NOx, PM10, and CO are less than significant.

TABLE 1-1

SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES AND RESIDUAL IMPACTS

IMPACT	MITIGATION MEASURES	RESIDUAL IMPACT
AIR QUALITY (CONT.)		
No significant adverse traffic impacts were identified at local intersections so no significant adverse increase in CO hot spots is expected.	None required since no significant impacts were identified.	CO hot spots are less than significant.
The project is consistent with the General Plan and is consistent with the Air Quality Management Plan so no significant adverse impacts are expected.	None required since no significant impacts were identified.	Impacts on the AQMP are less than significant.
The estimated cancer risk due to the operation of the proposed project is expected to be less than the significance criterion of 10 per million so that the project impacts are deemed to be less than significant.	None required since no significant impacts were identified.	Cancer risk impacts are less than significant.
The acute and chronic hazard indices due to operation of the proposed project are less than 1.0 and are deemed to be less than significant.	None required since no significant impacts were identified.	Non-carcinogenic (non-cancer) health impacts are less than significant.
Potential odor impacts from the proposed project are not expected to be significant.	None required since no significant impacts were identified.	Project impacts on odors are less than significant.
GEOLOGY		
No topographic changes are expected so impacts are less than significant.	None required since no significant impacts were identified.	Topographic impacts are less than significant.
No unique geological resources are present that could be disturbed by the proposed project. No significant adverse impacts are expected.	None required since no significant impacts were identified.	Impacts on geological resources are less than significant.

TABLE 1-1

SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES AND RESIDUAL IMPACTS

IMPACT	MITIGATION MEASURES	RESIDUAL IMPACT
GEOLOGY (CONT.)		
Soil erosion from wind or water could occur during construction activities but dust control measures are expected to minimize potential impacts.	See air quality mitigation measures.	Soil erosion impacts are less than significant.
Construction activities could uncover contaminated soils.	Any contaminated soils or ground water shall be addressed pursuant to local, state and federal regulations and requirements, including the U.S. EPA, DTSC, SCAQMD, and RWQCB. No mitigation measures were identified beyond the existing requirements.	Soil/water contamination impacts are less than significant due to regulatory compliance.
Compliance with Uniform Building Codes is expected to result in less than significant impacts.	Ultramar is required to obtain building permits, as applicable, for all new structures. No mitigation measures were identified beyond existing requirements.	Geological hazard impacts are less than significant.
HAZARDS AND HAZARDOUS MATERIALS		
Impacts associated with on-site releases are potentially significant.	None identified because of the extensive safety regulations. Ultramar will be required to update its Process Safety Management Program and Risk Management Program.	Hazard impacts are expected to remain potentially significant.
The proposed project impacts on water quality due to an accidental release are expected to be less than significant.	None required since no significant impacts were identified.	Hazard impacts on water quality are expected to be to less than significant.
The project is expected to increase the transport of petroleum products via truck or railcar. The impact from an accidental release is less than significant.	None required since no significant impacts were identified.	Hazard impacts due to transportation are less than significant.
The probability of a pipeline rupture is low for new pipelines so that no adverse significant impacts are expected.	None required since no significant impacts were identified.	The pipeline hazard impacts are less than significant.

TABLE 1-1

SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES AND RESIDUAL IMPACTS

IMPACT	MITIGATION MEASURES	RESIDUAL IMPACT
HYDROLOGY/WATER QUALITY		
The proposed project is not expected to degrade or deplete ground water resources so proposed project impacts are less than significant.	None required since no significant impacts were identified.	Project impacts on ground water are less than significant
The proposed project is not expected to result in an increase in surface water discharge so no significant adverse impacts are expected.	None required since no significant impacts were identified.	Project impacts on surface water discharge are less than significant.
The proposed project is not expected to result in an increase in wastewater discharge so that no significant adverse impacts are expected.	None required since no significant impacts were identified.	Project impacts on wastewater discharge are less than significant.
The proposed project is not expected to result in a significant increase in water demand.	None required since no significant impacts were identified.	Project impacts on water demand are less than significant.
LAND USE/PLANNING		
The proposed project complies with the land use and zoning requirements of the Cities of Los Angeles and Carson, Port of Los Angeles and the policies of the California Coastal Commission so that no significant adverse impacts are expected.	None required since no significant impacts were identified.	Project impacts on land use/planning are less than significant.
NOISE		
Construction noise levels are expected to be less than significant since noise increases would not exceed the noise levels identified in the noise ordinance for the local cities.	None required since no significant impacts were identified.	Construction noise is less than significant.
Operational noise is considered less than significant as the estimated noise increase is less than three dBA and within the noise levels established under the local cities noise ordinance.	None required since no significant impacts were identified.	Operational noise impacts are expected to be less than significant.

TABLE 1-1

SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES AND RESIDUAL IMPACTS

IMPACT	MITIGATION MEASURES	RESIDUAL IMPACT
SOLID/HAZARDOUS WASTE		
Construction activities will generate solid/hazardous wastes but sufficient landfill capacity exists to handle the increases so that no significant adverse impacts are expected.	None required since no significant impacts were identified.	Solid/hazardous waste impacts during construction are less than significant.
The proposed project is not expected to increase the generation of solid or hazardous waste during project operation so that no significant adverse impacts are expected.	None required since no significant impacts were identified.	Solid/hazardous waste impacts during project operation are less than significant.
TRANSPORTATION/CIRCULATION		
No significant change in the level of service (LOS) rating at any intersection is expected, so no significant adverse traffic impacts due to construct-ion of the proposed project are expected.	None required since no significant impacts were identified.	Traffic impacts during the construction phase are less than significant.
No significant change in the level of service (LOS) rating at any intersection is expected, so no significant adverse traffic impacts due to project operation are expected.	None required since no significant impacts were identified.	Traffic impacts due to operation of the proposed project are less than significant.

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APPENDIX B

CURRENTLY PROPOSED PROJECT EMISSIONS CALCULATIONS

Appendix B
Valero Olympic Tank Farm
New Tank Project
Construction Emission Summary

	Year 1				Year 2												Year 3
Emissions from Equipment	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
CO (lb/day)	25.45	32.06	33.04	66.05	50.69	50.35	54.69	63.38	68.24	73.82	73.82	63.38	63.38	59.04	37.22	29.91	9.32
NOx (lb/day)	49.15	61.46	63.06	120.82	90.42	91.36	102.97	126.19	134.22	143.43	143.43	126.19	126.19	114.58	71.25	53.84	15.42
VOC (lb/day)	6.56	8.45	8.68	19.48	14.42	15.29	16.56	19.11	20.44	22.39	22.39	19.11	19.11	17.84	11.44	9.30	2.63
SOx (lb/day)	0.04	0.06	0.06	0.12	0.09	0.09	0.10	0.13	0.14	0.14	0.14	0.13	0.13	0.12	0.07	0.05	0.02
PM10 (lb/day)	2.99	3.90	3.99	8.37	6.23	6.70	7.21	8.24	8.88	9.62	9.62	8.24	8.24	7.73	4.78	3.91	1.19
CO_2 (lb/day)	4090.85	5165.28	5333.81	10184.51	8000.45	8178.78	9210.44	11273.76	12044.57	12847.72	12847.72	11273.76	11273.76	10242.10	6375.76	4793.53	1346.58

	Year 1				Year 2												Year 3
Emission from Trips	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
CO (lb/day)	4.02	5.91	6.42	6.20	5.42	9.45	9.45	11.84	11.84	12.73	10.33	9.45	5.72	5.72	3.53	1.90	1.07
NOx (lb/day)	2.57	3.09	3.79	2.79	2.57	10.69	10.69	18.34	18.34	19.33	11.68	10.69	2.90	2.90	2.06	0.51	0.11
VOC (lb/day)	0.49	0.69	0.78	0.71	0.66	1.46	1.46	2.06	2.06	2.19	1.58	1.46	0.70	0.70	0.44	0.22	0.11
SOx (lb/day)	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.02	0.02	0.01	0.01	0.00	0.00	0.00
PM10 (lb/day)	0.40	0.52	0.89	0.51	0.50	5.01	5.01	9.40	9.40	9.54	5.15	5.01	0.55	0.55	0.36	0.14	0.06
Exhuast PM (lb/day)	0.10	0.13	0.16	0.12	0.12	0.51	0.51	0.87	0.87	0.91	0.54	0.51	0.13	0.13	0.09	0.03	0.01
Fugitive PM (lb/day)	0.30	0.39	0.73	0.39	0.39	4.51	4.51	8.53	8.53	8.63	4.61	4.51	0.42	0.42	0.28	0.11	0.05
CO_2 (lb/day)	502.26	723.98	826.58	750.72	750.80	1815.17	1815.17	2658.01	2658.01	2789.28	1946.45	1815.17	794.56	794.56	494.15	256.65	142.63

	Year 1				Year 2												Year 3
Fugitive PM	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
PM10 (lb/day)[1]	19.29	19.29	19.29	19.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Year 1				Year 2												Year 3
Paint	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
VOC (lb/day)[1]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.08	11.08	11.08	11.08	11.08	11.08	11.08	11.08

		Year 1				Year 2												Year 3
Total Emissions	**Thresholds**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
CO (lb/day)	550	29.47	37.97	39.46	72.26	56.12	59.80	64.14	75.22	80.08	86.55	84.16	72.83	69.10	64.76	40.74	31.81	10.39
NOx (lb/day)	100	51.72	64.55	66.85	123.61	92.99	102.05	113.66	144.53	152.56	162.76	155.12	136.89	129.09	117.48	73.31	54.35	15.52
VOC (lb/day)	75	7.05	9.14	9.45	20.20	15.08	16.74	18.02	21.18	22.50	35.66	35.05	31.65	30.89	29.62	22.96	20.60	13.82
SOx (lb/day)	150	0.05	0.06	0.07	0.12	0.10	0.11	0.12	0.15	0.16	0.17	0.16	0.14	0.13	0.12	0.08	0.06	0.02
PM10 (lb/day)[1]	150	22.68	23.71	24.17	28.16	6.74	11.71	12.23	17.64	18.28	19.16	14.77	13.25	8.79	8.27	5.15	4.05	1.25
PM2.5 (lb/day)[2]	55	14.09	14.97	15.15	19.07	5.92	7.44	7.91	9.91	10.49	11.22	10.17	8.86	7.78	7.31	4.54	3.65	1.11
CO_2 (lb/day)	NA	4593.10	5889.26	6160.40	10935.23	8751.25	9993.96	11025.62	13931.77	14702.58	15637.01	14794.17	13088.94	12068.32	11036.66	6869.91	5050.18	1489.21
CO_2 (metric tons/year)					281.46												1397.71	

(1) Mitigated PM.

(2) https://www.aqmd.gov/ceqa/handbook/PM2_5/pm2_5ratio.xls

Appendix B
Valero Olympic Tank Farm
New Tank Project
Construction Equipment Emission Rates

Equipment Type		2009 Emission Factors lb/hr[1]							
	Hp	VOC	CO	NOx	SOx	PM10	CO_2	CH_4	CO_{2EQ}
Air Compressor	Composite	0.1180	0.3699	0.7664	0.0007	0.0547	63.6073	0.0106	63.8308
Backhoe	Composite	0.1109	0.3993	0.7227	0.0008	0.0559	66.8058	0.0100	67.0159
Bobcat	Composite	0.1109	0.3993	0.7227	0.0008	0.0559	66.8058	0.0100	67.0159
Compactor plate	Composite	0.0051	0.0263	0.0321	0.0001	0.0018	4.3138	0.0005	4.3234
Concrete Pumper	Composite	0.0991	0.3147	0.5779	0.0006	0.0410	49.6067	0.0089	49.7944
Crane	Composite	0.1683	0.5705	1.5293	0.0014	0.0678	128.6611	0.0152	128.9801
Dozer	Composite	0.3508	1.5020	3.1254	0.0025	0.1347	239.1035	0.0316	239.7681
Forklift (Off Road)	Composite	0.1368	0.4815	0.8505	0.0008	0.0719	70.2808	0.0123	70.5399
Front End Loader	Composite	0.1109	0.3993	0.7227	0.0008	0.0559	66.8058	0.0100	67.0159
Generator	Composite	0.1020	0.3378	0.6718	0.0007	0.0414	60.9927	0.0092	61.1860
Light plants	Composite	0.0234	0.0959	0.1678	0.0002	0.0096	16.6983	0.0021	16.7426
Manlift	Composite	0.0710	0.2149	0.3748	0.0004	0.0259	34.7217	0.0064	34.8562
Paver	Composite	0.1867	0.5756	1.0321	0.0009	0.0739	77.9354	0.0168	78.2892
Roller (Vibratory Sheep's Foot)	Composite	0.1250	0.4272	0.8166	0.0008	0.0574	67.0521	0.0113	67.2890
Saw cutter	Composite	0.1363	0.4340	0.6906	0.0007	0.0581	58.4636	0.0123	58.7220
Welder (Diesel)	Composite	0.0847	0.2281	0.3015	0.0003	0.0280	25.6027	0.0076	25.7631

Equipment Type		2010 Emission Factors lb/hr[1]							
	Hp	VOC	CO	NOx	SOx	PM10	CO_2	CH_4	CO_{2EQ}
Air Compressor	Composite	0.1120	0.3613	0.7320	0.0007	0.0526	63.6073	0.0101	63.8196
Backhoe	Composite	0.1021	0.3930	0.6747	0.0008	0.0521	66.8051	0.0092	66.9984
Bobcat	Composite	0.1021	0.3930	0.6747	0.0008	0.0521	66.8051	0.0092	66.9984
Compactor plate	Composite	0.0050	0.0263	0.0317	0.0001	0.0015	4.3138	0.0005	4.3234
Concrete Pumper	Composite	0.0936	0.3096	0.5545	0.0006	0.0393	49.6066	0.0084	49.7841
Crane	Composite	0.1594	0.5431	1.4515	0.0014	0.0642	128.6554	0.0144	128.9575
Dozer	Composite	0.3379	1.4127	2.9891	0.0025	0.1288	239.1015	0.0305	239.7416
Forklift (Off Road)	Composite	0.1272	0.4766	0.7988	0.0008	0.0678	70.2808	0.0115	70.5218
Front End Loader	Composite	0.1021	0.3930	0.6747	0.0008	0.0521	66.8051	0.0092	66.9984
Generator	Composite	0.0961	0.3293	0.6440	0.0007	0.0396	60.9927	0.0087	61.1748
Light plants	Composite	0.0224	0.0953	0.1615	0.0002	0.0091	16.6983	0.0020	16.7408
Manlift	Composite	0.0670	0.2093	0.3600	0.0004	0.0248	34.7217	0.0060	34.8486
Paver	Composite	0.1774	0.5644	0.9868	0.0009	0.0709	77.9351	0.0160	78.2712
Roller (Vibratory Sheep's Foot)	Composite	0.1176	0.4212	0.7749	0.0008	0.0547	67.0525	0.0106	67.2754
Saw cutter	Composite	0.1270	0.4273	0.6566	0.0007	0.0552	58.4636	0.0115	58.7043
Welder (Diesel)	Composite	0.0805	0.2246	0.2920	0.0003	0.0270	25.6027	0.0073	25.7552

Equipment Type		2011 Emission Factors lb/hr[1]							
	Hp	VOC	CO	NOx	SOx	PM10	CO_2	CH_4	CO_{2EQ}
Air Compressor	Composite	0.1054	0.3524	0.6923	0.0007	0.0501	63.6073	0.0095	63.8070
Backhoe	Composite	0.0938	0.3874	0.6276	0.0008	0.0482	66.8041	0.0085	66.9819
Bobcat	Composite	0.0938	0.3874	0.6276	0.0008	0.0482	66.8041	0.0085	66.9819
Compactor plate	Composite	0.0050	0.0263	0.0315	0.0001	0.0013	4.3138	0.0005	4.3233
Concrete Pumper	Composite	0.0877	0.3040	0.5285	0.0006	0.0375	49.6066	0.0079	49.7729
Crane	Composite	0.1507	0.5179	1.3617	0.0014	0.0599	128.6501	0.0136	128.9357
Dozer	Composite	0.3244	1.3284	2.8346	0.0025	0.1212	239.0995	0.0293	239.7143
Forklift (Off Road)	Composite	0.1181	0.4721	0.7494	0.0008	0.0638	70.2808	0.0107	70.5046
Front End Loader	Composite	0.0938	0.3874	0.6276	0.0008	0.0482	66.8041	0.0085	66.9819
Generator	Composite	0.0898	0.3204	0.6121	0.0007	0.0376	60.9927	0.0081	61.1629
Light plants	Composite	0.0214	0.0946	0.1545	0.0002	0.0087	16.6983	0.0019	16.7388
Manlift	Composite	0.0624	0.2033	0.3429	0.0004	0.0235	34.7217	0.0056	34.8400
Paver	Composite	0.1684	0.5541	0.9421	0.0009	0.0679	77.9347	0.0152	78.2538
Roller (Vibratory Sheep's Foot)	Composite	0.1106	0.4157	0.7342	0.0008	0.0521	67.0533	0.0100	67.2628
Saw cutter	Composite	0.1179	0.4209	0.6240	0.0007	0.0525	58.4636	0.0106	58.6871
Welder (Diesel)	Composite	0.0758	0.2203	0.2818	0.0003	0.0258	25.6027	0.0068	25.7463

(1) SCAQMD, 2006 : http://www.aqmd.gov/ceqa/handbook/offroad/offroadEF07_25.xls

(2) Carbon Dioxide Equivalents (CO_E) = CO_2 + 21 * CH_4

Appendix B
Valero Olympic Tank Farm
New Tank Project
Construction Equipment Emissions

		Year 1				Year 2												Year 3
Equipment	**Hours (hr/day)**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Air Compressor	9				2	2	4	4	4	4	5	5	4	4	4	2	2	
Backhoe	8	1	1	1	1	1				1	1	1						
Bobcat	8	1	2	2	2	1												
Compactor plate	8			1	1													
Concrete Pumper	6				2													
Crane	8						1	2	4	4	4	4	4	4	3	2	1	
Dozer	8	1	1	1	1	1												
Forklift (Off Road)	8	1	1	1	2	3	4	4	4	4	4	4	4	4	4	2	2	1
Front End Loader	8	1	1	1	1													
Generator	9				1	1	1	1	1	1	1	1	1	1	1	1		
Light plants	2			4	4	4												
Manlift	8				1	2	4	4	4	4	4	4	4	4	4	2	2	
Paver	10				1													1
Roller (Vibratory Sheep's Foot)	8		1	1	1													
Saw cutter	4									1								
Welder (Diesel)	9				4	4	4	4	4	4	6	6	4	4	4	4	4	

	Emission Rate (lb/hr)			Year 1				Year 2												Year 3
VOC	**2009**	**2010**	**2011**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Air Compressor	0.118	0.112	0.105	0.00	0.00	0.00	2.12	2.02	4.03	4.03	4.03	4.03	5.04	5.04	4.03	4.03	4.03	2.02	2.02	0.00
Backhoe	0.111	0.102	0.094	0.89	0.89	0.89	0.89	0.82	0.00	0.00	0.00	0.82	0.82	0.82	0.00	0.00	0.00	0.00	0.00	0.00
Bobcat	0.111	0.102	0.094	0.89	1.77	1.77	1.77	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Compactor plate	0.005	0.005	0.005	0.00	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Concrete Pumper	0.099	0.094	0.088	0.00	0.00	0.00	1.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crane	0.168	0.159	0.151	0.00	0.00	0.00	0.00	0.00	1.28	2.55	5.10	5.10	5.10	5.10	5.10	5.10	3.83	2.55	1.28	0.00
Dozer	0.351	0.338	0.324	2.81	2.81	2.81	2.81	2.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forklift (Off Road)	0.137	0.127	0.118	1.09	1.09	1.09	2.19	3.05	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07	4.07	2.04	2.04	0.94
Front End Loader	0.111	0.102	0.094	0.89	0.89	0.89	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generator	0.102	0.096	0.090	0.00	0.00	0.00	0.92	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.00	0.00
Light plants	0.023	0.022	0.021	0.00	0.00	0.19	0.19	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlift	0.071	0.067	0.062	0.00	0.00	0.00	0.57	1.07	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	1.07	1.07	0.00
Paver	0.187	0.177	0.168	0.00	0.00	0.00	1.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68
Roller (Vibratory Sheep's Foot)	0.125	0.118	0.111	0.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Saw cutter	0.136	0.127	0.118	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welder (Diesel)	0.085	0.081	0.076	0.00	0.00	0.00	3.05	2.90	2.90	2.90	2.90	2.90	4.35	4.35	2.90	2.90	2.90	2.90	2.90	0.00
Total				6.56	8.45	8.68	19.48	14.42	15.29	16.56	19.11	20.44	22.39	22.39	19.11	19.11	17.84	11.44	9.30	2.63

	Emission Rate (lb/hr)			Year 1				Year 2												Year 3
CO	**2009**	**2010**	**2011**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Air Compressor	0.370	0.361	0.352	0.00	0.00	0.00	6.66	6.50	13.01	13.01	13.01	13.01	16.26	16.26	13.01	13.01	13.01	6.50	6.50	0.00
Backhoe	0.399	0.393	0.387	3.19	3.19	3.19	3.19	3.14	0.00	0.00	0.00	3.14	3.14	3.14	0.00	0.00	0.00	0.00	0.00	0.00
Bobcat	0.399	0.393	0.387	3.19	6.39	6.39	6.39	3.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Compactor plate	0.026	0.026	0.026	0.00	0.00	0.21	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Concrete Pumper	0.315	0.310	0.304	0.00	0.00	0.00	3.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crane	0.571	0.543	0.518	0.00	0.00	0.00	0.00	0.00	4.35	8.69	17.38	17.38	17.38	17.38	17.38	17.38	13.04	8.69	4.35	0.00
Dozer	1.502	1.413	1.328	12.02	12.02	12.02	12.02	11.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forklift (Off Road)	0.482	0.477	0.472	3.85	3.85	3.85	7.70	11.44	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	15.25	7.63	7.63	3.78
Front End Loader	0.399	0.393	0.387	3.19	3.19	3.19	3.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generator	0.338	0.329	0.320	0.00	0.00	0.00	3.04	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	0.00	0.00
Light plants	0.096	0.095	0.095	0.00	0.00	0.77	0.77	0.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlift	0.215	0.209	0.203	0.00	0.00	0.00	1.72	3.35	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	3.35	3.35	0.00
Paver	0.576	0.564	0.554	0.00	0.00	0.00	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54
Roller (Vibratory Sheep's Foot)	0.427	0.421	0.416	0.00	3.42	3.42	3.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Saw cutter	0.434	0.427	0.421	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welder (Diesel)	0.228	0.225	0.220	0.00	0.00	0.00	8.21	8.08	8.08	8.08	8.08	8.08	12.13	12.13	8.08	8.08	8.08	8.08	8.08	0.00
Total				25.45	32.06	33.04	66.05	50.69	50.35	54.69	63.38	68.24	73.82	73.82	63.38	63.38	59.04	37.22	29.91	9.32

	Emission Rate (lb/hr)			Year 1				Year 2												Year 3
NOX	**2009**	**2010**	**2011**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Air Compressor	0.766	0.732	0.692	0.00	0.00	0.00	13.79	13.18	26.35	26.35	26.35	26.35	32.94	32.94	26.35	26.35	26.35	13.18	13.18	0.00
Backhoe	0.723	0.675	0.628	5.78	5.78	5.78	5.78	5.40	0.00	0.00	0.00	5.40	5.40	5.40	0.00	0.00	0.00	0.00	0.00	0.00
Bobcat	0.723	0.675	0.628	5.78	11.56	11.56	11.56	5.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Compactor plate	0.032	0.032	0.032	0.00	0.00	0.26	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Concrete Pumper	0.578	0.554	0.529	0.00	0.00	0.00	6.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crane	1.529	1.451	1.362	0.00	0.00	0.00	0.00	0.00	11.61	23.22	46.45	46.45	46.45	46.45	46.45	46.45	34.84	23.22	11.61	0.00
Dozer	3.125	2.989	2.835	25.00	25.00	25.00	25.00	23.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forklift (Off Road)	0.851	0.799	0.749	6.80	6.80	6.80	13.61	19.17	25.56	25.56	25.56	25.56	25.56	25.56	25.56	25.56	25.56	12.78	12.78	5.99
Front End Loader	0.723	0.675	0.628	5.78	5.78	5.78	5.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generator	0.672	0.644	0.612	0.00	0.00	0.00	6.05	5.80	5.80	5.80	5.80	5.80	5.80	5.80	5.80	5.80	5.80	5.80	0.00	0.00
Light plants	0.168	0.161	0.155	0.00	0.00	1.34	1.34	1.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlift	0.375	0.360	0.343	0.00	0.00	0.00	3.00	5.76	11.52	11.52	11.52	11.52	11.52	11.52	11.52	11.52	11.52	5.76	5.76	0.00
Paver	1.032	0.987	0.942	0.00	0.00	0.00	10.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.42
Roller (Vibratory Sheep's Foot)	0.817	0.775	0.734	0.00	6.53	6.53	6.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Saw cutter	0.691	0.657	0.624	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welder (Diesel)	0.301	0.292	0.282	0.00	0.00	0.00	10.85	10.51	10.51	10.51	10.51	10.51	15.77	15.77	10.51	10.51	10.51	10.51	10.51	0.00
Total				49.15	61.46	63.06	120.82	90.42	91.36	102.97	126.19	134.22	143.43	143.43	126.19	126.19	114.58	71.25	53.84	15.42

Appendix A
Valero Olympic Tank Farm
New Tank Project
Construction Equipment Emissions

	Emission Rate (lb/hr)			Year 1				Year 2												Year 3
SOx	**2009**	**2010**	**2011**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Air Compressor	0.001	0.001	0.001	0.00	0.00	0.00	0.01	0.01	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.01	0.01	0.00
Backhoe	0.001	0.001	0.001	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Bobcat	0.001	0.001	0.001	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Compactor plate	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Concrete Pumper	0.001	0.001	0.001	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crane	0.001	0.001	0.001	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.02	0.01	0.00
Dozer	0.002	0.002	0.002	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forklift (Off Road)	0.001	0.001	0.001	0.01	0.01	0.01	0.01	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.01	0.01	0.01
Front End Loader	0.001	0.001	0.001	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generator	0.001	0.001	0.001	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00
Light plants	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlift	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Paver	0.001	0.001	0.001	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Roller (Vibratory Sheep's Foot)	0.001	0.001	0.001	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Saw cutter	0.001	0.001	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welder (Diesel)	0.000	0.000	0.000	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.00
Total				0.04	0.06	0.06	0.12	0.09	0.09	0.10	0.13	0.14	0.14	0.14	0.13	0.13	0.12	0.07	0.05	0.02

	Emission Rate (lb/hr)			Year 1				Year 2												Year 3
PM10	**2009**	**2010**	**2011**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Air Compressor	0.055	0.053	0.050	0.00	0.00	0.00	0.98	0.95	1.90	1.90	1.90	1.90	2.37	2.37	1.90	1.90	1.90	0.95	0.95	0.00
Backhoe	0.056	0.052	0.048	0.45	0.45	0.45	0.45	0.42	0.00	0.00	0.00	0.42	0.42	0.42	0.00	0.00	0.00	0.00	0.00	0.00
Bobcat	0.056	0.052	0.048	0.45	0.89	0.89	0.89	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Compactor plate	0.002	0.002	0.001	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Concrete Pumper	0.041	0.039	0.038	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crane	0.068	0.064	0.060	0.00	0.00	0.00	0.00	0.00	0.51	1.03	2.05	2.05	2.05	2.05	2.05	2.05	1.54	1.03	0.51	0.00
Dozer	0.135	0.129	0.121	1.08	1.08	1.08	1.08	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forklift (Off Road)	0.072	0.068	0.064	0.57	0.57	0.57	1.15	1.63	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	1.08	1.08	0.51
Front End Loader	0.056	0.052	0.048	0.45	0.45	0.45	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generator	0.041	0.040	0.038	0.00	0.00	0.00	0.37	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.00	0.00
Light plants	0.010	0.009	0.009	0.00	0.00	0.08	0.08	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlift	0.026	0.025	0.023	0.00	0.00	0.00	0.21	0.40	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.40	0.40	0.00
Paver	0.074	0.071	0.068	0.00	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68
Roller (Vibratory Sheep's Foot)	0.057	0.055	0.052	0.00	0.46	0.46	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Saw cutter	0.058	0.055	0.052	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welder (Diesel)	0.028	0.027	0.026	0.00	0.00	0.00	1.01	0.97	0.97	0.97	0.97	0.97	1.46	1.46	0.97	0.97	0.97	0.97	0.97	0.00
Total				2.99	3.90	3.99	8.37	6.23	6.70	7.21	8.24	8.88	9.62	9.62	8.24	8.24	7.73	4.78	3.91	1.19

	Emission Rate (lb/hr)			Year 1				Year 2												Year 3
CO2EQ	**2009**	**2010**	**2011**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Air Compressor	63.831	63.820	63.807	0.00	0.00	0.00	1148.95	1148.75	2297.51	2297.51	2297.51	2297.51	2871.88	2871.88	2297.51	2297.51	2297.51	1148.75	1148.75	0.00
Backhoe	67.016	66.998	66.982	536.13	536.13	536.13	536.13	535.99	0.00	0.00	0.00	535.99	535.99	535.99	0.00	0.00	0.00	0.00	0.00	0.00
Bobcat	67.016	66.998	66.982	536.13	1072.25	1072.25	1072.25	535.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Compactor plate	4.323	4.323	4.323	0.00	0.00	34.59	34.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Concrete Pumper	49.794	49.784	49.773	0.00	0.00	0.00	597.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crane	128.980	128.958	128.936	0.00	0.00	0.00	0.00	0.00	1031.66	2063.32	4126.64	4126.64	4126.64	4126.64	4126.64	4126.64	3094.98	2063.32	1031.66	0.00
Dozer	239.768	239.742	239.714	1918.14	1918.14	1918.14	1918.14	1917.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forklift (Off Road)	70.540	70.522	70.505	564.32	564.32	564.32	1128.64	1692.52	2256.70	2256.70	2256.70	2256.70	2256.70	2256.70	2256.70	2256.70	2256.70	1128.35	1128.35	564.04
Front End Loader	67.016	66.998	66.982	536.13	536.13	536.13	536.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generator	61.186	61.175	61.163	0.00	0.00	0.00	550.67	550.57	550.57	550.57	550.57	550.57	550.57	550.57	550.57	550.57	550.57	550.57	0.00	0.00
Light plants	16.743	16.741	16.739	0.00	0.00	133.94	133.94	133.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlift	34.856	34.849	34.840	0.00	0.00	0.00	278.85	557.58	1115.16	1115.16	1115.16	1115.16	1115.16	1115.16	1115.16	1115.16	1115.16	557.58	557.58	0.00
Paver	78.289	78.271	78.254	0.00	0.00	0.00	782.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	782.54
Roller (Vibratory Sheep's Foot)	67.289	67.275	67.263	0.00	538.31	538.31	538.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Saw cutter	58.722	58.704	58.687	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	234.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welder (Diesel)	25.763	25.755	25.746	0.00	0.00	0.00	927.47	927.19	927.19	927.19	927.19	927.19	1390.78	1390.78	927.19	927.19	927.19	927.19	927.19	0.00
Total				4090.85	5165.28	5333.81	10184.51	8000.45	8178.78	9210.44	11273.76	12044.57	12847.72	12847.72	11273.76	11273.76	10242.10	6375.76	4793.53	1346.58

Appendix B
Valero Olympic Tank Farm
New Tank Project
Onsite Construction Vehicle Trip Emissions

		Year 1				Year 2												Year 3
Vehicle	**Miles per Day**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Commuters	32.4																	
Pickup Trucks	16	2	2	4	6	6	6	6	6	6	6	6	6	6	6	4	2	2
Total Light Vehicle Miles		32	32	64	96	96	96	96	96	96	96	96	96	96	96	64	32	32
Flatbed Truck	16	1	1	1	1	2	3	3	3	3	3	3	3	3	3	2	1	
Boom Truck	16										2	2						
Vac Truck	16		1	1							1	1						
Delivery Truck	50																	
Dump Truck	16	1	1	1	1													
Fuel Truck	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Water Truck	16	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Total Medium Truck Miles		56	72	72	56	56	72	72	72	72	120	120	72	72	72	40	16	0
Semi Tractor	50																	
Concrete Truck	16			1														
Total Heavy Truck Miles		0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Emission Rate (lb/mi)[1]			Year 1				Year 2												Year 3
VOC	**2009**	**2010**	**2011**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Light Duty	0.0009925	0.0009140	0.0008523	0.03	0.03	0.06	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.06	0.03	0.03
Medium Duty	0.0027890	0.0025896	0.0024187	0.16	0.20	0.20	0.16	0.15	0.19	0.19	0.19	0.19	0.31	0.31	0.19	0.19	0.19	0.10	0.04	0.00
Heavy Duty	0.0032932	0.0030416	0.0027954	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total				0.19	0.23	0.32	0.25	0.23	0.27	0.27	0.27	0.27	0.40	0.40	0.27	0.27	0.27	0.16	0.07	0.03

	Emission Rate (lb/mi)[1]			Year 1				Year 2												Year 3
CO	**2009**	**2010**	**2011**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Light Duty	0.0096856	0.0082628	0.0082628	0.31	0.31	0.62	0.93	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.53	0.26	0.26
Medium Duty	0.0201608	0.0184376	0.0169324	1.13	1.45	1.45	1.13	1.03	1.33	1.33	1.33	1.33	2.21	2.21	1.33	1.33	1.33	0.74	0.30	0.00
Heavy Duty	0.0128224	0.0119546	0.0111246	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total				1.44	1.76	2.28	2.06	1.83	2.12	2.12	2.12	2.12	3.01	3.01	2.12	2.12	2.12	1.27	0.56	0.26

	Emission Rate (lb/mi)[1]			Year 1				Year 2												Year 3
NOx	**2009**	**2010**	**2011**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Light Duty	0.0010052	0.0009181	0.0008446	0.03	0.03	0.06	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.06	0.03	0.03
Medium Duty	0.0223664	0.0206246	0.0189337	1.25	1.61	1.61	1.25	1.15	1.48	1.48	1.48	1.48	2.47	2.47	1.48	1.48	1.48	0.82	0.33	0.00
Heavy Duty	0.0418459	0.0382210	0.0345581	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total				1.28	1.64	2.34	1.35	1.24	1.57	1.57	1.57	1.57	2.56	2.56	1.57	1.57	1.57	0.88	0.36	0.03

	Emission Rate (lb/mi)[1]			Year 1				Year 2												Year 3
SOx	**2009**	**2010**	**2011**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Light Duty	0.0000107	0.0000108	0.0000108	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0000268	0.0000270	0.0000273	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000401	0.0000413	0.0000397	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Emission Rate (lb/mi)[1]			Year 1				Year 2												Year 3
PM10	**2009**	**2010**	**2011**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Light Duty Exhaust	0.0000860	0.0000870	0.0000888	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00
Medium Duty Exhaust	0.0008055	0.0007512	0.0007010	0.05	0.06	0.06	0.05	0.04	0.05	0.05	0.05	0.05	0.09	0.09	0.05	0.05	0.05	0.03	0.01	0.00
Heavy Duty Exhaust	0.0019957	0.0018306	0.0016609	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Exhaust PM				0.05	0.06	0.10	0.05	0.05	0.06	0.06	0.06	0.06	0.10	0.10	0.06	0.06	0.06	0.04	0.01	0.00
Light Duty Fugitive[2]	0.00038589			0.01	0.01	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.01	0.01
Medium Duty Fugitve[2]	0.00210368			0.12	0.15	0.15	0.12	0.12	0.15	0.15	0.15	0.15	0.25	0.25	0.15	0.15	0.15	0.08	0.03	0.00
Heavy Duty Fugitive[2]	0.02011945			0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Fugitive PM				0.13	0.16	0.50	0.15	0.15	0.19	0.19	0.19	0.19	0.29	0.29	0.19	0.19	0.19	0.11	0.05	0.01
Total				0.18	0.22	0.59	0.21	0.21	0.25	0.25	0.25	0.25	0.39	0.39	0.25	0.25	0.25	0.14	0.06	0.02

	Emission Rate (lb/mi)[3]			Year 1				Year 2												Year 3
CO_{2EQ}	**2009**	**2010**	**2011**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Light Duty	1.099	1.097	1.104	35.18	35.18	70.36	105.54	105.35	105.35	105.35	105.35	105.35	105.35	105.35	105.35	105.35	105.35	70.23	35.12	35.33
Medium Duty	2.726	2.735	2.754	152.67	196.28	196.28	152.67	153.15	196.91	196.91	196.91	196.91	328.18	328.18	196.91	196.91	196.91	109.39	43.76	0.00
Heavy Duty	4.214	4.214	4.223	0.00	0.00	67.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total				187.85	231.47	334.07	258.21	258.50	302.26	302.26	302.26	302.26	433.53	433.53	302.26	302.26	302.26	179.63	78.87	35.33

(1) Based on 2007 SCAQMD on-road emission rates. (http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html)

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, December 2003

$E = k(sL/2)^{0.65} \times (W/3)^{1.5} - C$

Where: k = 0.016 lb/VMT for PM10, sL = road silt loading (gms/m2) from CARB Methodology 7.9 for paved roads (0.240 for local roads and 0.037 for major/collector roads), W = weight of vehicles (2.4 tons for light; 5 for medium trucks, and 20 for heavy trucks), and C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear (0.00047 lbs/VMT).

(3) Carbon Dioxide Equivalence (CO_{2E}) = $CO_2 + CH_4 * 21$

	Light			Medium			Heavy		
Chemical	**2009**	**2010**	**2011**	**2009**	**2010**	**2011**	**2009**	**2010**	**2011**
CO_2	1.0976	1.0957	1.1024	2.7233	2.7322	2.7518	4.2108	4.2112	4.2205
CH_4	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001
CO_E	1.099	1.097	1.104	2.726	2.735	2.754	4.214	4.214	4.223

Appendix B
Valero Olympic Tank Farm
New Tank Project
Offsite Construction Vehicle Trip Emissions

		Year 1				Year 2												Year 3
Vehicle	**Miles per Day**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Commuters	32.4	5	10	10	10	10	15	15	15	15	15	15	15	10	10	5	5	3
Pickup Trucks	16																	
Total Light Vehicle Miles		162	324	324	324	324	486	486	486	486	486	486	486	324	324	162	162	97.2
Flatbed Truck	16																	
Boom Truck	16																	
Vac Truck	16																	
Delivery Truck	50	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Dump Truck	16																	
Fuel Truck	8																	
Water Truck	16																	
Total Medium Truck Miles		50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	0	0
Semi Tractor	50						4	4	8	8	8	4	4					
Concrete Truck	16																	
Total Heavy Truck Miles		0	0	0	0	0	200	200	400	400	400	200	200	0	0	0	0	0

	Emission Rate (lb/mi)[1]			Year 1				Year 2												Year 3
VOC	**2009**	**2010**	**2011**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Light Duty	0.0009925	0.0009140	0.0008523	0.16	0.32	0.32	0.32	0.30	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.30	0.30	0.15	0.15	0.08
Medium Duty	0.0027890	0.0025896	0.0024187	0.14	0.14	0.14	0.14	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.00	0.00
Heavy Duty	0.0032932	0.0030416	0.0027954	0.00	0.00	0.00	0.00	0.00	0.61	0.61	1.22	1.22	1.22	0.61	0.61	0.00	0.00	0.00	0.00	0.00
Total				0.30	0.46	0.46	0.46	0.43	1.18	1.18	1.79	1.79	1.79	1.18	1.18	0.43	0.43	0.28	0.15	0.08

	Emission Rate (lb/mi)[1]			Year 1				Year 2												Year 3
CO	**2009**	**2010**	**2011**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Light Duty	0.0096856	0.0082628	0.0082628	1.57	3.14	3.14	3.14	2.68	4.02	4.02	4.02	4.02	4.02	4.02	4.02	2.68	2.68	1.34	1.34	0.80
Medium Duty	0.0201608	0.0184376	0.0169324	1.01	1.01	1.01	1.01	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.00	0.00
Heavy Duty	0.0128224	0.0119546	0.0111246	0.00	0.00	0.00	0.00	0.00	2.39	2.39	4.78	4.78	4.78	2.39	2.39	0.00	0.00	0.00	0.00	0.00
Total				2.58	4.15	4.15	4.15	3.60	7.33	7.33	9.72	9.72	9.72	7.33	7.33	3.60	3.60	2.26	1.34	0.80

	Emission Rate (lb/mi)[1]			Year 1				Year 2												Year 3
NOx	**2009**	**2010**	**2011**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Light Duty	0.0010052	0.0009181	0.0008446	0.16	0.33	0.33	0.33	0.30	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.30	0.30	0.15	0.15	0.08
Medium Duty	0.0223664	0.0206246	0.0189337	1.12	1.12	1.12	1.12	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	0.00	0.00
Heavy Duty	0.0418459	0.0382210	0.0345581	0.00	0.00	0.00	0.00	0.00	7.64	7.64	15.29	15.29	15.29	7.64	7.64	0.00	0.00	0.00	0.00	0.00
Total				1.28	1.44	1.44	1.44	1.33	9.12	9.12	16.77	16.77	16.77	9.12	9.12	1.33	1.33	1.18	0.15	0.08

	Emission Rate (lb/mi)[1]			Year 1				Year 2												Year 3
SOx	**2009**	**2010**	**2011**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Light Duty	0.0000107	0.0000108	0.0000108	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0000268	0.0000270	0.0000273	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000401	0.0000413	0.0000397	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Total				0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00

	Emission Rate (lb/mi)[1]			Year 1				Year 2												Year 3
PM10	**2009**	**2010**	**2011**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Light Duty Exhaust	0.0000860	0.0000870	0.0000888	0.01	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.01	0.01	0.01
Medium Duty Exhaust	0.0008055	0.0007512	0.0007010	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.00	0.00
Heavy Duty Exhaust	0.0019957	0.0018306	0.0016609	0.00	0.00	0.00	0.00	0.00	0.37	0.37	0.73	0.73	0.73	0.37	0.37	0.00	0.00	0.00	0.00	0.00
Total Exhaust PM				0.05	0.07	0.07	0.07	0.07	0.45	0.45	0.81	0.81	0.81	0.45	0.45	0.07	0.07	0.05	0.01	0.01
Light Duty Fugitive[2]	0.00038589			0.06	0.13	0.13	0.13	0.13	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.13	0.13	0.06	0.06	0.04
Medium Duty Fugitve[2]	0.00210368			0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.00	0.00
Heavy Duty Fugitive[2]	0.02011945			0.00	0.00	0.00	0.00	0.00	4.02	4.02	8.05	8.05	8.05	4.02	4.02	0.00	0.00	0.00	0.00	0.00
Total Fugitive PM				0.17	0.23	0.23	0.23	0.23	4.32	4.32	8.34	8.34	8.34	4.32	4.32	0.23	0.23	0.17	0.06	0.04
Total				0.22	0.30	0.30	0.30	0.30	4.76	4.76	9.15	9.15	9.15	4.76	4.76	0.30	0.30	0.22	0.08	0.05

	Emission Rate (lb/mi)[3]			Year 1				Year 2												Year 3
CO_2	**2009**	**2010**	**2011**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Light Duty	1.099	1.097	1.104	178.10	356.20	356.20	356.20	355.56	533.33	533.33	533.33	533.33	533.33	533.33	533.33	355.56	355.56	177.78	177.78	107.31
Medium Duty	2.726	2.735	2.754	136.31	136.31	136.31	136.31	136.74	136.74	136.74	136.74	136.74	136.74	136.74	136.74	136.74	136.74	136.74	0.00	0.00
Heavy Duty	4.214	4.214	4.223	0.00	0.00	0.00	0.00	0.00	842.84	842.84	1685.68	1685.68	1685.68	842.84	842.84	0.00	0.00	0.00	0.00	0.00
Total				314.41	492.51	492.51	492.51	492.30	1512.91	1512.91	2355.75	2355.75	2355.75	1512.91	1512.91	492.30	492.30	314.52	177.78	107.31

(1) Based on 2007 SCAQMD on-road emission rates. (http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html)

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, December 2003

$E = k(sL/2)^{0.65} \times (W/3)^{1.5} - C$

Where: k = 0.016 lb/VMT for PM10, sL = road silt loading (gms/m2) from CARB Methodology 7.9 for paved roads

(0.240 for local roads and 0.037 for major/collector roads), W = weight of vehicles (2.4 tons for light; 5 for medium trucks,

and 20 for heavy trucks), and C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear (0.00047 lbs/VMT).

(3) Carbon Dioxide Equivalence (CO_E) = CO_2 + CH_4 * 23

	Light			Medium			Heavy		
Chemical	**2009**	**2010**	**2011**	**2009**	**2010**	**2011**	**2009**	**2010**	**2011**
CO_2	1.0976	1.0957	1.1024	2.7233	2.7322	2.7518	4.2108	4.2112	4.2205
CH_4	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001
CO_E	1.099	1.097	1.104	2.726	2.735	2.754	4.214	4.214	4.223

Appendix B
Valero Olympic Tank Farm
New Tank Project
Paint Emissions

Activity	Year 1				Year 2												Year 3
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Volume paint applied per day (gal)[1]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4
VOC content (lb/gal)[2]	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
VOC Emissions (lb/day)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1

(1) Based 2350 gallons painted over 8 year at 22 working days per month.

(2) Based on SCAQMD Rule 1113 VOC limit of 100g/L.

Appendix B
Valero Olympic Tank Farm
New Tank Project
Fugitive PM Construction Emissions for Demolition

						Controlled Emissions		Uncontrolled Emissions		
Grading Operations	Average Pieces of Equipment Operating	Peak Pieces of Equipment Operating	Hours of Operation	PM10 Emission Factor (lb/hour)	Water Control Factor[5]	Average PM10 Emissions (lbs/day)	Peak PM10 Emissions (lbs/day)	Average PM10 Emissions (lbs/day)	Peak PM10 Emissions (lbs/day)	SCAQMD Emission Factor Source
Construction Activities[1]	1	1	8	5.837	0.39	18.21	18.21	46.69830868	46.69830868	Table A9-9-F

					Controlled Emissions		Uncontrolled Emissions		
TRENCHING OPERATIONS (Backhoe) TEMPORARY STOCKPILES	Average Tons of Materials Handled Per Day	Peak Tons of Materials Handled Per Day	PM10 Emission Factor (lb/ton)	Water Control Factor	Average PM10 Emissions Pounds/day	Peak PM10 Emissions Pounds/day	Average PM10 Emissions Pounds/day	Peak PM10 Emissions Pounds/day	SCAQMD Emission Factor Source
Construction Activities[2]	50	50	0.0035	0.39	0.06825	0.06825	0.175	0.175	Table A9-9-G

Assumptions: 1cubic yard trench spoils = 1 ton

WIND EROSION Disturbed Area and Temporary Stockpiles	Days of Construction	Average Acreage Disturbed Per Day	Peak Acreage Disturbed Per Day	PM10 Emission Factor (lb/day/acre)	Average PM10 Emissions Pounds/day	Peak PM10 Emissions Pounds/day	Average PM10 Emissions Tons/Year	Peak PM10 Emissions Tons/Year	SCAQMD Emission Factor Source
Construction Activities[3]	22	2	2	0.200	0.399	0.399	0.004	0.004	Table A9-9-E

					Controlled Emissions		Uncontrolled Emissions		
TRUCK FILLING/DUMPING	Estimated Materials Handled Per Day (tons)	Peak Tons of Materials Handled Per Day	PM10 Emission Factor (lb/ton)	Water Control Factor	Average PM10 Emissions Pounds/day	Peak PM10 Emissions Pounds/day	Average PM10 Emissions Pounds/day	Peak PM10 Emissions Pounds/day	SCAQMD Emission Factor Source
Truck Filling[4]	50	50	0.02205	0.39	0.429975	0.429975	1.1025	1.1025	Table A9-9
Truck Dumping	50	50	0.009075	0.39	0.1769625	0.1769625	0.45375	0.45375	Table A9-9

TOTAL PM10 Pounds/day	Average	Peak
(Controlled Emissions)	19.2866	19.28661
(Uncontrolled Emissions)	48.434	48.434

(1) Emissions (lbs/hr) = $[0.75 \times (G^{1.5})/(H^{1.4}) \times J$
where G = silt content (7.5%), H = moisture content (2.0%) and J = hrs of operation (EPA AP-42 Table 11.9-1 for bulldozing overburden).

(2) Emissions (lbs/ton) = $0.00112 \times [(G/5)^{1.3}/(H/2)^{1.4}] \times I/J$
where G=mean wind speed (12 mph), H=moisture content of surface material (2%); I=lbs of dirt handled per day; and J=2,000 lbs/ton

(3) Emissions (lbs/day/acre) = $1.7 \times [(G/1.5)*(365-H)/235] \times I/15 \times J$
where G = silt content (7.5%); H = days with >0.01 inch of rain (34); I = percentage of time wind speed exceeds 12 mph (0.5%) and J= fraction of TSP (0.5). Wind speed data acquired from Lynwood 1981 SCAQMD meteorological file.

(4) Used SCAQMD Table 9-9 Default emission factors.

(5) Mitigated Emissions assume that watering 3 times per day controls emissions by 61 percent (Uncontrolled Emissions x 0.39). www.AQMD.gov/CEQA/handbook/mitigation/fugitive/Table XI-A.doc

Ultramar Incorporated
Olympic Tank Farm Integration Project
SCAQMD Localized Significance Threshold Analysis

November 2009

Prepared for: Ultramar Incorporated

By: Environmental Audit, Inc.
1000-A Ortega Way
Placentia, CA 92870
714-632-8521

Ultramar Refining and Marketing
Olympic Tank Farm Integration Project
SCAQMD Localized Significance Threshold Analysis

INTRODUCTION

Ultramar Inc. is proposing the Olympic Tank Farm Integration Project. Ultramar has leased the Marine Tank Farm (MTF) from the Los Angeles Department of Water and Power (LADWP) since 2001. At that time, gas oil storage tanks were relocated from the Port of Los Angeles Marine Terminal to the LADWP MTF. Currently, crude oils and distillates used to produce gasoline and other petroleum products, are delivered to the Ultramar Marine Terminal and shipped to the MTF via pipeline for initial storage, prior to transport to the Ultramar Inc. Wilmington Refinery (also via pipelines) for further refining.

In 2002, the City of Los Angeles announced the *Wilmington Window to the Waterfront* project, which would require the demolition of the Ultramar Marine Tank Farm. Therefore, Ultramar is proposing modifications to the LADWP Olympic Tank Farm (OTF), which it also leases from the LADWP, to replace the storage tank capacity that will be lost when the MTF is closed. Ultramar is proposing to modify three existing storage tanks and replace four existing storage tanks with four new storage tanks at the Olympic Tank Farm. The proposed project will comply with the South Coast Air Quality Management District's (SCAQMD) best available control technology (BACT), as applicable, for control of volatile organic compounds (VOCs) emissions from OTF storage tanks.

As part of the permitting process, Environmental Audit, Inc. (EAI) has calculated emissions to evaluate the potential localized impacts of criteria pollutants from construction activities as voluntarily required by South Coast Air Quality Management District (SCAQMD) Localized Significance Threshold Methodology. Criteria pollutants evaluated include carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter less than 10 microns in diameter (PM10), and particulate matter less than 2.5 microns (PM2.5) associated with the project. The initial screening results can be found in Attachment A. The results of the modeled analysis are provided below.

Based on information provided by Ultramar, construction activities by month for the proposed project are calculated to determine the peak construction day. The peak construction day at the OTF is expected to occur during month 4 for PM and month 10 for CO and NO_2. Construction activities included in this evaluation are the use of construction equipment, vehicle activities on-site (i.e., delivery trucks, contractors arriving and leaving the site), and fugitive dust emissions from earth moving activities. Criteria pollutants evaluated include CO, NO_2, PM10, and PM2.5 associated with the construction activities.

EMISSION ESTIMATES

Construction emission estimates for the peak day are calculated by each portion of the project that will be under construction during that period (see Table 1). Construction emissions vary based on activities and the worst-case scenario has been evaluated. It is expected that the calculated peak day emissions estimates will occur infrequently during the proposed project construction activities and, most of the time, construction emissions will be less.

PROJECT IMPACT EVALUATION

CRITERIA POLLUTANT IMPACT MODELING

In order to determine the groundlevel concentrations, the U.S. EPA ISCST3 (Version 02035) air dispersion model is used to calculate the annual average and maximum 1-hour, 8-hour, and 24-hour concentrations. The construction area for the OTF is modeled as a polygon area source with dimensions presented in Table 1. The release height for all sources is 2 meters above the ground.

The location of the source is identified based on data provided by Ultramar and the Long Beach and Torrance USGS Quadrangles (see Figure 1). The emissions for each pollutant are run in separate modeling runs using the emissions for each source in grams per second per square meter in the ISCST3 model. The ISCST3 model is run using the Long Beach meteorological data available from the SCAQMD. The following settings are used in running the ISCST3 dispersion model:

- Use stack-tip downwash;
- Use buoyancy-induced dispersion;
- Do not use gradual plume rise;
- Do not use calm wind processing routine;
- Do not use missing data processing routine;
- Use default wind profile exponents;
- Use default vertical potential temperature gradients; and
- Use urban mode dispersion.

ISCST3 is not set to include algorithms to model the effects of building downwash on emissions since area sources are not influenced by building downwash in ISCST3.

Terrain elevations are taken into account even though the facility and the vicinity are in a relatively flat area.

The ISCST3 model is run using a receptor grid of 50 meters, and extends at least 1,000 meters in every cardinal direction from the boundaries of the OTF (see Figure 1).

The maximum impact location for a sensitive receptor is determined from the applicable averaging periods from the ISCST3 model output. The maximum groundlevel concentration and the Universal Tranverse Mercator (NAD 27) coordinates for each maximum impacted sensitive receptor are presented in Table 2. An electronic copy of the model can be found on file at the SCAQMD.

CRITERIA POLLUTANT IMPACT ANALYSIS

The construction maximum groundlevel concentrations are compared to the significance thresholds established in SCAQMD Rule 1303, Appendix A, Table A-2 for CO and NO_2 to demonstrate that

construction emissions will not cause a violation of any state or national ambient air quality standard. The ambient air quality data for South Coastal Los Angeles County (Source No. 4) is used to establish background levels of CO and NO_2. Table 3 identifies the ambient air quality data for CO and NO_2 published by the SCAQMD in the last three years (2005, 2006, and 2007). PM10 and PM2.5 are compared to 10.4 micrograms per cubic meter ($\mu g/m^3$), which is comparable to the requirement in Rule 403. PM10 and PM2.5 are evaluated differently than CO and NO_2 because PM10 in nearly the entire district exceeds the state or federal PM10 and PM2.5 standards.

The CO 1-hour, CO 8-hour, and NO_2 1-hour concentrations are combined with the maximum ambient concentrations and compared to the Most Stringent Air Quality Standard.

The maximum CO impact concentrations for 1-hour and 8-hour averages are 4,992.6 and 4,154.2 $\mu g/m^3$, respectively. The maximum NO_2 impact concentrations for 1-hour is 308.6 $\mu g/m^3$, because NO_2 formation from nitrogen oxides (NOx) is a function of distance from the source (see *SCAQMD Localized Significance Threshold Methodology* (SCAQMD, July 2008), page 2-8 for further discussion). Therefore, the maximum NO_2 1-hour impact concentration have been adjusted by a factor of 0.059 to account for the distance from the source to the receptor. The maximum PM10 impact concentration for 24-hour average is 5.57 $\mu g/m^3$, because PM10 calculated as a function of fenceline concentration and distance to the receptor (see *SCAQMD Localized Significance Threshold Methodology* (SCAQMD, July 2008), Equation 1 for further discussion). The PM2.5 impact concentration for 24-hour average is 5.88 $\mu g/m^3$. The results are presented in Table 4.

CONCLUSION

The proposed project impacts plus the ambient background concentrations of CO and NO_2 are expected to be less than the most stringent air quality standards (see Table 4). The proposed project construction PM10 and PM2.5 emission increases are less than the localized significance thresholds (see Table 4). The localized significance threshold analysis results in no significant change in air quality from construction activities for CO, NO_2, PM10, or PM2.5. Therefore, the proposed project complies with the localized significance threshold methodology and no significant adverse construction emission impacts are expected in the local area near the OTF.

MRB:dbs/pe

Attachments

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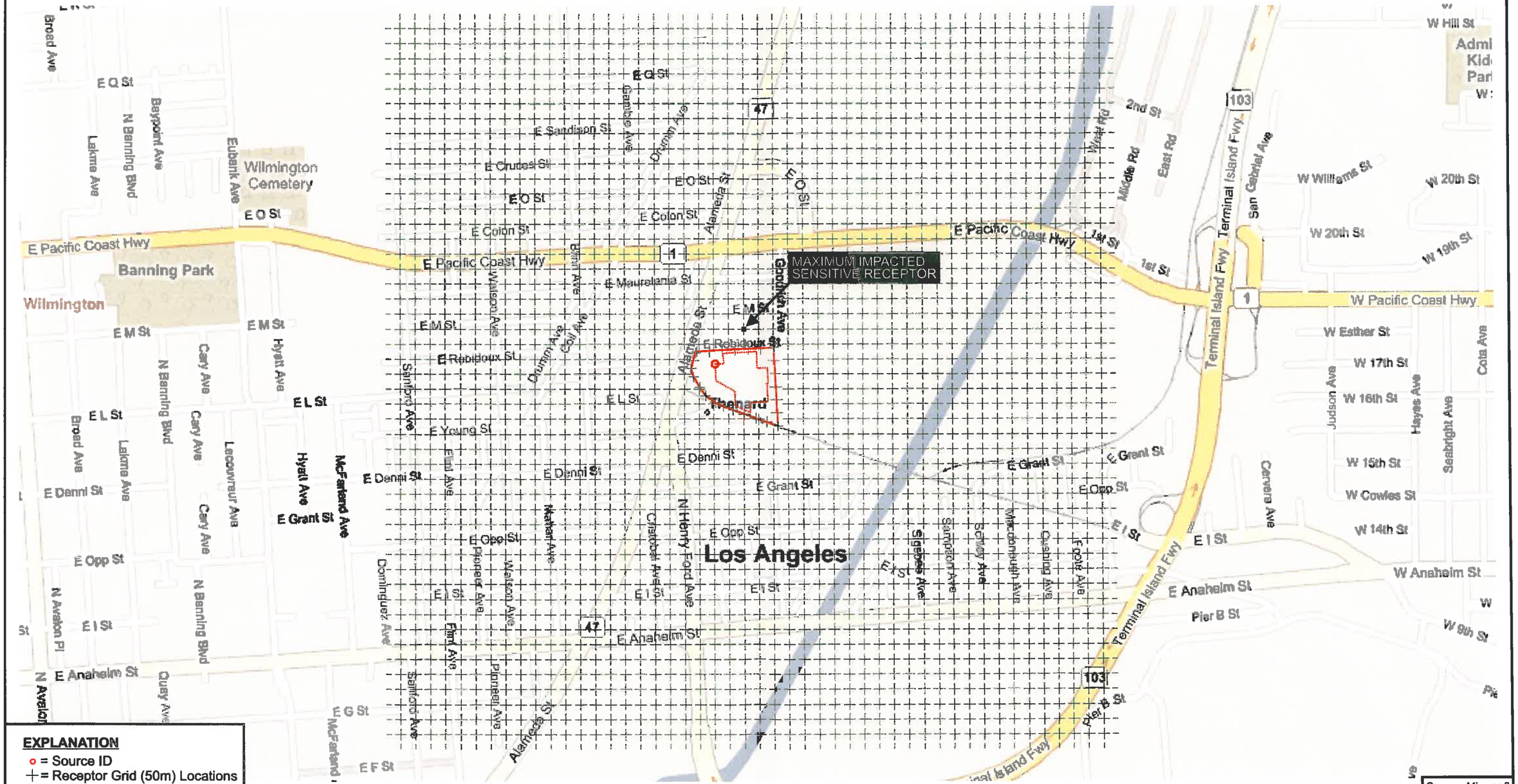
FIGURE



ENVIRONMENTAL AUDIT, INC.

LOCALIZED SIGNIFICANCE THRESHOLD ANALYSIS
OLYMPIC STORAGE TANK FARMS

N

Project No. 2599

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Figure 1

TABLES

Localized Significance Threshold Evaluation for
Ultramar Olympic Tank Farm Integration Project On-site Construction Emissions

Table 1. Peak Day Calculated Construction Emissions and Source Dimensions[1]

Phase	Source Description	Source Name	Emissions (lb/day)				Area of Source (m^2)	Emissions (g/s-m^2)			
			CO	NOx	PM10[2]	PM2.5[2]		CO	NOx	PM10	PM2.5
Month 10 - Peak CO/NOx	Construction Emissions	CONST1	7.68E+01	1.46E+02	0.00E+00	0.00E+00	23683	4.09E-05	7.77E-05	0.00E+00	0.00E+00
Month 4 - Peak PM	Construction Emissions	CONST1	0.00E+00	0.00E+00	2.79E+01	7.77E+00	23683	0.00E+00	0.00E+00	1.48E-05	4.13E-06

(1) Emissions were allocated to each source by engineering estimates.

(2) PM emissions adjusted to remove off-site on-road fugitive dust emissions.

Localized Significance Threshold Evaluation for Ultramar Olympic Tank Farm Integration Project On-site Construction Emissions

Table 2. ISCST3 Modeling Results for Peak Day Construction Emissions

Criteria Pollutant	Averaging Period	Month 4 Peak PM10 Max Conc. ($\mu g/m^3$)	Month 10 Peak CO/NOx Max Conc. ($\mu g/m^3$)	Absolute Max Conc. ($\mu g/m^3$)	UTM Coordinates	
					Easting	Northing
CO	1-hr	N/A	394.98	394.98	385300	3739300
	8-hr	N/A	131.27	131.27	385300	3739300
NO_2[(1)]	1-hr	N/A	44.27	44.27	385300	3739300
PM10[(2)]	24-hr	5.57	N/A	5.57	385300	3739300
PM2.5	24-hr	5.88	N/A	5.88	385300	3739300

(1) Project Construction Emissions adjusted to NO2 from NOx based on distance to receptor of 50 meters for the 1-hour and annual averages. (See Table 2-4 of the SCAQMD Localized Significance Threshold Methodology, July 2008.)

(2) Project Construction Emissions adjusted PM10 based on distance to receptor of 50 meters. (See Eq.1 of the SCAQMD Localized Significance Threshold Methodology, July 2008.)

Localized Significance Threshold Evaluation for
Ultramar Olympic Tank Farm Integration Project On-site Construction Emissions

Table 3. Maximum Ambient Concentration Data[(1)]

Criteria Pollutant	Averaging Period	Concentration (ppm)			Max Conc.	
		2005	2006	2007	(ppm)	($\mu g/m^3$)
CO	1-hr	4	4	3	4	4597.60
	8-hr	3.5	3.4	2.6	3.5	4022.90
NO_2	1-hr	0.14	0.1	0.11	0.14	264.33

(1) Data from South Coastal LA County Station (No. 072)

Localized Significance Threshold Evaluation for
Ultramar Olympic Tank Farm Integration Project On-site Construction Emissions

Table 4. Thresholds Analysis

Criteria Pollutant	Averaging Period	Ambient Background Conc. ($\mu g/m^3$)	Calculated Concentration ($\mu g/m^3$)	Total Conc. ($\mu g/m^3$)	Most Stringent Air Quality Standard ($\mu g/m^3$)	Localized Significance Threshold ($\mu g/m^3$)	Exceeds Threshold? Yes/No
CO	1-hr	4597.6	395.0	4992.6	23000		No
	8-hr	4022.9	131.3	4154.2	10000		No
NO_2	1-hr	264.3	44.3	308.6	339		No
PM10	24-hr		5.6			10.4	No
PM2.5	24-hr		5.9			10.4	No

ATTACHMENT A

Attachment A

Localized Significance Threshold Screening Evaluation for Valero Olympic Tank Farm Integration Project

	On-site Source Emissions (lbs/day)					
	CO	**VOC**	**NOx**	**SOx**	**PM10**	**PM2.5**
Off-road Construction Equipment	73.82	22.39	143.43	0.14	8.37	7.70
On-road Construction Equipment	3.01	0.40	2.56	0.00	0.21	0.08
Fugitive Construction Emissions	0.00	0.00	0.00	0.00	19.29	0.00
Architectural Coating Emissions	0.00	11.08	0.00	0.00	0.00	0.00
Total On-site Emissions	**76.83**	**33.87**	**146.00**	**0.15**	**27.86**	**7.77**
Screening Value(1)	**1,982**	**NA**	**94**	**NA**	**42**	**10**
Above Value?	**NO**	**-**	**YES**	**-**	**NO**	**NO**

(1) Screening values for LST analysis from SCAQMD Final Localized Significance Threshold Methodology, Appendix C (July 2008). Values for a 5 acre project at 50 meters in SRA No.4 (South Coastal LA County).

Olympic Tank Farm Operational Emissions

Emissions, Lb/Day	Tanks	Fugitive Components	Emergency IC Engine	Total
Criteria Pollutants				
NOx			6.21	**6.21**
SOx			0.09	**0.09**
CO			1.35	**1.35**
VOC	17.65	5.27	0.50	**23.42**
PM			0.44	**0.44**
Greenhouse Gases (metric tonnes per year)				
CO2			49.12	**49.12**
CH4			0.00	**0.00**
N2O			0.00	**0.00**

Notes

1 Greenhouse gases are not emitted by the tanks or fugitive components, which are in heavy oil service.

Olympic Tank Farm
IC Engine Pollutant Emissions

Engine Information

Engine rating, bhp	bhp	480
Max hours of operation, hr/year	hr/yr	200
Avg brake-specific fuel consumption (BSFC)	btu/hp-hr	7000
Fuel	–	Diesel
Fuel heating value	btu/lb	19,300
Fuel density	lb/gal	7.2
Max fuel usage	mgal/yr	4.836
Max heat input	mmbtu/yr	672

Criteria Pollutants Emissions

AQMD Default Factors

Pollutant	Emission Factor lb/mgal	Emissions lb/yr
CO	102	493.264
NOx	469	2,268.048
PM	33.5	162.003
SOx	7.1	34.335
VOC	37.5	181.347

Reference: AER instruction book, Table 2

Greenhouse Gas Emissions

AB 32 Default Factors

Pollutant	Emission Factor kg/mmbtu	Emissions lb/yr	Emissions tonnes/yr
CO2	73.1	108,298.12	49.12
CH4	0.003	4.44	0.00202
N2O	0.0006	0.89	0.00040

Reference: AB 32, Appendices A-7 and A-9

TANKS 4.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification:	TK-1501
City:	Wilmington
State:	California
Company:	Valero
Type of Tank:	Internal Floating Roof Tank
Description:	

Tank Dimensions

Diameter (ft):	150.00
Volume (gallons):	5,933,382.00
Turnovers:	33.98
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
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Sock	28
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Sock	34
Roof Drain (3-in. Diameter)/90% Closed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Ladder Well (36-in. Diam.)/Sliding Cover, Gasketed	1
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1

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

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
OTF Diesel	**All**	**66.43**	**60.99**	**71.87**	**64.33**	**1.5000**	**N/A**	**N/A**	**130.0000**			**160.00**	**Option 1: VP60 = 1.5 VP70 = 1.5**

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)

Annual Emission Calculations	
Rim Seal Losses (lb):	314.6760
Seal Factor A (lb-mole/ft-yr):	0.6000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.4000
Value of Vapor Pressure Function:	0.0269
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.5000
Tank Diameter (ft):	150.0000
Vapor Molecular Weight (lb/lb-mole):	130.0000
Product Factor:	1.0000
Withdrawal Losses (lb):	348.0500
Number of Columns:	8.0000
Effective Column Diameter (ft):	1.0000
Annual Net Throughput (gal/yr.):	201,600,000.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0015
Average Organic Liquid Density (lb/gal):	7.3000
Tank Diameter (ft):	150.0000
Deck Fitting Losses (lb):	405.0929
Value of Vapor Pressure Function:	0.0269
Vapor Molecular Weight (lb/lb-mole):	130.0000
Product Factor:	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	115.8600
Deck Seam Losses (lb):	0.0000
Deck Seam Length (ft):	0.0000
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.0000
Deck Seam Length Factor(ft/sqft):	0.0000
Tank Diameter (ft):	150.0000
Vapor Molecular Weight (lb/lb-mole):	130.0000
Product Factor:	1.0000

Deck Fitting/Status	Quantity	Deck Fitting Loss Factors KFa (lb-mole/yr)	KFb (lb-mole/(yr mph^n))	m	Losses (lb.)
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Sock	28	1.20	0.14	0.65	117.4790
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Sock	34	0.49	0.16	0.14	58.2500
Roof Drain (3-in. Diameter)/90% Closed	1	1.80	0.14	1.10	6.2935
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	21.6777
Ladder Well (36-in. Diam.)/Sliding Cover, Gasketed	1	56.00	0.00	0.00	195.7984
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1	1.60	0.00	0.00	5.5942

Total Losses (lb): 1,067.8188

TANKS 4.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Annual Emissions Report

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
OTF Diesel	314.68	348.05	405.09	0.00	1,067.82

TANKS 4.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification:	TK-1502
City:	Wilmington
State:	California
Company:	Valero
Type of Tank:	Internal Floating Roof Tank
Description:	

Tank Dimensions

Diameter (ft):	150.00
Volume (gallons):	5,933,382.00
Turnovers:	33.98
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
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Sock	28
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Sock	34
Roof Drain (3-in. Diameter)/90% Closed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Ladder Well (36-in. Diam.)/Sliding Cover, Gasketed	1
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1

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

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
OTF Diesel	All	66.43	60.99	71.87	64.33	1.5000	N/A	N/A	130.0000			160.00	Option 1: VP60 = 1.5 VP70 = 1.5

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)

Annual Emission Calculations	
Rim Seal Losses (lb):	314.6760
Seal Factor A (lb-mole/ft-yr):	0.6000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.4000
Value of Vapor Pressure Function:	0.0269
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.5000
Tank Diameter (ft):	150.0000
Vapor Molecular Weight (lb/lb-mole):	130.0000
Product Factor:	1.0000
Withdrawal Losses (lb):	348.0500
Number of Columns:	8.0000
Effective Column Diameter (ft):	1.0000
Annual Net Throughput (gal/yr.):	201,600,000.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0015
Average Organic Liquid Density (lb/gal):	7.3000
Tank Diameter (ft):	150.0000
Deck Fitting Losses (lb):	405.0929
Value of Vapor Pressure Function:	0.0269
Vapor Molecular Weight (lb/lb-mole):	130.0000
Product Factor:	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	115.8600
Deck Seam Losses (lb):	0.0000
Deck Seam Length (ft):	0.0000
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.0000
Deck Seam Length Factor(ft/sqft):	0.0000
Tank Diameter (ft):	150.0000
Vapor Molecular Weight (lb/lb-mole):	130.0000
Product Factor:	1.0000

Deck Fitting/Status	Quantity	Deck Fitting Loss Factors KFa (lb-mole/yr)	KFb (lb-mole/(yr mph^n))	m	Losses (lb.)
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Sock	28	1.20	0.14	0.65	117.4790
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Sock	34	0.49	0.16	0.14	58.2500
Roof Drain (3-in. Diameter)/90% Closed	1	1.80	0.14	1.10	6.2935
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	21.6777
Ladder Well (36-in. Diam.)/Sliding Cover, Gasketed	1	56.00	0.00	0.00	195.7984
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1	1.60	0.00	0.00	5.5942

Total Losses (lb): 1,067.8188

TANKS 4.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Annual Emissions Report

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
OTF Diesel	314.68	348.05	405.09	0.00	1,067.82

TANKS 4.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification:	TK-1503
City:	Wilmington
State:	California
Company:	Valero
Type of Tank:	Internal Floating Roof Tank
Description:	

Tank Dimensions

Diameter (ft):	150.00
Volume (gallons):	5,933,382.00
Turnovers:	33.98
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
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Sock	28
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Sock	34
Roof Drain (3-in. Diameter)/90% Closed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Ladder Well (36-in. Diam.)/Sliding Cover, Gasketed	1
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1

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

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
OTF Diesel	All	66.43	60.99	71.87	64.33	1.5000	N/A	N/A	130.0000			160.00	Option 1: VP60 = 1.5 VP70 = 1.5

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)

Annual Emission Calculations	
Rim Seal Losses (lb):	314.6760
Seal Factor A (lb-mole/ft-yr):	0.6000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.4000
Value of Vapor Pressure Function:	0.0269
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.5000
Tank Diameter (ft):	150.0000
Vapor Molecular Weight (lb/lb-mole):	130.0000
Product Factor:	1.0000
Withdrawal Losses (lb):	348.0500
Number of Columns:	8.0000
Effective Column Diameter (ft):	1.0000
Annual Net Throughput (gal/yr.):	201,600,000.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0015
Average Organic Liquid Density (lb/gal):	7.3000
Tank Diameter (ft):	150.0000
Deck Fitting Losses (lb):	405.0929
Value of Vapor Pressure Function:	0.0269
Vapor Molecular Weight (lb/lb-mole):	130.0000
Product Factor:	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	115.8600
Deck Seam Losses (lb):	0.0000
Deck Seam Length (ft):	0.0000
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.0000
Deck Seam Length Factor(ft/sqft):	0.0000
Tank Diameter (ft):	150.0000
Vapor Molecular Weight (lb/lb-mole):	130.0000
Product Factor:	1.0000

Deck Fitting/Status	Quantity	Deck Fitting Loss Factors KFa (lb-mole/yr)	KFb (lb-mole/(yr mph^n))	m	Losses (lb.)
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Sock	28	1.20	0.14	0.65	117.4790
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Sock	34	0.49	0.16	0.14	58.2500
Roof Drain (3-in. Diameter)/90% Closed	1	1.80	0.14	1.10	6.2935
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	21.6777
Ladder Well (36-in. Diam.)/Sliding Cover, Gasketed	1	56.00	0.00	0.00	195.7984
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1	1.60	0.00	0.00	5.5942

Total Losses (lb): 1,067.8188

TANKS 4.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Annual Emissions Report

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
OTF Diesel	314.68	348.05	405.09	0.00	1,067.82

TANKS 4.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification:	TK-1504
City:	Wilmington
State:	California
Company:	Valero
Type of Tank:	Internal Floating Roof Tank
Description:	

Tank Dimensions

Diameter (ft):	150.00
Volume (gallons):	5,933,382.00
Turnovers:	33.98
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
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Sock	28
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Sock	34
Roof Drain (3-in. Diameter)/90% Closed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Ladder Well (36-in. Diam.)/Sliding Cover, Gasketed	1
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1

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

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
OTF Diesel	All	66.43	60.99	71.87	64.33	1.5000	N/A	N/A	130.0000			160.00	Option 1: VP60 = 1.5 VP70 = 1.5

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)

Annual Emission Calculations	
Rim Seal Losses (lb):	314.6760
Seal Factor A (lb-mole/ft-yr):	0.6000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.4000
Value of Vapor Pressure Function	0.0269
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.5000
Tank Diameter (ft):	150.0000
Vapor Molecular Weight (lb/lb-mole):	130.0000
Product Factor:	1.0000
Withdrawal Losses (lb):	348.0500
Number of Columns:	8.0000
Effective Column Diameter (ft):	1.0000
Annual Net Throughput (gal/yr.):	201,600,000.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0015
Average Organic Liquid Density (lb/gal):	7.3000
Tank Diameter (ft):	150.0000
Deck Fitting Losses (lb):	405.0929
Value of Vapor Pressure Function:	0.0269
Vapor Molecular Weight (lb/lb-mole):	130.0000
Product Factor:	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	115.8600
Deck Seam Losses (lb):	0.0000
Deck Seam Length (ft)	0.0000
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr)	0.0000
Deck Seam Length Factor(ft/sqft)	0.0000
Tank Diameter (ft)	150.0000
Vapor Molecular Weight (lb/lb-mole)	130.0000
Product Factor:	1.0000

Deck Fitting/Status	Quantity	Deck Fitting Loss Factors KFa (lb-mole/yr)	KFb (lb-mole/(yr mph^n))	m	Losses (lb.)
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Sock	28	1.20	0.14	0.65	117.4790
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Sock	34	0.49	0.16	0.14	58.2500
Roof Drain (3-in. Diameter)/90% Closed	1	1.80	0.14	1.10	6.2935
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	21.6777
Ladder Well (36-in. Diam.)/Sliding Cover, Gasketed	1	56.00	0.00	0.00	195.7984
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1	1.60	0.00	0.00	5.5942

Total Losses (lb): 1,067.8188

TANKS 4.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Annual Emissions Report

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
OTF Diesel	314.68	348.05	405.09	0.00	1,067.82

TANKS 4.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification:	TK-501
City:	Wilmington
State:	California
Company:	Valero
Type of Tank:	Internal Floating Roof Tank
Description:	

Tank Dimensions

Diameter (ft):	100.00
Volume (gallons):	1,821,288.00
Turnovers:	14.29
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
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Sock	28
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Sock	34
Roof Drain (3-in. Diameter)/90% Closed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Ladder Well (36-in. Diam.)/Sliding Cover, Gasketed	1
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1

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

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
OTF Diesel	All	66.43	60.99	71.87	64.33	1.5000	N/A	N/A	130.0000			160.00	Option 1: VP60 = 1.5 VP70 = 1.5

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)

Annual Emission Calculations	
Rim Seal Losses (lb):	209.7840
Seal Factor A (lb-mole/ft-yr):	0.6000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.4000
Value of Vapor Pressure Function:	0.0269
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.5000
Tank Diameter (ft):	100.0000
Vapor Molecular Weight (lb/lb-mole):	130.0000
Product Factor:	1.0000
Withdrawal Losses (lb):	69.1183
Number of Columns:	8.0000
Effective Column Diameter (ft):	1.0000
Annual Net Throughput (gal/yr.):	26,031,106.00 00
Shell Clingage Factor (bbl/1000 sqft):	0.0015
Average Organic Liquid Density (lb/gal):	7.3000
Tank Diameter (ft):	100.0000
Deck Fitting Losses (lb):	405.0929
Value of Vapor Pressure Function:	0.0269
Vapor Molecular Weight (lb/lb-mole):	130.0000
Product Factor:	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	115.8600
Deck Seam Losses (lb):	0.0000
Deck Seam Length (ft):	0.0000
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.0000
Deck Seam Length Factor(ft/sqft):	0.0000
Tank Diameter (ft):	100.0000
Vapor Molecular Weight (lb/lb-mole):	130.0000
Product Factor:	1.0000

Deck Fitting/Status	Quantity	Deck Fitting Loss Factors KFa (lb-mole/yr)	KFb (lb-mole/(yr mph^n))	m	Losses (lb.)
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Sock	28	1.20	0.14	0.65	117.4790
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Sock	34	0.49	0.16	0.14	58.2500
Roof Drain (3-in. Diameter)/90% Closed	1	1.80	0.14	1.10	6.2935
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	21.6777
Ladder Well (36-in. Diam.)/Sliding Cover, Gasketed	1	56.00	0.00	0.00	195.7984
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1	1.60	0.00	0.00	5.5942

Total Losses (lb): 683.9951

TANKS 4.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Annual Emissions Report

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
OTF Diesel	209.78	69.12	405.09	0.00	684.00

TANKS 4.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification:	TK-721
City:	Wilmington
State:	California
Company:	Valero
Type of Tank:	Internal Floating Roof Tank
Description:	

Tank Dimensions

Diameter (ft):	120.00
Volume (gallons):	2,615,634.00
Turnovers:	14.29
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
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Sock	28
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Sock	34
Roof Drain (3-in. Diameter)/90% Closed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Ladder Well (36-in. Diam.)/Sliding Cover, Gasketed	1
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1

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

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
OTF Diesel	All	66.43	60.99	71.87	64.33	1.5000	N/A	N/A	130.0000			160.00	Option 1: VP60 = 1.5 VP70 = 1.5

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)

Annual Emission Calculations	
Rim Seal Losses (lb):	251.7408
Seal Factor A (lb-mole/ft-yr):	0.6000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.4000
Value of Vapor Pressure Function:	0.0269
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.5000
Tank Diameter (ft):	120.0000
Vapor Molecular Weight (lb/lb-mole):	130.0000
Product Factor:	1.0000
Withdrawal Losses (lb):	81.6987
Number of Columns:	8.0000
Effective Column Diameter (ft):	1.0000
Annual Net Throughput (gal/yr.):	37,384,447.00 00
Shell Clingage Factor (bbl/1000 sqft):	0.0015
Average Organic Liquid Density (lb/gal):	7.3000
Tank Diameter (ft):	120.0000
Deck Fitting Losses (lb):	405.0929
Value of Vapor Pressure Function:	0.0269
Vapor Molecular Weight (lb/lb-mole):	130.0000
Product Factor:	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	115.8600
Deck Seam Losses (lb):	0.0000
Deck Seam Length (ft):	0.0000
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.0000
Deck Seam Length Factor(ft/sqft):	0.0000
Tank Diameter (ft):	120.0000
Vapor Molecular Weight (lb/lb-mole):	130.0000
Product Factor:	1.0000

Deck Fitting/Status	Quantity	Deck Fitting Loss Factors KFa (lb-mole/yr)	KFb (lb-mole/(yr mph^n))	m	Losses (lb.)
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Sock	28	1.20	0.14	0.65	117.4790
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Sock	34	0.49	0.16	0.14	58.2500
Roof Drain (3-in. Diameter)/90% Closed	1	1.80	0.14	1.10	6.2935
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	21.6777
Ladder Well (36-in. Diam.)/Sliding Cover, Gasketed	1	56.00	0.00	0.00	195.7984
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1	1.60	0.00	0.00	5.5942

Total Losses (lb):	738.5323

TANKS 4.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Annual Emissions Report

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
OTF Diesel	251.74	81.70	405.09	0.00	738.53

TANKS 4.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification:	TK-722
City:	Wilmington
State:	California
Company:	Valero
Type of Tank:	Internal Floating Roof Tank
Description:	

Tank Dimensions

Diameter (ft):	120.00
Volume (gallons):	2,615,634.00
Turnovers:	14.29
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
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Sock	28
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Sock	34
Roof Drain (3-in. Diameter)/90% Closed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Ladder Well (36-in. Diam.)/Sliding Cover, Gasketed	1
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1

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

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F) Avg.	Min.	Max.	Liquid Bulk Temp. (deg F)	Vapor Pressures (psia) Avg.	Min.	Max.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
OTF Diesel	All	66.43	60.99	71.87	64.33	1.5000	N/A	N/A	130.0000			160.00	Option 1: VP60 = 1.5 VP70 = 1.5

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)

Annual Emission Calculations	
Rim Seal Losses (lb):	251.7408
Seal Factor A (lb-mole/ft-yr):	0.6000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.4000
Value of Vapor Pressure Function:	0.0269
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.5000
Tank Diameter (ft):	120.0000
Vapor Molecular Weight (lb/lb-mole):	130.0000
Product Factor:	1.0000
Withdrawal Losses (lb):	81.6987
Number of Columns:	8.0000
Effective Column Diameter (ft):	1.0000
Annual Net Throughput (gal/yr.):	37,384,447.00 00
Shell Clingage Factor (bbl/1000 sqft):	0.0015
Average Organic Liquid Density (lb/gal):	7.3000
Tank Diameter (ft):	120.0000
Deck Fitting Losses (lb):	405.0929
Value of Vapor Pressure Function:	0.0269
Vapor Molecular Weight (lb/lb-mole):	130.0000
Product Factor:	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	115.8600
Deck Seam Losses (lb):	0.0000
Deck Seam Length (ft):	0.0000
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.0000
Deck Seam Length Factor(ft/sqft):	0.0000
Tank Diameter (ft):	120.0000
Vapor Molecular Weight (lb/lb-mole):	130.0000
Product Factor:	1.0000

Deck Fitting/Status	Quantity	Deck Fitting Loss Factors KFa (lb-mole/yr)	KFb (lb-mole/(yr mph^n))	m	Losses (lb.)
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Sock	28	1.20	0.14	0.65	117.4790
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Sock	34	0.49	0.16	0.14	58.2500
Roof Drain (3-in. Diameter)/90% Closed	1	1.80	0.14	1.10	6.2935
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	21.6777
Ladder Well (36-in. Diam.)/Sliding Cover, Gasketed	1	56.00	0.00	0.00	195.7984
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1	1.60	0.00	0.00	5.5942

Total Losses (lb) 738.5323

TANKS 4.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Annual Emissions Report

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
OTF Diesel	251.74	81.70	405.09	0.00	738.53

TANKS 4.0
Emissions Report - Detail Format
Total Emissions Summaries - All Tanks in Report

Annual Emissions Report

Tank Identification				Losses (lbs)
TK-1501	Valero	Internal Floating Roof Tank	Wilmington, California	1,067.82
TK-1502	Valero	Internal Floating Roof Tank	Wilmington, California	1,067.82
TK-1503	Valero	Internal Floating Roof Tank	Wilmington, California	1,067.82
TK-1504	Valero	Internal Floating Roof Tank	Wilmington, California	1,067.82
TK-501	Valero	Internal Floating Roof Tank	Wilmington, California	684.00
TK-721	Valero	Internal Floating Roof Tank	Wilmington, California	738.53
TK-722	Valero	Internal Floating Roof Tank	Wilmington, California	738.53
Total Emissions for all Tanks:				6,432.33

APPENDIX C

HEALTH RISK ASSESSMENT

Ultramar Incorporated
Olympic Tank Farm Integration Project
Health Risk Assessment

January 14, 2009

Prepared for: Ultramar Incorporated
Prepared by: Environmental Audit, Inc.
1000-A Ortega Way
Placentia, CA 92870
714-632-8521

INTRODUCTION

This Health Risk Assessment (HRA) has been prepared to evaluate the toxic air contaminant (TAC) impacts of the proposed Ultramar Inc. – Olympic Tank Farm Integration Project.

FACILITY INFORMATION

The proposed project will occur at three locations: (1) the Marine Terminal located at 961 La Paloma Avenue, Wilmington; (2) The Marine Tank Farm (MTF) located at 130 "A" Street, Wilmington; and (3) the Olympic Tank Farm (OTF) located at 1220 N. Alameda Street, Wilmington. All three facilities are located within the Wilmington district of the City of Los Angeles in the southern portion of Los Angeles County (see Figures 2-1 and 2-2). The proposed modifications are within the confines of these existing facilities.

The Marine Terminal is located at Berth 164 on Mormon Island in the Port of Los Angeles. The channel is located on the northwest side of the facility. La Paloma is located on the east and Shore Terminal Company is located northeast of the Marine Terminal.

The MTF is located about one-half mile northeast of the Marine Terminal and is bounded by "A" Street to the north, Avalon Boulevard to the east, Harbor Belt Lane to the south, and Fries Avenue to the west.

The Olympic Tank Farm is located about one and one-half miles northeast of the MTF near the Alameda Street/Pacific Coast Highway intersection. The OTF is bounded by Alameda Street to the west, railroad tracks to the south, the Tesoro Truck Terminal and Refinery to the east, and various land uses to the north, that are predominately industrial.

PROJECT DESCRIPTION

Ultramar is currently proposing changes to the OTF, Marine Terminal, and MTF. Ultramar has leased the MTF from the Los Angeles Department of Water and Power (LADWP) since 2001. At that time, Ultramar relocated heavy oil storage from the Marine Terminal (leased from the Port of Los Angeles) to the MTF. Currently, heavy oils used to produce gasoline and other petroleum products, are delivered to the Ultramar Marine Terminal via ship and transported to the MTF via pipeline for initial storage, prior to transport to the Ultramar Inc. Wilmington Refinery (also via pipelines) for further refining.

In 2002, the City of Los Angeles announced the *Wilmington Window to the Waterfront* project, which would require the demolition of the MTF. As a result, Ultramar must vacate the MTF prior to April 2011, when the current lease expires. Therefore, Ultramar is proposing modifications to the LADWP OTF, which it also leases from the LADWP, to replace the storage tank capacity that will be lost when it vacates the MTF. Ultramar is proposing to modify three existing storage tanks, replace four existing storage tanks with four new storage tanks, and install two new emergency fire pumps at the OTF. The proposed project will comply with the South Coast Air Quality Management District's (SCAQMD) best available control technology (BACT), as applicable, for control of volatile organic compounds (VOCs) emissions from refinery storage tanks.

Based on information provided by Ultramar, the emissions are modeled as 12 area sources (four new tanks and associated fugitives, three existing tanks, and one new fugitive pump area) at the locations shown on the OTF plot plan (see Figure 2) and two (2) point sources. Toxic Air Contaminants (TACs) in the emissions from the fugitive sources are included in the *Office of Environmental Health Hazard Assessment/Air Resources Board (OEHHA/ARB) Consolidated Table of Approved Risk Assessment Health Values* (June 2008). The sources are expected to emit 29 chemicals from the list – 17 are considered to be carcinogens, 21 are considered to have adverse chronic health effects, and 11 are considered to have adverse acute health effects (see Table C-1). The health risks were evaluated using the SCAQMD *Risk Assessment Procedures for Rules 1401 and 212 Version 7.0* (July 2005). The tier four analysis for cancer and non-cancer risks is presented below.

TABLE C-1

Potentially Emitted Chemical and Associated Health Effects

Chemical	Carcinogenic	Noncarcinogen	
		Chronic	Acute
Benz[a]anthracene	X		
Benzene	X	X	X
Benzo[a]pyrene	X		
Benzo[b]fluoranthene	X		
Benzo[k]fluoranthene	X		
Ethyl benzene	X	X	
Ethylene			
Naphthalene	X	X	
Hexane		X	
Propylene		X	
Toluene		X	X
Xylenes (mixed)		X	X
1,3-Butadiene	X	X	
Acetaldehyde	X	X	
Acrolein		X	X
Ammonia		X	X
Arsenic	X	X	X
Cadmium	X	X	
Copper			X
Formaldehyde	X	X	X
Chromium, hexavalent	X	X	
Hydrochloric acid		X	X
Lead	X		
Manganese		X	
Mercury		X	X
Nickel	X	X	X
PAHs	X		
Selenium		X	
Diesel engine exhaust	X	X	

EMISSION ESTIMATES

VOC emission factors for tanks and fugitive components installed in conjunction with the proposed project were based on the latest TANKS 4.0.9d and SCAQMD guidelines for fugitive components, assuming the use of BACT and an inspection and monitoring program (SCAQMD, 1999). The emissions estimates of fugitive TACs are calculated using a hybrid speciation that includes the maximum vapor fraction available for each chemical in any commodity. Emergency fire pump engine emissions calculations are based on the SCAQMD *2006-2007 Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory Supplemental Instruction* (SCAQMD, 2007) for diesel internal combustion engines. The emissions are presented in Attachment 1.

The Cancer Potency Factors (CPs), Reference Exposure Limits (RELs), and target endpoints for each toxic air contaminants are presented in Attachment 2.

HEALTH RISK ASSESSMENT

The CARB Hotspots Analysis Reporting Program (HARP) model is the most appropriate model for determining the air quality impacts from the proposed project in the South Coast Air Basin. The HARP model (CARB, 2008) combines the US EPA Industrial Source Complex dispersion model with a risk calculation model based on the Air Toxics Hot Spots Program Risk Assessment Guidelines (OEHHA, 2003). The dispersion portion of the HARP model provides estimates of source-specific annual and hourly maximum ambient ground level concentrations. The risk calculator in the HARP model estimates the cancer risk, chronic index, and acute index values.

The 1981 meteorological data for the Long Beach station was used for wind and surface data. The Long Beach station is the closest to the OTF for which meteorological data are available in the HARP model.

The project is modeled as 12 area sources and two point sources. The source parameters are listed in Table C-2. The location of the sources was identified based on data provided by Ultramar and the Long Beach USGS Quadrangle (see attached Figures 1 and 2).

TABLE C-2

Source Parameters

UTME	UTMN	Name	Release Height (ft)	Width (ft)	Length (ft)	Stack Diameter (ft)	Velocity (ft/min)	Temperature (F)
385204.8	3739135.9	Pump Fugitives	6	51	109			
385248.4	3739160.9	T-1501	55.5	133	133			
385248.4	3739160.9	T-1501 Fugitives	6	133	133			
385309.6	3739160.9	T-1502	55.5	133	133			
385309.6	3739160.9	T-1502 Fugitives	6	133	133			
385358.1	3739117.6	T-1503	55.5	133	133			
385358.1	3739117.6	T-1503 Fugitives	6	133	133			
385358.1	3739056.3	T-1504	55.5	133	133			
385358.1	3739056.3	T-1504 Fugitives	6	133	133			
385151.2	3739122.5	T-721	40	107	107			
385363.9	3738997.5	T-722	40	107	107			
385369.4	3739178	T-501	40	89	89			
385185	3739200	Pump Engine 1	25			0.5	17693	851
385200	3739200	Pump Engine 2	25			0.5	17693	851

The receptors used in the model include fenceline receptors and a fine receptor grid. The terrain surrounding the OTF is relatively flat; however, elevated terrain features were included in the model. The fenceline receptors (maximal spacing every 50 meters(m)) were used to determine the maximum concentrations at the property line of the OTF. A fine receptor grid (100 m x 100 m spacing) was used to identify maximum impact locations. The grid originates at the western corner of the OTF and extends 1,200 meters to the west and north, 1,400 meters to the south, and 1,500 meters to the east. Figure 3 shows all modeled source locations and receptors.

The nearest off-site residential receptors are less than 300 feet west and north of the OTF. The OTF is completely surrounded by off-site occupational receptors. All the maximum impact locations are verified as credible locations for receptors (i.e., streets, railroad tracks, and waterways are not considered valid receptor locations). Five (5) sensitive receptors are found within 1,500 meters of the OTF; however, none exceed the risk value of the maximum exposed incremental cancer risk at an individual resident (MEIR). The locations of the maximum impacts are then verified for the type of receptor and are reported below. Selected tables from the HARP model are included in Attachment 3. The complete output results from the HARP model are on file with the SCAQMD.

DETAILED CANCER RISK ANALYSIS

The MEIR is located at the residential area 300 feet north of the OTF (Receptor No. 294, UTM Coordinates 385213, 3739369, see Figure 4). The incremental cancer risk is 3.22×10^{-6} or 3.22 in one million at the MEIR. Polycyclic aromatic hydrocarbons (PAHs) and diesel particulate matter (diesel PM) contributes 44.7 and 39.8 percent of the calculated cancer risk at the MEIR, respectively. The inhalation pathway accounts for 57 percent of the cancer risk.

The maximum exposed incremental cancer risk at an occupational exposure (MEIW) is 1.25×10^{-6} or 1.25 in one million located approximately 100 feet north of the OTF (Receptor No. 322, UTM Coordinates 385213, 3739269, see Figure 4). PAHs and diesel PM contributes 42.5 and 41.8 percent of the calculated cancer risk at the MEIW, respectively. The inhalation pathway accounts for 57 percent of the cancer risk.

The maximum exposed incremental cancer risk at an sensitive receptor is 2.09×10^{-6} or 2.09 in one million located approximately 350 feet west of the OTF (Receptor No. 785, UTM Coordinates 384985, 3739205, see Figure 4) at an unidentified private school. PAHs and diesel PM contributes 44.8 and 40 percent of the calculated cancer risk at the school, respectively. The inhalation pathway accounts for 55.2 percent of the cancer risk.

The cancer risk contributions by pathway and pollutants are presented in Attachment 3.

DETAILED NON-CANCER RISK ANALYSIS

The maximum chronic hazard index total for the respiratory system is 0.00573 and occurs at the same location as the MEIW (Receptor No. 322, UTM Coordinates 385213, 3739269, see Figure 4). Diesel PM, formaldehyde, and acrolein contribute 29, 24.6, and 24.1 percent to the chronic hazard index, respectively. The contribution by pollutant to the chronic hazard index for the maximum receptor location is presented in Attachment 3.

The maximum acute hazard index total for the target endpoint of the respiratory system is 0.910. Acrolein contributes 90.1 percent of the maximum acute hazard index. The maximum acute hazard index occurs at the northwestern boundary of the OTF (Receptor No. 779, UTM 385142, 3739215, see Figure 4). The contribution by pollutant to the acute hazard index for the maximum receptor location is presented in Attachment 3.

CONCLUSIONS

The residential and worker cancer risk for the TAC emitted by the proposed project are below the significance threshold of 10 per million. The chronic and acute hazard indices for the proposed project are below the 1.0 threshold for all receptors. Therefore, no additional health risk analysis is required.

REFERENCES

CARB/OEHHA, 2003. *Air Resources Board Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk,* October 2003.

CARB, 2008. *Hotspots Analysis and Reporting Program* (HARP Version 1.4a Build 23.07.00) and resources, http://www.arb.ca.gov/toxics/harp/downloads.htm.

OEHHA, 2003. *Air Toxics Hot Spots Program Risk Assessment` Guidelines: The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessment,* August 2003.

OEHHA/ARB, 2008. *Consolidated Table of Approved Risk Assessment Health Values,* June 2008.

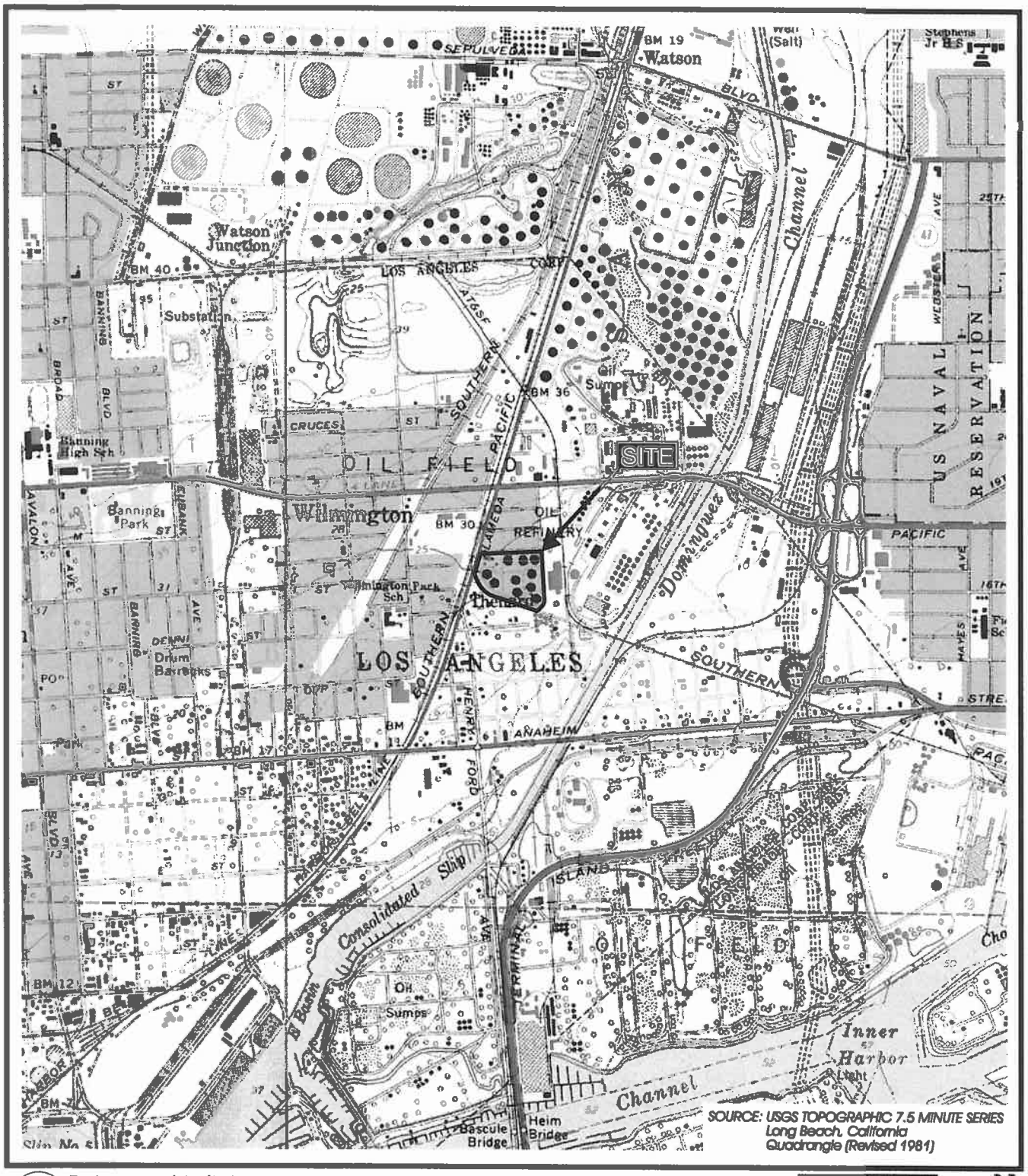
SCAQMD, 1999. *Jay Chen Memo, BACT/LAER for Valves as VOC Fugitive Sources,* April 2, 1999.

SCAQMD, 2007. *2006-2007 Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory Supplemental Instruction,* June, 2007.

MC/MRB:dab/ss

M:\MC\2599 Valero - Tank Farm\1401\2599 HRA.doc

FIGURES



Environmental Audit, Inc.

SITE LOCATION MAP
OLYMPIC STORAGE TANK FARM

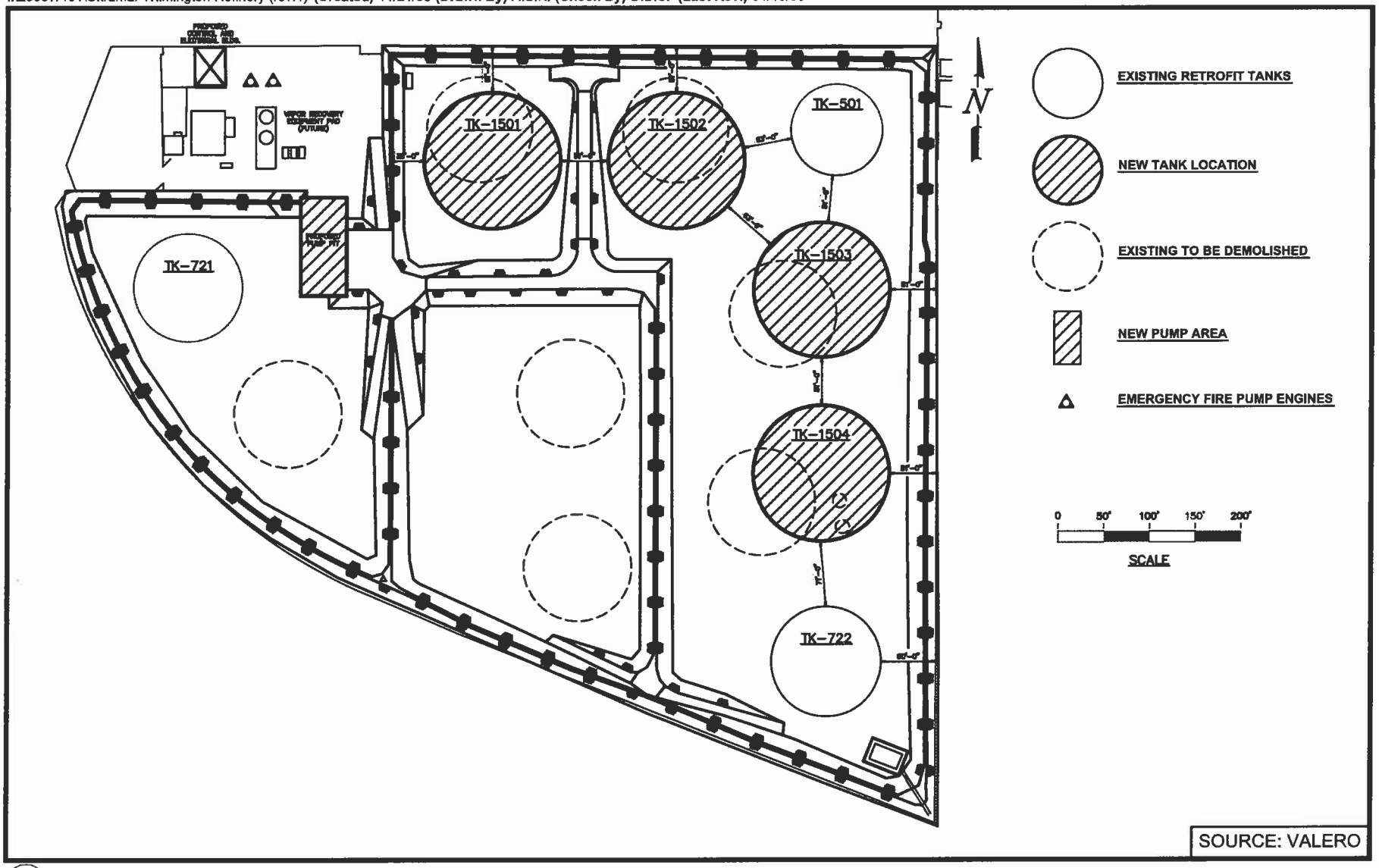
Project No. 2599

Figure 1

N:\2599\SiteLocationMap.cdr

Original In Color

I:\2599\1401\Ultramar Wilmington Refinery (rev.4) **(Created)** 11/21/08 **(Drawn By)** A.S.K. **(Check By)** D.B.S. **(Last Rev.)** 01/13/08

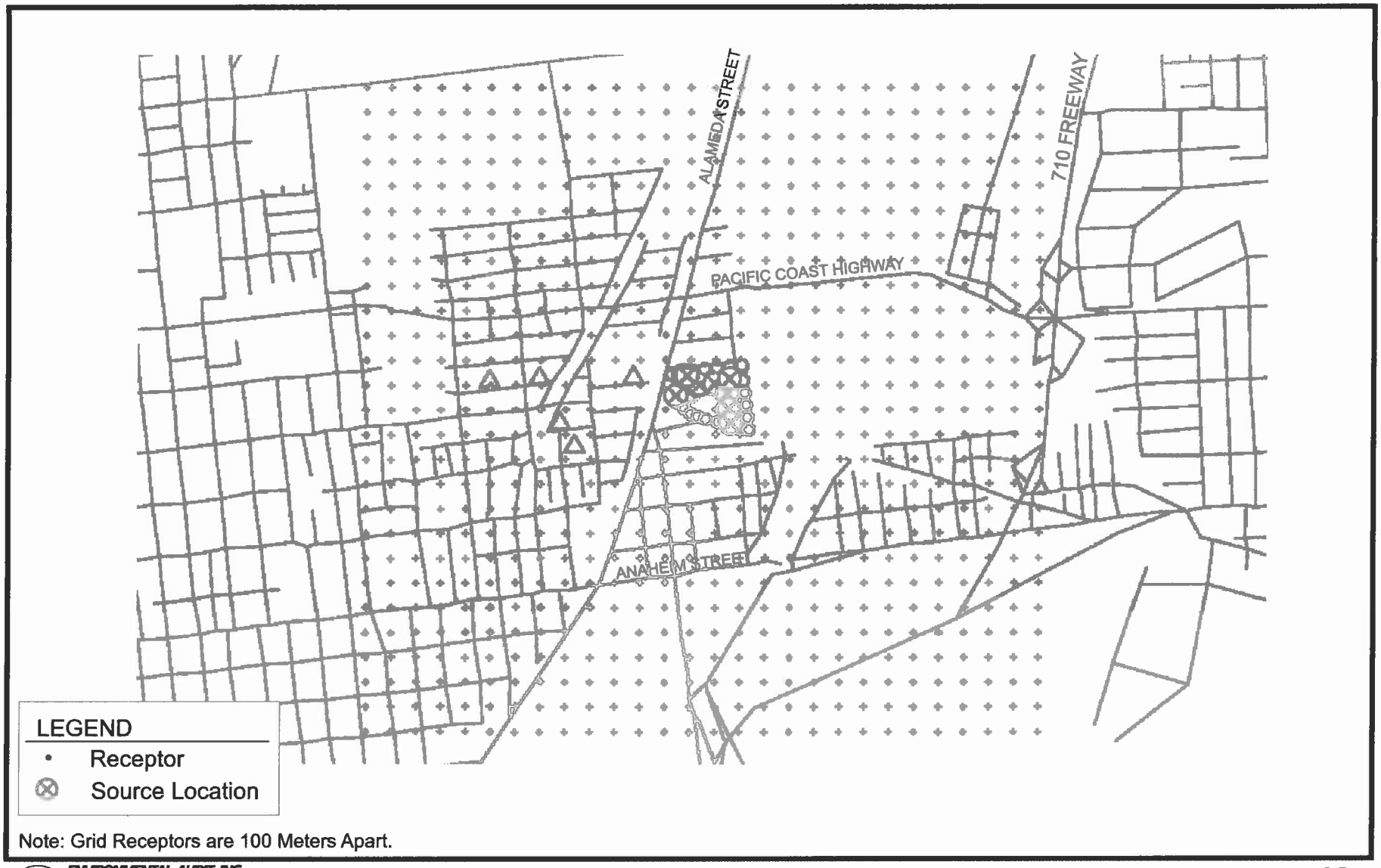


Environmental Audit, Inc.

REFINERY PLOT PLAN
OLYMPIC TANK FARM

Project No. 2599

Figure 2



Note: Grid Receptors are 100 Meters Apart.

ENVIRONMENTAL AUDIT, INC.

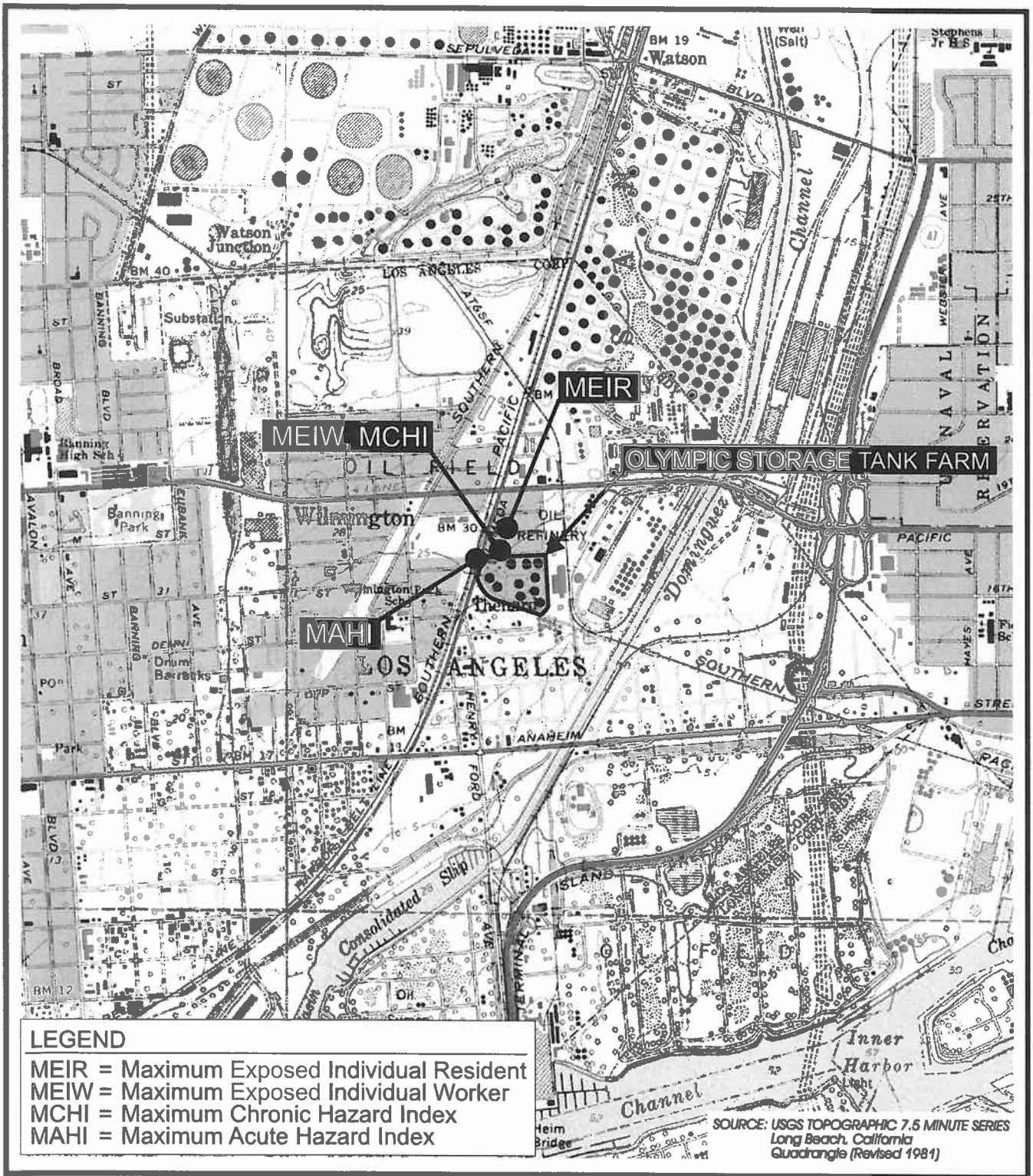
N

SOURCE AND MODELED RECEPTOR GRID LOCATIONS
ULTRAMAR INC.
OLYMPIC TANK FARM INTEGRATION PROJECT

Project No. 2599

N:\2599\1401\Receptor - Source Locations.cdr

Figure 3



Environmental Audit, Inc.

MAXIMUM IMPACT LOCATIONS
OLYMPIC TANK FARM

Project No. 2599

Figure 4

N:\2599\1401\Maximum Impact Points (rev.1).cdr

Original In Color

ATTACHMENT 1

Emission Calculations

Ultramar Inc.
Olympic Tank Farm Intergration Project

Attachment 1
Operational Emissions

	New Pump Area		New Tank		New Tank Fugitives		Existing Tank		New ICE		Total[(1)]	
Chemical	**lb/yr**	**lb/hr**	**lb/yr**	**lb/hr**	**lb/yr**	**lb/hr**	**lb/yr**	**lb/hr**	**lb/yr**	**lb/hr**	**lb/yr**	**lb/hr**
Benz[a]anthracene	2.29E-07	2.61E+00	6.11E-07	6.97E+00	2.18E-07	2.49E+00	4.03E-07	4.60E+00			4.75E-06	5.43E+01
Benzene	4.56E+00	5.21E+00	1.22E+01	1.39E+00	4.34E+00	4.95E+00	8.04E+00	9.17E+00	9.87E-01	4.94E-03	9.57E+01	5.81E+01
Benzo[a]pyrene	3.95E-04	4.51E+00	1.05E-03	1.20E+00	3.76E-04	4.29E+00	6.96E-04	7.94E+00			8.20E-03	5.03E+01
Benzo[b]fluoranthene	1.28E-08	1.46E+00	3.42E-08	3.90E+00	1.22E-08	1.39E+00	2.26E-08	2.57E+00			2.66E-07	3.04E+01
Benzo[k]fluoranthene	2.00E-11	2.32E+00	5.44E-11	6.20E+00	1.94E-11	2.21E+00	3.59E-11	4.10E+00			4.23E-10	4.83E+01
Ethyl benzene	3.43E+00	3.92E+00	9.16E+00	1.05E+00	3.27E+00	3.73E+00	6.05E+00	6.90E+00	5.78E-02	2.89E-04	7.13E+01	4.37E+01
Ethylene	2.00E-03	2.28E+00	5.34E-03	6.09E+00	1.90E-03	2.17E+00	3.52E-03	4.02E+00			4.15E-02	4.74E+01
Naphthalene	5.36E-01	6.12E+00	1.43E+00	1.63E+00	5.10E-01	5.82E+00	9.45E-01	1.08E+00	1.04E-01	5.22E-04	1.12E+01	3.92E+01
Hexane	3.65E+02	4.16E+00	9.74E+02	1.11E-01	3.47E+02	3.96E+00	6.43E+02	7.34E+00	1.43E-01	7.13E-04	7.58E+03	4.25E+01
Propylene	1.10E+01	1.26E+00	2.94E+01	3.35E+00	1.05E+01	1.20E+00	1.94E+01	2.21E+00			2.28E+02	2.61E+01
Toluene	1.78E+01	2.03E+00	4.75E+01	5.42E+00	1.69E+01	1.93E+00	3.14E+01	3.58E+00	5.59E-01	2.79E-03	3.70E+02	4.22E+01
Xylenes (mixed)	2.04E+01	2.32E+00	5.44E+01	6.20E+00	1.94E+01	2.21E+00	3.59E+01	4.10E+00	2.25E-01	1.12E-03	4.23E+02	4.83E+01
1,3-Butadiene									1.15E+00	5.76E-03	1.15E+00	5.76E-03
Acetaldehyde									4.15E+00	2.08E-02	4.15E+00	2.08E-02
Acrolein									1.80E-01	8.98E-04	1.80E-01	8.98E-04
Ammonia									4.24E+00	2.12E-02	4.24E+00	2.12E-02
Arsenic									8.48E-03	4.24E-05	8.48E-03	4.24E-05
Cadmium									7.95E-03	3.98E-05	7.95E-03	3.98E-05
Copper									2.17E-02	1.09E-04	2.17E-02	1.09E-04
Formaldehyde									9.15E+00	4.57E-02	9.15E+00	4.57E-02
Chromium, hexavalent									5.30E-04	4.57E-02	5.30E-04	4.57E-02
Hydrochloric acid									9.87E-01	4.94E-03	9.87E-01	4.94E-03
Lead									4.40E-02	2.20E-04	4.40E-02	2.20E-04
Manganese									1.64E-02	8.22E-05	1.64E-02	8.22E-05
Mercury									1.06E-02	5.30E-05	1.06E-02	5.30E-05
Nickel									2.07E-02	1.03E-04	2.07E-02	1.03E-04
PAHs									1.92E-01	9.59E-04	1.92E-01	9.59E-04
Selenium									1.17E-02	5.83E-05	1.17E-02	5.83E-05
Diesel engine exhaust									1.81E+01	9.03E-02	1.81E+01	9.03E-02

(1) Total Emissions = New Pump Area + 4 x (New Tank) + 4 x (New Tank Fugitives) + 3 x (Existing Tank) + 2 x (New ICE)

ATTACHMENT 2

Health Data

Ultramar Inc.
Olympic Tank Farm Intergration Project

Attachment 2
Health Data

CAS	ABBREVIATION	CancerPF(Inh) $(mg/kg\text{-}d)^{-1}$	CancerPF(Oral) $(mg/kg\text{-}d)^{-1}$	ChronicREL(Inh) $\mu g/m^3$	ChronicREL(Oral) mg/kg-d	AcuteREL $\mu g/m^3$
56553	Benz[a]anthracene	3.90E-01	1.20E+00			
71432	Benzene	1.00E-01		6.00E+01		1.30E+03
50328	Benzo[a]pyrene	3.90E+00	1.20E+01			
205992	Benzo[b]fluoranthene	3.90E-01	1.20E+00			
207089	Benzo[k]fluoranthene	3.90E-01	1.20E+00			
100414	Ethyl benzene	8.70E-03		2.00E+03		
74851	Ethylene					
91203	Naphthalene	1.20E-01		9.00E+00		
110543	Hexane			7.00E+03		
115071	Propylene			3.00E+03		
108883	Toluene			3.00E+02		3.70E+04
1330207	Xylenes (mixed)			7.00E+02		2.20E+04
106990	1,3-Butadiene	6.00E-01		2.00E+01		
75070	Acetaldehyde	1.00E-02		9.00E+00		
107028	Acrolein			6.00E-02		1.90E-01
7664417	Ammonia			2.00E+02		3.20E+03
7440382	Arsenic	1.20E+01	1.50E+00	3.00E-02	3.00E-04	1.90E-01
7440439	Cadmium	1.50E+01		2.00E-02	5.00E-04	
7440508	Copper					1.00E+02
50000	Formaldehyde	2.10E-02		3.00E+00		9.40E+01
18540299	Chromium, hexavalent	5.10E+02		2.00E-01	2.00E-02	
7647010	Hydrochloric acid			9.00E+00		2.10E+03
1128	Lead	4.20E-02	8.50E-03			
7439965	Manganese			2.00E-01		
7439976	Mercury			9.00E-02	3.00E-04	1.80E+00
7440020	Nickel	9.10E-01		5.00E-02	5.00E-02	6.00E+00
1151	PAHs	3.90E+00	1.20E+01			
7782492	Selenium			2.00E+01		
9901	Diesel engine exhaust	1.10E+00		5.00E+00		

ATTACHMENT 3

Health Risk Tables

Ultramar Inc.
Olympic Tank Farm Intergration Project

Attachment 3
Maximum Exposed Individual Resident

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
Benz[a]anthracene	4.94E-14	6.57E-13	9.84E-14	0.00E+00	0.00E+00	0.00E+00	8.33E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.59E-12	1.64E-12
Benzene	2.88E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.88E-07
Benzo[a]pyrene	8.52E-10	1.13E-08	1.70E-09	0.00E+00	0.00E+00	0.00E+00	1.44E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.74E-08	2.83E-08
Benzo[b]fluoranthene	2.76E-15	3.68E-14	5.51E-15	0.00E+00	0.00E+00	0.00E+00	4.66E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.89E-14	9.16E-14
Benzo[k]fluoranthene	4.40E-18	5.85E-17	8.76E-18	0.00E+00	0.00E+00	0.00E+00	7.41E-17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-16	1.46E-16
Ethyl benzene	1.85E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.85E-08
Ethylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene	4.05E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.05E-08
Hexane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Propylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xylenes (mixed)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene	4.47E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.47E-08
Acetaldehyde	2.68E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.68E-09
Acrolein	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ammonia	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Arsenic	6.58E-09	1.57E-08	7.66E-09	0.00E+00	0.00E+00	0.00E+00	1.41E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.48E-08	3.14E-08
Cadmium	7.71E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.71E-09
Copper	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	1.24E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-08
Chromium, hexavalent	1.75E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.75E-08
Hydrochloric acid	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Lead	1.07E-10	6.83E-12	2.25E-10	0.00E+00	0.00E+00	0.00E+00	1.61E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.93E-10	5.00E-10
Manganese	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nickel	1.22E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-09
PAHs	4.34E-08	5.77E-07	8.64E-08	0.00E+00	0.00E+00	0.00E+00	7.32E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E-06	1.44E-06
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Diesel engine exhaust	1.28E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E-06
SUM	1.77E-06	6.04E-07	9.60E-08	0.00E+00	0.00E+00	0.00E+00	7.48E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.45E-06	3.22E-06

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
Benz[a]anthracene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Benzene	8.94%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.94%
Benzo[a]pyrene	0.03%	0.35%	0.05%	0.00%	0.00%	0.00%	0.45%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.85%	0.88%
Benzo[b]fluoranthene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Benzo[k]fluoranthene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Ethyl benzene	0.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.57%
Ethylene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Naphthalene	1.26%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.26%
Hexane	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Propylene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Toluene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Xylenes (mixed)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1,3-Butadiene	1.39%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.39%
Acetaldehyde	0.08%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.08%
Acrolein	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Ammonia	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Arsenic	0.20%	0.49%	0.24%	0.00%	0.00%	0.00%	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.77%	0.98%
Cadmium	0.24%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.24%
Copper	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Formaldehyde	0.39%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.39%
Chromium, hexavalent	0.54%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.54%
Hydrochloric acid	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Lead	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.02%
Manganese	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mercury	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Nickel	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%
PAHs	1.35%	17.92%	2.68%	0.00%	0.00%	0.00%	22.73%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	43.48%	44.72%
Selenium	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Diesel engine exhaust	39.75%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	39.75%
SUM	54.97%	18.76%	2.98%	0.00%	0.00%	0.00%	23.23%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	45.03%	100.00%

Ultramar Inc.
Olympic Tank Farm Intergration Project

Attachment 3
Maximum Exposed Individual Worker

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
Benz[a]anthracene	2.11E-14	4.85E-13	6.31E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.48E-13	5.69E-13
Benzene	1.11E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-07
Benzo[a]pyrene	3.65E-10	8.37E-09	1.09E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.46E-09	9.82E-09
Benzo[b]fluoranthene	1.18E-15	2.71E-14	3.53E-15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.07E-14	3.18E-14
Benzo[k]fluoranthene	1.88E-18	4.32E-17	5.61E-18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.88E-17	5.07E-17
Ethyl benzene	7.09E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.09E-09
Ethylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene	1.56E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.56E-08
Hexane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Propylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xylenes (mixed)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene	1.82E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.82E-08
Acetaldehyde	1.09E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-09
Acrolein	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ammonia	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Arsenic	2.68E-09	1.23E-08	5.21E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-08	2.02E-08
Cadmium	3.14E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.14E-09
Copper	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	5.06E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.06E-09
Chromium, hexavalent	7.12E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.12E-09
Hydrochloric acid	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Lead	4.87E-11	9.07E-11	1.53E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-10	2.93E-10
Manganese	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nickel	4.95E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.95E-10
PAHs	1.97E-08	4.52E-07	5.88E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.11E-07	5.31E-07
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Diesel engine exhaust	5.23E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.23E-07
SUM	7.14E-07	4.73E-07	6.53E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.38E-07	1.25E-06

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
Benz[a]anthracene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Benzene	8.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.88%
Benzo[a]pyrene	0.03%	0.67%	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.76%	0.79%
Benzo[b]fluoranthene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Benzo[k]fluoranthene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Ethyl benzene	0.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.57%
Ethylene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Naphthalene	1.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.25%
Hexane	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Propylene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Toluene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Xylenes (mixed)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1,3-Butadiene	1.46%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.46%
Acetaldehyde	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.09%
Acrolein	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Ammonia	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Arsenic	0.21%	0.98%	0.42%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.41%	1.62%
Cadmium	0.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.25%
Copper	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Formaldehyde	0.40%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.40%
Chromium, hexavalent	0.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.57%
Hydrochloric acid	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Lead	0.00%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%	0.02%
Manganese	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mercury	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Nickel	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%
PAHs	1.58%	36.16%	4.70%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	40.88%	42.48%
Selenium	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Diesel engine exhaust	41.84%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	41.84%
SUM	57.12%	37.84%	5.22%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	43.04%	100.00%

Ultramar Inc.
Olympic Tank Farm Intergration Project

Attachment 3
Maximum Exposed Individual Sensitive Receptor

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
Benz[a]anthracene	3.26E-14	4.33E-13	6.48E-14	0.00E+00	0.00E+00	0.00E+00	5.49E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-12	1.08E-12
Benzene	1.90E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.90E-07
Benzo[a]pyrene	5.62E-10	7.47E-09	1.12E-09	0.00E+00	0.00E+00	0.00E+00	9.47E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.81E-08	1.86E-08
Benzo[b]fluoranthene	1.82E-15	2.42E-14	3.63E-15	0.00E+00	0.00E+00	0.00E+00	3.07E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.86E-14	6.04E-14
Benzo[k]fluoranthene	2.90E-18	3.85E-17	5.77E-18	0.00E+00	0.00E+00	0.00E+00	4.89E-17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.31E-17	9.60E-17
Ethyl benzene	1.22E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-08
Ethylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene	2.67E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.67E-08
Hexane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Propylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xylenes (mixed)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene	2.90E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.90E-08
Acetaldehyde	1.74E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.74E-09
Acrolein	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ammonia	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Arsenic	4.28E-09	1.02E-08	4.98E-09	0.00E+00	0.00E+00	0.00E+00	9.15E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.61E-08	2.04E-08
Cadmium	5.01E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.01E-09
Copper	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	8.07E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.07E-09
Chromium, hexavalent	1.14E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-08
Hydrochloric acid	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Lead	6.97E-11	4.44E-12	1.46E-10	0.00E+00	0.00E+00	0.00E+00	1.04E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.55E-10	3.25E-10
Manganese	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nickel	7.90E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.90E-10
PAHs	2.82E-08	3.75E-07	5.62E-08	0.00E+00	0.00E+00	0.00E+00	4.76E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.07E-07	9.36E-07
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Diesel engine exhaust	8.35E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.35E-07
SUM	1.15E-06	3.93E-07	6.24E-08	0.00E+00	0.00E+00	0.00E+00	4.86E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.42E-07	2.09E-06

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
Benz[a]anthracene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Benzene	9.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.09%
Benzo[a]pyrene	0.03%	0.36%	0.05%	0.00%	0.00%	0.00%	0.45%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.87%	0.89%
Benzo[b]fluoranthene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Benzo[k]fluoranthene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Ethyl benzene	0.58%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.58%
Ethylene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Naphthalene	1.28%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.28%
Hexane	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Propylene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Toluene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Xylenes (mixed)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1,3-Butadiene	1.39%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.39%
Acetaldehyde	0.08%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.08%
Acrolein	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Ammonia	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Arsenic	0.20%	0.49%	0.24%	0.00%	0.00%	0.00%	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.77%	0.98%
Cadmium	0.24%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.24%
Copper	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Formaldehyde	0.39%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.39%
Chromium, hexavalent	0.55%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.55%
Hydrochloric acid	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Lead	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.02%
Manganese	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Mercury	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Nickel	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%
PAHs	1.35%	17.94%	2.69%	0.00%	0.00%	0.00%	22.78%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	43.40%	44.78%
Selenium	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Diesel engine exhaust	39.95%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	39.95%
SUM	55.02%	18.80%	2.99%	0.00%	0.00%	0.00%	23.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	45.07%	100.00%

Ultramar Inc.
Olympic Tank Farm Intergration Project

Attachment 3
Maxium Chronic Hazard Index

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX
Benz[a]anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzene	0.00E+00	3.23E-04	0.00E+00	3.23E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.23E-04	3.23E-04
Benzo[a]pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzo[b]fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzo[k]fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethyl benzene	0.00E+00	0.00E+00	0.00E+00	7.13E-06	7.13E-06	0.00E+00	7.13E-06	0.00E+00	7.13E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.13E-06
Ethylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.52E-04	0.00E+00	0.00E+00	2.52E-04
Hexane	0.00E+00	2.16E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.16E-04
Propylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.52E-05	0.00E+00	0.00E+00	1.52E-05
Toluene	0.00E+00	2.47E-04	0.00E+00	2.47E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.47E-04	0.00E+00	0.00E+00	2.47E-04
Xylenes (mixed)	0.00E+00	1.21E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E-04	0.00E+00	0.00E+00	1.21E-04
1,3-Butadiene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.65E-05	0.00E+00	0.00E+00	0.00E+00	2.65E-05
Acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.13E-04	0.00E+00	0.00E+00	2.13E-04
Acrolein	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-03	0.00E+00	0.00E+00	1.38E-03
Ammonia	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.77E-06	0.00E+00	0.00E+00	9.77E-06
Arsenic	1.87E-04	1.30E-04	0.00E+00	1.30E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.63E-05	0.00E+00	1.87E-04
Cadmium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E-04	0.00E+00	1.83E-04	0.00E+00	0.00E+00	2.24E-04
Copper	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-03	0.00E+00	0.00E+00	1.41E-03
Chromium, hexavalent	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-06	0.00E+00	4.31E-08	1.22E-06
Hydrochloric acid	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.06E-05	0.00E+00	0.00E+00	5.06E-05
Lead	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Manganese	0.00E+00	3.79E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.79E-05
Mercury	0.00E+00	5.43E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-04	1.46E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-04
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.41E-07	0.00E+00	0.00E+00	0.00E+00	1.90E-04	0.00E+00	1.90E-04	1.90E-04
PAHs	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Selenium	2.69E-07	2.69E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.69E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.69E-07
Diesel engine exhaust	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.66E-03	0.00E+00	0.00E+00	1.66E-03
SUM	1.87E-04	1.13E-03	0.00E+00	7.07E-04	7.13E-06	2.79E-03	8.33E-06	1.46E-04	3.77E-04	2.65E-05	5.73E-03	5.63E-05	5.13E-04	5.73E-03

CHEM	RESP
Benz[a]anthracene	0.00%
Benzene	0.00%
Benzo[a]pyrene	0.00%
Benzo[b]fluoranthene	0.00%
Benzo[k]fluoranthene	0.00%
Ethyl benzene	0.00%
Ethylene	0.00%
Naphthalene	4.40%
Hexane	0.00%
Propylene	0.27%
Toluene	4.31%
Xylenes (mixed)	2.11%
1,3-Butadiene	0.00%
Acetaldehyde	3.72%
Acrolein	24.08%
Ammonia	0.17%
Arsenic	0.00%
Cadmium	3.19%
Copper	0.00%
Formaldehyde	24.61%
Chromium, hexavalent	0.02%
Hydrochloric acid	0.88%
Lead	0.00%
Manganese	0.00%
Mercury	0.00%
Nickel	3.32%
PAHs	0.00%
Selenium	0.00%
Diesel engine exhaust	28.97%
SUM	100.00%

Ultramar Inc.
Olympic Tank Farm Intergration Project

Attachment 3
Maxium Acute Hazard Index

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX
Benz[a]anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzene	0.00E+00	0.00E+00	0.00E+00	8.12E-04	0.00E+00	0.00E+00	0.00E+00	8.12E-04	0.00E+00	8.12E-04	0.00E+00	0.00E+00	8.12E-04	8.12E-04
Benzo[a]pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzo[b]fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzo[k]fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethyl benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hexane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Propylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	0.00E+00	1.11E-04	0.00E+00	1.11E-04	0.00E+00	1.11E-04	0.00E+00	0.00E+00	0.00E+00	1.11E-04	1.11E-04	0.00E+00	0.00E+00	1.11E-04
Xylenes (mixed)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.98E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.98E-04	0.00E+00	0.00E+00	1.98E-04
1,3-Butadiene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acrolein	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.20E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.20E-01	0.00E+00	0.00E+00	8.20E-01
Ammonia	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-03	0.00E+00	0.00E+00	1.15E-03
Arsenic	0.00E+00	0.00E+00	0.00E+00	2.53E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.53E-02	0.00E+00	0.00E+00	0.00E+00	2.53E-02
Cadmium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Copper	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.89E-04	0.00E+00	0.00E+00	1.89E-04
Formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.44E-02	0.00E+00	8.44E-02	0.00E+00	0.00E+00	8.44E-02	0.00E+00	0.00E+00	8.44E-02
Chromium, hexavalent	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hydrochloric acid	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.08E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.08E-04	0.00E+00	0.00E+00	4.08E-04
Lead	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Manganese	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mercury	0.00E+00	0.00E+00	0.00E+00	5.11E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.11E-03	0.00E+00	0.00E+00	0.00E+00	5.11E-03
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.99E-03	0.00E+00	0.00E+00	2.99E-03	0.00E+00	0.00E+00	2.99E-03
PAHs	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Diesel engine exhaust	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	0.00E+00	1.11E-04	0.00E+00	3.13E-02	0.00E+00	9.06E-01	0.00E+00	8.82E-02	0.00E+00	3.13E-02	9.10E-01	0.00E+00	8.12E-04	9.10E-01

CHEM	RESP
Benz[a]anthracene	0.00%
Benzene	0.00%
Benzo[a]pyrene	0.00%
Benzo[b]fluoranthene	0.00%
Benzo[k]fluoranthene	0.00%
Ethyl benzene	0.00%
Ethylene	0.00%
Naphthalene	0.00%
Hexane	0.00%
Propylene	0.00%
Toluene	0.01%
Xylenes (mixed)	0.02%
1,3-Butadiene	0.00%
Acetaldehyde	0.00%
Acrolein	90.11%
Ammonia	0.13%
Arsenic	0.00%
Cadmium	0.00%
Copper	0.02%
Formaldehyde	9.27%
Chromium, hexavalent	0.00%
Hydrochloric acid	0.04%
Lead	0.00%
Manganese	0.00%
Mercury	0.00%
Nickel	0.33%
PAHs	0.00%
Selenium	0.00%
Diesel engine exhaust	0.00%
SUM	100.00%

This file: C:\HARP\PROJECTS\2599OTF\2599HRA\2599 MEIR.txt

Created by HARP Version 1.4a Build 23.07.00
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 1/13/2009 2:36:57 PM

EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: C:\HARP\PROJECTS\2599OTF\2599HRA\2599HRA.SRC
   Averaging period adjustment factors file: not applicable
   Emission rates file: database
   Site parameters file: C:\HARP\PROJECTS\Pathway\resident pathway.sit

Coordinate system: UTM NAD27

Screening mode is OFF

Exposure duration: 70 year (adult resident)
Analysis method: Derived (Adjusted) Method
Health effect: Cancer Risk
Receptor(s):   294
Sources(s):   All
Chemicals(s):   All

SITE PARAMETERS

DEPOSITION

   Deposition rate (m/s)   0.02

DRINKING WATER

*** Pathway disabled ***

FISH

*** Pathway disabled ***

PASTURE

*** Pathway disabled ***

HOME GROWN PRODUCE

   HUMAN INGESTION
   Fraction of ingested leafy vegetable
     from home grown source   0.052
   Fraction of ingested exposed vegetable
     from home grown source   0.052
   Fraction of ingested protected vegetable
     from home grown source   0.052
   Fraction of ingested root vegetable
     from home grown source   0.052

PIGS, CHICKENS AND EGGS

*** Pathway disabled ***

DERMAL ABSORPTION

*** Pathway enabled ***

SOIL INGESTION

*** Pathway enabled ***

MOTHER'S MILK

*** Pathway enabled ***

CHEMICAL CROSS-REFERENCE TABLE AND BACKGROUND CONCENTRATIONS

CHEM	CAS	ABBREVIATION	POLLUTANT NAME	BACKGROUND (ug/m^3)
0001	56553	B[a]anthracene	Benz[a]anthracene	0.000E+00
0002	71432	Benzene	Benzene	0.000E+00
0003	50328	B[a]P	Benzo[a]pyrene	0.000E+00
0004	205992	B[b]fluoranthen	Benzo[b]fluoranthene	0.000E+00
0005	207089	B[k]fluoranthen	Benzo[k]fluoranthene	0.000E+00
0006	100414	Ethyl Benzene	Ethyl benzene	0.000E+00
0007	74851	Ethylene	Ethylene	0.000E+00
0008	91203	Naphthalene	Naphthalene	0.000E+00
0009	110543	Hexane	Hexane	0.000E+00
0010	115071	Propylene	Propylene	0.000E+00
0011	108883	Toluene	Toluene	0.000E+00
0012	1330207	Xylenes	Xylenes (mixed)	0.000E+00
0013	106990	1,3-Butadiene	1,3-Butadiene	0.000E+00
0014	75070	Acetaldehyde	Acetaldehyde	0.000E+00
0015	107028	Acrolein	Acrolein	0.000E+00
0016	7664417	NH3	Ammonia	0.000E+00
0017	7440382	Arsenic	Arsenic	0.000E+00
0018	7440439	Cadmium	Cadmium	0.000E+00
0019	7440508	Copper	Copper	0.000E+00
0020	50000	Formaldehyde	Formaldehyde	0.000E+00
0021	18540299	Cr(VI)	Chromium, hexavalent (& compounds)	0.000E+00
0022	7647010	HCl	Hydrochloric acid	0.000E+00
0023	1128	Lead cmp(inorg)	Lead compounds (inorganic)	0.000E+00
0024	7439965	Manganese	Manganese	0.000E+00
0025	7439976	Mercury	Mercury	0.000E+00
0026	7440020	Nickel	Nickel	0.000E+00
0027	1151	PAHs-w/o	PAHs, total, w/o individ. components reported [Treated as B(a)P for HRA]	0.000E+00
0028	7782492	Selenium	Selenium	0.000E+00
0029	9901	DieselExhPM	Diesel engine exhaust, particulate matter (Diesel PM)	0.000E+00

CHEMICAL HEALTH VALUES

CHEM	CAS	ABBREVIATION	CancerPF(Inh) (mg/kg-d)^-1	CancerPF(Oral) (mg/kg-d)^-1	ChronicREL(Inh) ug/m^3	ChronicREL(Oral) mg/kg-d	AcuteREL ug/m^3
0001	56553	B[a]anthracene	3.90E-01	1.20E+00	*	*	*
0002	71432	Benzene	1.00E-01	*	6.00E+01	*	1.30E+03
0003	50328	B[a]P	3.90E+00	1.20E+01	*	*	*
0004	205992	B[b]fluoranthen	3.90E-01	1.20E+00	*	*	*
0005	207089	B[k]fluoranthen	3.90E-01	1.20E+00	*	*	*
0006	100414	Ethyl Benzene	8.70E-03	*	2.00E+03	*	*
0007	74851	Ethylene	*	*	*	*	*
0008	91203	Naphthalene	1.20E-01	*	9.00E+00	*	*

0009	110543	Hexane	*	*	7.00E+03	*	*
0010	115071	Propylene	*	*	3.00E+03	*	*
0011	108883	Toluene	*	*	3.00E+02	*	3.70E+04
0012	1330207	Xylenes	*	*	7.00E+02	*	2.20E+04
0013	106990	1,3-Butadiene	6.00E-01	*	2.00E+01	*	*
0014	75070	Acetaldehyde	1.00E-02	*	9.00E+00	*	*
0015	107028	Acrolein	*	*	6.00E-02	*	1.90E-01
0016	7664417	NH3	*	*	2.00E+02	*	3.20E+03
0017	7440382	Arsenic	1.20E+01	1.50E+00	3.00E-02	3.00E-04	1.90E-01
0018	7440439	Cadmium	1.50E+01	*	2.00E-02	5.00E-04	*
0019	7440508	Copper	*	*	*	*	1.00E+02
0020	50000	Formaldehyde	2.10E-02	*	3.00E+00	*	9.40E+01
0021	18540299	Cr(VI)	5.10E+02	*	2.00E-01	2.00E-02	*
0022	7647010	HCl	*	*	9.00E+00	*	2.10E+03
0023	1128	Lead cmp(inorg)	4.20E-02	8.50E-03	*	*	*
0024	7439965	Manganese	*	*	2.00E-01	*	*
0025	7439976	Mercury	*	*	9.00E-02	3.00E-04	1.80E+00
0026	7440020	Nickel	9.10E-01	*	5.00E-02	5.00E-02	6.00E+00
0027	1151	PAHs-w/o	3.90E+00	1.20E+01	*	*	*
0028	7782492	Selenium	*	*	2.00E+01	*	*
0029	9901	DieselExhPM	1.10E+00	*	5.00E+00	*	*

EMISSIONS DATA SOURCE: Emission rates loaded from database
CHEMICALS ADDED OR DELETED: none

EMISSIONS FOR FACILITY FAC=2599 DEV=1 PRO=1 STK=1 NAME=OLYMPIC TANK FARM STACK 1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.0000002288	2.611872146118
71432	Benzene	1	0	4.56	5.205479452054
50328	B[a]P	1	0	0.0003948	4.506849315068
205992	B[b]fluoranthen	1	0	0.0000000128	1.461187214611
207089	B[k]fluoranthen	1	0	0.000000000020	2.324200913242
100414	Ethyl Benzene	1	0	3.432	3.917808219178
74851	Ethylene	1	0	0.002	2.283105022831
91203	Naphthalene	1	0	0.536	6.118721461187
110543	Hexane	1	0	364.8	4.164383561643
115071	Propylene	1	0	11	1.255707762557
108883	Toluene	1	0	17.8	2.031963470319
1330207	Xylenes	1	0	20.36	2.324200913242
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=2 PRO=1 STK=2 NAME=OLYMPIC TANK FARM STACK 2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000610793	6.972523287671
71432	Benzene	1	0	12.173148	1.389628767123
50328	B[a]P	1	0	0.00105393834	1.203125958904
205992	B[b]fluoranthen	1	0	0.000000034170	3.900712328767
207089	B[k]fluoranthen	1	0	5.4352038E-11	6.204570547945
100414	Ethyl Benzene	1	0	9.1618956	1.045878493150
74851	Ethylene	1	0	0.0053391	6.094863013698
91203	Naphthalene	1	0	1.4308788	1.633423287671
110543	Hexane	1	0	973.85184	0.111170301369
115071	Propylene	1	0	29.36505	3.352174657534
108883	Toluene	1	0	47.51799	5.424428082191
1330207	Xylenes	1	0	54.352038	6.204570547945
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=2 PRO=2 STK=3 NAME=OLYMPIC TANK FARM STACK 3 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000217789	2.486175799086
71432	Benzene	1	0	4.34055	4.954965753424
50328	B[a]P	1	0	0.00037580025	4.289957191780
205992	B[b]fluoranthen	1	0	0.000000012184	1.390867579908
207089	B[k]fluoranthen	1	0	1.9380175E-11	2.212348744292
100414	Ethyl Benzene	1	0	3.266835	3.729263698630
74851	Ethylene	1	0	0.00190375	2.173230593607
91203	Naphthalene	1	0	0.510205	5.824257990867
110543	Hexane	1	0	347.244	3.963972602739
115071	Propylene	1	0	10.470625	1.195276826484
108883	Toluene	1	0	16.943375	1.934175228310
1330207	Xylenes	1	0	19.380175	2.212348744292
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*

1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=3 PRO=1 STK=4 NAME=OLYMPIC TANK FARM STACK 4 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000610793	6.972523287671
71432	Benzene	1	0	12.173148	1.389628767123
50328	B[a]P	1	0	0.00105393834	1.203125958904
205992	B[b]fluoranthen	1	0	0.000000034170	3.900712328767
207089	B[k]fluoranthen	1	0	5.4352038E-11	6.204570547945
100414	Ethyl Benzene	1	0	9.1618956	1.045878493150
74851	Ethylene	1	0	0.0053391	6.094863013698
91203	Naphthalene	1	0	1.4308788	1.633423287671
110543	Hexane	1	0	973.85184	0.111170301369
115071	Propylene	1	0	29.36505	3.352174657534
108883	Toluene	1	0	47.51799	5.424428082191
1330207	Xylenes	1	0	54.352038	6.204570547945
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=3 PRO=2 STK=5 NAME=OLYMPIC TANK FARM STACK 5 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000217789	2.486175799086
71432	Benzene	1	0	4.34055	4.954965753424
50328	B[a]P	1	0	0.00037580025	4.289957191780
205992	B[b]fluoranthen	1	0	0.000000012184	1.390867579908
207089	B[k]fluoranthen	1	0	1.9380175E-11	2.212348744292
100414	Ethyl Benzene	1	0	3.266835	3.729263698630
74851	Ethylene	1	0	0.00190375	2.173230593607
91203	Naphthalene	1	0	0.510205	5.824257990867
110543	Hexane	1	0	347.244	3.963972602739
115071	Propylene	1	0	10.470625	1.195276826484
108883	Toluene	1	0	16.943375	1.934175228310
1330207	Xylenes	1	0	19.380175	2.212348744292
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*

18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=4 PRO=1 STK=6 NAME=OLYMPIC TANK FARM STACK 6 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000610793	6.972523287671
71432	Benzene	1	0	12.173148	1.389628767123
50328	B[a]P	1	0	0.00105393834	1.203125958904
205992	B[b]fluoranthen	1	0	0.000000034170	3.900712328767
207089	B[k]fluoranthen	1	0	5.4352038E-11	6.204570547945
100414	Ethyl Benzene	1	0	9.1618956	1.045878493150
74851	Ethylene	1	0	0.0053391	6.094863013698
91203	Naphthalene	1	0	1.4308788	1.633423287671
110543	Hexane	1	0	973.85184	0.111170301369
115071	Propylene	1	0	29.36505	3.352174657534
108883	Toluene	1	0	47.51799	5.424428082191
1330207	Xylenes	1	0	54.352038	6.204570547945
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=4 PRO=2 STK=7 NAME=OLYMPIC TANK FARM STACK 7 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000217789	2.486175799086
71432	Benzene	1	0	4.34055	4.954965753424
50328	B[a]P	1	0	0.00037580025	4.289957191780
205992	B[b]fluoranthen	1	0	0.000000012184	1.390867579908
207089	B[k]fluoranthen	1	0	1.9380175E-11	2.212348744292
100414	Ethyl Benzene	1	0	3.266835	3.729263698630
74851	Ethylene	1	0	0.00190375	2.173230593607
91203	Naphthalene	1	0	0.510205	5.824257990867
110543	Hexane	1	0	347.244	3.963972602739
115071	Propylene	1	0	10.470625	1.195276826484
108883	Toluene	1	0	16.943375	1.934175228310
1330207	Xylenes	1	0	19.380175	2.212348744292
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*

107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=5 PRO=1 STK=8 NAME=OLYMPIC TANK FARM STACK 8 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000610793	6.972523287671
71432	Benzene	1	0	12.173148	1.389628767123
50328	B[a]P	1	0	0.00105393834	1.203125958904
205992	B[b]fluoranthen	1	0	0.000000034170	3.900712328767
207089	B[k]fluoranthen	1	0	5.4352038E-11	6.204570547945
100414	Ethyl Benzene	1	0	9.1618956	1.045878493150
74851	Ethylene	1	0	0.0053391	6.094863013698
91203	Naphthalene	1	0	1.4308788	1.633423287671
110543	Hexane	1	0	973.85184	0.111170301369
115071	Propylene	1	0	29.36505	3.352174657534
108883	Toluene	1	0	47.51799	5.424428082191
1330207	Xylenes	1	0	54.352038	6.204570547945
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=5 PRO=2 STK=9 NAME=OLYMPIC TANK FARM STACK 9 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000217789	2.486175799086
71432	Benzene	1	0	4.34055	4.954965753424
50328	B[a]P	1	0	0.00037580025	4.289957191780
205992	B[b]fluoranthen	1	0	0.000000012184	1.390867579908
207089	B[k]fluoranthen	1	0	1.9380175E-11	2.212348744292
100414	Ethyl Benzene	1	0	3.266835	3.729263698630
74851	Ethylene	1	0	0.00190375	2.173230593607
91203	Naphthalene	1	0	0.510205	5.824257990867

110543	Hexane	1	0	347.244	3.963972602739
115071	Propylene	1	0	10.470625	1.195276826484
108883	Toluene	1	0	16.943375	1.934175228310
1330207	Xylenes	1	0	19.380175	2.212348744292
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=6 PRO=1 STK=10 NAME=OLYMPIC TANK FARM STACK 10 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000417708	4.768364383561
71432	Benzene	1	0	8.324964	9.503383561643
50328	B[a]P	1	0	0.00072076662	8.227929452054
205992	B[b]fluoranthen	1	0	0.000000023368	2.667616438356
207089	B[k]fluoranthen	1	0	3.7170234E-11	4.243177397260
100414	Ethyl Benzene	1	0	6.2656308	7.152546575342
74851	Ethylene	1	0	0.0036513	4.168150684931
91203	Naphthalene	1	0	0.9785484	1.117064383561
110543	Hexane	1	0	665.99712	7.602706849315
115071	Propylene	1	0	20.08215	2.292482876712
108883	Toluene	1	0	32.49657	3.709654109589
1330207	Xylenes	1	0	37.170234	4.243177397260
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=7 PRO=1 STK=11 NAME=OLYMPIC TANK FARM STACK 11 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000417708	4.768364383561
71432	Benzene	1	0	8.324964	9.503383561643

50328	B[a]P	1	0	0.00072076662	8.227929452054
205992	B[b]fluoranthen	1	0	0.000000023368	2.667616438356
207089	B[k]fluoranthen	1	0	3.7170234E-11	4.243177397260
100414	Ethyl Benzene	1	0	6.2656308	7.152546575342
74851	Ethylene	1	0	0.0036513	4.168150684931
91203	Naphthalene	1	0	0.9785484	1.117064383561
110543	Hexane	1	0	665.99712	7.602706849315
115071	Propylene	1	0	20.08215	2.292482876712
108883	Toluene	1	0	32.49657	3.709654109589
1330207	Xylenes	1	0	37.170234	4.243177397260
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=8 PRO=1 STK=12 NAME=OLYMPIC TANK FARM STACK 12 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000403202	4.602771689497
71432	Benzene	1	0	8.03586	9.173356164383
50328	B[a]P	1	0	0.0006957363	7.942195205479
205992	B[b]fluoranthen	1	0	0.000000022556	2.574977168949
207089	B[k]fluoranthen	1	0	3.587941E-11	4.095823059360
100414	Ethyl Benzene	1	0	6.048042	6.904157534246
74851	Ethylene	1	0	0.0035245	4.023401826484
91203	Naphthalene	1	0	0.944566	1.078271689497
110543	Hexane	1	0	642.8688	7.338684931506
115071	Propylene	1	0	19.38475	2.212871004566
108883	Toluene	1	0	31.36805	3.580827625570
1330207	Xylenes	1	0	35.87941	4.095823059360
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=9 PRO=1 STK=13 NAME=OLYMPIC TANK FARM STACK 13 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	*	*
71432	Benzene	1	0	0.9874	0.004937
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
207089	B[k]fluoranthen	1	0	*	*
100414	Ethyl Benzene	1	0	0.05777	0.0002889
74851	Ethylene	1	0	*	*
91203	Naphthalene	1	0	0.1044	0.0005221
110543	Hexane	1	0	0.1426	0.0007129
115071	Propylene	1	0	*	*
108883	Toluene	1	0	0.5586	0.002793
1330207	Xylenes	1	0	0.2247	0.001124
106990	1,3-Butadiene	1	0	1.152	0.005761
75070	Acetaldehyde	1	0	4.151	0.02076
107028	Acrolein	1	0	0.1797	0.0008984
7664417	NH3	1	0	4.24	0.0212
7440382	Arsenic	1	0	0.00848	0.0000424
7440439	Cadmium	1	0	0.00795	0.00003975
7440508	Copper	1	0	0.02173	0.0001087
50000	Formaldehyde	1	0	9.148	0.04574
18540299	Cr(VI)	1	0	0.00053	0.04574
7647010	HCl	1	0	0.9874	0.004937
1128	Lead cmp(inorg)	1	0	0.04399	0.00022
7439965	Manganese	1	0	0.01643	0.00008215
7439976	Mercury	1	0	0.0106	0.000053
7440020	Nickel	1	0	0.02067	0.0001034
1151	PAHs-w/o	1	0	0.1919	0.0009593
7782492	Selenium	1	0	0.01166	0.0000583
9901	DieselExhPM	1	0	18.06	0.09028

EMISSIONS FOR FACILITY FAC=2599 DEV=9 PRO=2 STK=14 NAME=OLYMPIC TANK FARM STACK 14 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	*	*
71432	Benzene	1	0	0.9874	0.004937
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
207089	B[k]fluoranthen	1	0	*	*
100414	Ethyl Benzene	1	0	0.05777	0.0002889
74851	Ethylene	1	0	*	*
91203	Naphthalene	1	0	0.1044	0.0005221
110543	Hexane	1	0	0.1426	0.0007129
115071	Propylene	1	0	*	*
108883	Toluene	1	0	0.5586	0.002793
1330207	Xylenes	1	0	0.2247	0.001124
106990	1,3-Butadiene	1	0	1.152	0.005761
75070	Acetaldehyde	1	0	4.151	0.02076
107028	Acrolein	1	0	0.1797	0.0008984
7664417	NH3	1	0	4.24	0.0212
7440382	Arsenic	1	0	0.00848	0.0000424
7440439	Cadmium	1	0	0.00795	0.00003975
7440508	Copper	1	0	0.02173	0.0001087
50000	Formaldehyde	1	0	9.148	0.04574
18540299	Cr(VI)	1	0	0.00053	0.00000265
7647010	HCl	1	0	0.9874	0.004937
1128	Lead cmp(inorg)	1	0	0.04399	0.00022

7439965	Manganese	1	0	0.01643	0.00008215
7439976	Mercury	1	0	0.0106	0.000053
7440020	Nickel	1	0	0.02067	0.0001034
1151	PAHs-w/o	1	0	0.1919	0.0009593
7782492	Selenium	1	0	0.01166	0.0000583
9901	DieselExhPM	1	0	18.06	0.09028

CANCER RISK REPORT

DOMINANT PATHWAYS, Receptor 294

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG
0001	-	YES	-	-	-	-	YES	-	-	-	-	-
0002	A	-	-	-	-	-	-	-	-	-	-	-
0003	-	YES	-	-	-	-	YES	-	-	-	-	-
0004	-	YES	-	-	-	-	YES	-	-	-	-	-
0005	-	YES	-	-	-	-	YES	-	-	-	-	-
0006	A	-	-	-	-	-	-	-	-	-	-	-
0007	-	-	-	-	-	-	-	-	-	-	-	-
0008	A	-	-	-	-	-	-	-	-	-	-	-
0009	-	-	-	-	-	-	-	-	-	-	-	-
0010	-	-	-	-	-	-	-	-	-	-	-	-
0011	-	-	-	-	-	-	-	-	-	-	-	-
0012	-	-	-	-	-	-	-	-	-	-	-	-
0013	A	-	-	-	-	-	-	-	-	-	-	-
0014	A	-	-	-	-	-	-	-	-	-	-	-
0015	-	-	-	-	-	-	-	-	-	-	-	-
0016	-	-	-	-	-	-	-	-	-	-	-	-
0017	A	YES	-	-	-	-	-	-	-	-	-	-
0018	A	-	-	-	-	-	-	-	-	-	-	-
0019	-	-	-	-	-	-	-	-	-	-	-	-
0020	A	-	-	-	-	-	-	-	-	-	-	-
0021	A	-	-	-	-	-	-	-	-	-	-	-
0022	-	-	-	-	-	-	-	-	-	-	-	-
0023	-	-	YES	-	-	-	YES	-	-	-	-	-
0024	-	-	-	-	-	-	-	-	-	-	-	-
0025	-	-	-	-	-	-	-	-	-	-	-	-
0026	A	-	-	-	-	-	-	-	-	-	-	-
0027	-	YES	-	-	-	-	YES	-	-	-	-	-
0028	-	-	-	-	-	-	-	-	-	-	-	-
0029	A	-	-	-	-	-	-	-	-	-	-	-

DERIVED CANCER RISK, RECEPTOR 294

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
UTME	UTMN														
0001	4.94E-14	6.57E-13	9.84E-14	0.00E+00	0.00E+00	0.00E+00	8.33E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.59E-12	1.64E-12
0002	2.88E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.88E-07
0003	8.52E-10	1.13E-08	1.70E-09	0.00E+00	0.00E+00	0.00E+00	1.44E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.74E-08	2.83E-08
0004	2.76E-15	3.68E-14	5.51E-15	0.00E+00	0.00E+00	0.00E+00	4.66E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.89E-14	9.16E-14
0005	4.40E-18	5.85E-17	8.76E-18	0.00E+00	0.00E+00	0.00E+00	7.41E-17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-16	1.46E-16
0006	1.85E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.85E-08
0007	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	4.05E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.05E-08
0009	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0010	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0011	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0012	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0013	4.47E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.47E-08
0014	2.68E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.68E-09
0015	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

0017	6.58E-09	1.57E-08	7.66E-09	0.00E+00	0.00E+00	0.00E+00	1.41E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.48E-08	3.14E-08
0018	7.71E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.71E-09
0019	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	1.24E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-08
0021	1.75E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.75E-08
0022	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0023	1.07E-10	6.83E-12	2.25E-10	0.00E+00	0.00E+00	0.00E+00	1.61E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.93E-10	5.00E-10
0024	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0025	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0026	1.22E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-09
0027	4.34E-08	5.77E-07	8.64E-08	0.00E+00	0.00E+00	0.00E+00	7.32E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E-06	1.44E-06
0028	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	1.28E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E-06
SUM	1.77E-06	6.04E-07	9.60E-08	0.00E+00	0.00E+00	0.00E+00	7.48E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.45E-06	3.22E-06

385213 3739369

This file: C:\HARP\PROJECTS\2599OTF\2599HRA\2599 MEIW.txt

Created by HARP Version 1.4a Build 23.07.00
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 1/13/2009 2:43:16 PM

EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: C:\HARP\PROJECTS\2599OTF\2599HRA\2599HRA.SRC
   Averaging period adjustment factors file: not applicable
   Emission rates file: database
   Site parameters file: C:\HARP\PROJECTS\Pathway\worker pathway.sit

Coordinate system: UTM NAD27

Screening mode is OFF

Exposure duration: Standard work schedule (49 wks/yr, 5 days/wk, 8 hrs/day, 40 yrs)
Analysis method: Point estimate
Health effect: Cancer Risk
Receptor(s):   322
Sources(s):   All
Chemicals(s):   All

SITE PARAMETERS

DEPOSITION

   Deposition rate (m/s)   0.02

DRINKING WATER

*** Pathway disabled ***

FISH

*** Pathway disabled ***

PASTURE

*** Pathway disabled ***

HOME GROWN PRODUCE

*** Pathway disabled ***

PIGS, CHICKENS AND EGGS

*** Pathway disabled ***

DERMAL ABSORPTION

*** Pathway enabled ***

SOIL INGESTION

*** Pathway enabled ***

MOTHER'S MILK

*** Pathway disabled ***

CHEMICAL CROSS-REFERENCE TABLE AND BACKGROUND CONCENTRATIONS

CHEM	CAS	ABBREVIATION	POLLUTANT NAME	BACKGROUND (ug/m^3)
0001	56553	B[a]anthracene	Benz[a]anthracene	0.000E+00
0002	71432	Benzene	Benzene	0.000E+00
0003	50328	B[a]P	Benzo[a]pyrene	0.000E+00
0004	205992	B[b]fluoranthen	Benzo[b]fluoranthene	0.000E+00
0005	207089	B[k]fluoranthen	Benzo[k]fluoranthene	0.000E+00
0006	100414	Ethyl Benzene	Ethyl benzene	0.000E+00
0007	74851	Ethylene	Ethylene	0.000E+00
0008	91203	Naphthalene	Naphthalene	0.000E+00
0009	110543	Hexane	Hexane	0.000E+00
0010	115071	Propylene	Propylene	0.000E+00
0011	108883	Toluene	Toluene	0.000E+00
0012	1330207	Xylenes	Xylenes (mixed)	0.000E+00
0013	106990	1,3-Butadiene	1,3-Butadiene	0.000E+00
0014	75070	Acetaldehyde	Acetaldehyde	0.000E+00
0015	107028	Acrolein	Acrolein	0.000E+00
0016	7664417	NH3	Ammonia	0.000E+00
0017	7440382	Arsenic	Arsenic	0.000E+00
0018	7440439	Cadmium	Cadmium	0.000E+00
0019	7440508	Copper	Copper	0.000E+00
0020	50000	Formaldehyde	Formaldehyde	0.000E+00
0021	18540299	Cr(VI)	Chromium, hexavalent (& compounds)	0.000E+00
0022	7647010	HCl	Hydrochloric acid	0.000E+00
0023	1128	Lead cmp(inorg)	Lead compounds (inorganic)	0.000E+00
0024	7439965	Manganese	Manganese	0.000E+00
0025	7439976	Mercury	Mercury	0.000E+00
0026	7440020	Nickel	Nickel	0.000E+00
0027	1151	PAHs-w/o	PAHs, total, w/o individ. components reported [Treated as B(a)P for HRA]	0.000E+00
0028	7782492	Selenium	Selenium	0.000E+00
0029	9901	DieselExhPM	Diesel engine exhaust, particulate matter (Diesel PM)	0.000E+00

CHEMICAL HEALTH VALUES

CHEM	CAS	ABBREVIATION	CancerPF(Inh) (mg/kg-d)^-1	CancerPF(Oral) (mg/kg-d)^-1	ChronicREL(Inh) ug/m^3	ChronicREL(Oral) mg/kg-d	AcuteREL ug/m^3
0001	56553	B[a]anthracene	3.90E-01	1.20E+00	*	*	*
0002	71432	Benzene	1.00E-01	*	6.00E+01	*	1.30E+03
0003	50328	B[a]P	3.90E+00	1.20E+01	*	*	*
0004	205992	B[b]fluoranthen	3.90E-01	1.20E+00	*	*	*
0005	207089	B[k]fluoranthen	3.90E-01	1.20E+00	*	*	*
0006	100414	Ethyl Benzene	8.70E-03	*	2.00E+03	*	*
0007	74851	Ethylene	*	*	*	*	*
0008	91203	Naphthalene	1.20E-01	*	9.00E+00	*	*
0009	110543	Hexane	*	*	7.00E+03	*	*
0010	115071	Propylene	*	*	3.00E+03	*	*
0011	108883	Toluene	*	*	3.00E+02	*	3.70E+04
0012	1330207	Xylenes	*	*	7.00E+02	*	2.20E+04
0013	106990	1,3-Butadiene	6.00E-01	*	2.00E+01	*	*
0014	75070	Acetaldehyde	1.00E-02	*	9.00E+00	*	*
0015	107028	Acrolein	*	*	6.00E-02	*	1.90E-01
0016	7664417	NH3	*	*	2.00E+02	*	3.20E+03

0017	7440382	Arsenic	1.20E+01	1.50E+00	3.00E-02	3.00E-04	1.90E-01
0018	7440439	Cadmium	1.50E+01	*	2.00E-02	5.00E-04	*
0019	7440508	Copper	*	*	*	*	1.00E+02
0020	50000	Formaldehyde	2.10E-02	*	3.00E+00	*	9.40E+01
0021	18540299	Cr(VI)	5.10E+02	*	2.00E-01	2.00E-02	*
0022	7647010	HCl	*	*	9.00E+00	*	2.10E+03
0023	1128	Lead cmp(inorg)	4.20E-02	8.50E-03	*	*	*
0024	7439965	Manganese	*	*	2.00E-01	*	*
0025	7439976	Mercury	*	*	9.00E-02	3.00E-04	1.80E+00
0026	7440020	Nickel	9.10E-01	*	5.00E-02	5.00E-02	6.00E+00
0027	1151	PAHs-w/o	3.90E+00	1.20E+01	*	*	*
0028	7782492	Selenium	*	*	2.00E+01	*	*
0029	9901	DieselExhPM	1.10E+00	*	5.00E+00	*	*

EMISSIONS DATA SOURCE: Emission rates loaded from database
CHEMICALS ADDED OR DELETED: none

EMISSIONS FOR FACILITY FAC=2599 DEV=1 PRO=1 STK=1 NAME=OLYMPIC TANK FARM STACK 1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.0000002288	2.611872146118
71432	Benzene	1	0	4.56	5.205479452054
50328	B[a]P	1	0	0.0003948	4.506849315068
205992	B[b]fluoranthen	1	0	0.0000000128	1.461187214611
207089	B[k]fluoranthen	1	0	0.000000000020	2.324200913242
100414	Ethyl Benzene	1	0	3.432	3.917808219178
74851	Ethylene	1	0	0.002	2.283105022831
91203	Naphthalene	1	0	0.536	6.118721461187
110543	Hexane	1	0	364.8	4.164383561643
115071	Propylene	1	0	11	1.255707762557
108883	Toluene	1	0	17.8	2.031963470319
1330207	Xylenes	1	0	20.36	2.324200913242
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=2 PRO=1 STK=2 NAME=OLYMPIC TANK FARM STACK 2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000610793	6.972523287671
71432	Benzene	1	0	12.173148	1.389628767123
50328	B[a]P	1	0	0.00105393834	1.203125958904
205992	B[b]fluoranthen	1	0	0.000000034170	3.900712328767
207089	B[k]fluoranthen	1	0	5.4352038E-11	6.204570547945
100414	Ethyl Benzene	1	0	9.1618956	1.045878493150
74851	Ethylene	1	0	0.0053391	6.094863013698

91203	Naphthalene	1	0	1.4308788	1.633423287671
110543	Hexane	1	0	973.85184	0.111170301369
115071	Propylene	1	0	29.36505	3.352174657534
108883	Toluene	1	0	47.51799	5.424428082191
1330207	Xylenes	1	0	54.352038	6.204570547945
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=2 PRO=2 STK=3 NAME=OLYMPIC TANK FARM STACK 3 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000217789	2.486175799086
71432	Benzene	1	0	4.34055	4.954965753424
50328	B[a]P	1	0	0.00037580025	4.289957191780
205992	B[b]fluoranthen	1	0	0.000000012184	1.390867579908
207089	B[k]fluoranthen	1	0	1.9380175E-11	2.212348744292
100414	Ethyl Benzene	1	0	3.266835	3.729263698630
74851	Ethylene	1	0	0.00190375	2.173230593607
91203	Naphthalene	1	0	0.510205	5.824257990867
110543	Hexane	1	0	347.244	3.963972602739
115071	Propylene	1	0	10.470625	1.195276826484
108883	Toluene	1	0	16.943375	1.934175228310
1330207	Xylenes	1	0	19.380175	2.212348744292
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=3 PRO=1 STK=4 NAME=OLYMPIC TANK FARM STACK 4 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000610793	6.972523287671

71432	Benzene	1	0	12.173148	1.389628767123
50328	B[a]P	1	0	0.00105393834	1.203125958904
205992	B[b]fluoranthen	1	0	0.000000034170	3.900712328767
207089	B[k]fluoranthen	1	0	5.4352038E-11	6.204570547945
100414	Ethyl Benzene	1	0	9.1618956	1.045878493150
74851	Ethylene	1	0	0.0053391	6.094863013698
91203	Naphthalene	1	0	1.4308788	1.633423287671
110543	Hexane	1	0	973.85184	0.111170301369
115071	Propylene	1	0	29.36505	3.352174657534
108883	Toluene	1	0	47.51799	5.424428082191
1330207	Xylenes	1	0	54.352038	6.204570547945
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=3 PRO=2 STK=5 NAME=OLYMPIC TANK FARM STACK 5 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000217789	2.486175799086
71432	Benzene	1	0	4.34055	4.954965753424
50328	B[a]P	1	0	0.00037580025	4.289957191780
205992	B[b]fluoranthen	1	0	0.000000012184	1.390867579908
207089	B[k]fluoranthen	1	0	1.9380175E-11	2.212348744292
100414	Ethyl Benzene	1	0	3.266835	3.729263698630
74851	Ethylene	1	0	0.00190375	2.173230593607
91203	Naphthalene	1	0	0.510205	5.824257990867
110543	Hexane	1	0	347.244	3.963972602739
115071	Propylene	1	0	10.470625	1.195276826484
108883	Toluene	1	0	16.943375	1.934175228310
1330207	Xylenes	1	0	19.380175	2.212348744292
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*

9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=4 PRO=1 STK=6 NAME=OLYMPIC TANK FARM STACK 6 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000610793	6.972523287671
71432	Benzene	1	0	12.173148	1.389628767123
50328	B[a]P	1	0	0.00105393834	1.203125958904
205992	B[b]fluoranthen	1	0	0.000000034170	3.900712328767
207089	B[k]fluoranthen	1	0	5.4352038E-11	6.204570547945
100414	Ethyl Benzene	1	0	9.1618956	1.045878493150
74851	Ethylene	1	0	0.0053391	6.094863013698
91203	Naphthalene	1	0	1.4308788	1.633423287671
110543	Hexane	1	0	973.85184	0.111170301369
115071	Propylene	1	0	29.36505	3.352174657534
108883	Toluene	1	0	47.51799	5.424428082191
1330207	Xylenes	1	0	54.352038	6.204570547945
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=4 PRO=2 STK=7 NAME=OLYMPIC TANK FARM STACK 7 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000217789	2.486175799086
71432	Benzene	1	0	4.34055	4.954965753424
50328	B[a]P	1	0	0.00037580025	4.289957191780
205992	B[b]fluoranthen	1	0	0.000000012184	1.390867579908
207089	B[k]fluoranthen	1	0	1.9380175E-11	2.212348744292
100414	Ethyl Benzene	1	0	3.266835	3.729263698630
74851	Ethylene	1	0	0.00190375	2.173230593607
91203	Naphthalene	1	0	0.510205	5.824257990867
110543	Hexane	1	0	347.244	3.963972602739
115071	Propylene	1	0	10.470625	1.195276826484
108883	Toluene	1	0	16.943375	1.934175228310
1330207	Xylenes	1	0	19.380175	2.212348744292
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*

1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=5 PRO=1 STK=8 NAME=OLYMPIC TANK FARM STACK 8 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000610793	6.972523287671
71432	Benzene	1	0	12.173148	1.389628767123
50328	B[a]P	1	0	0.00105393834	1.203125958904
205992	B[b]fluoranthen	1	0	0.000000034170	3.900712328767
207089	B[k]fluoranthen	1	0	5.4352038E-11	6.204570547945
100414	Ethyl Benzene	1	0	9.1618956	1.045878493150
74851	Ethylene	1	0	0.0053391	6.094863013698
91203	Naphthalene	1	0	1.4308788	1.633423287671
110543	Hexane	1	0	973.85184	0.111170301369
115071	Propylene	1	0	29.36505	3.352174657534
108883	Toluene	1	0	47.51799	5.424428082191
1330207	Xylenes	1	0	54.352038	6.204570547945
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=5 PRO=2 STK=9 NAME=OLYMPIC TANK FARM STACK 9 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000217789	2.486175799086
71432	Benzene	1	0	4.34055	4.954965753424
50328	B[a]P	1	0	0.00037580025	4.289957191780
205992	B[b]fluoranthen	1	0	0.000000012184	1.390867579908
207089	B[k]fluoranthen	1	0	1.9380175E-11	2.212348744292
100414	Ethyl Benzene	1	0	3.266835	3.729263698630
74851	Ethylene	1	0	0.00190375	2.173230593607
91203	Naphthalene	1	0	0.510205	5.824257990867
110543	Hexane	1	0	347.244	3.963972602739
115071	Propylene	1	0	10.470625	1.195276826484
108883	Toluene	1	0	16.943375	1.934175228310
1330207	Xylenes	1	0	19.380175	2.212348744292
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*

7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=6 PRO=1 STK=10 NAME=OLYMPIC TANK FARM STACK 10 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000417708	4.768364383561
71432	Benzene	1	0	8.324964	9.503383561643
50328	B[a]P	1	0	0.00072076662	8.227929452054
205992	B[b]fluoranthen	1	0	0.000000023368	2.667616438356
207089	B[k]fluoranthen	1	0	3.7170234E-11	4.243177397260
100414	Ethyl Benzene	1	0	6.2656308	7.152546575342
74851	Ethylene	1	0	0.0036513	4.168150684931
91203	Naphthalene	1	0	0.9785484	1.117064383561
110543	Hexane	1	0	665.99712	7.602706849315
115071	Propylene	1	0	20.08215	2.292482876712
108883	Toluene	1	0	32.49657	3.709654109589
1330207	Xylenes	1	0	37.170234	4.243177397260
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=7 PRO=1 STK=11 NAME=OLYMPIC TANK FARM STACK 11 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000417708	4.768364383561
71432	Benzene	1	0	8.324964	9.503383561643
50328	B[a]P	1	0	0.00072076662	8.227929452054
205992	B[b]fluoranthen	1	0	0.000000023368	2.667616438356
207089	B[k]fluoranthen	1	0	3.7170234E-11	4.243177397260
100414	Ethyl Benzene	1	0	6.2656308	7.152546575342
74851	Ethylene	1	0	0.0036513	4.168150684931
91203	Naphthalene	1	0	0.9785484	1.117064383561
110543	Hexane	1	0	665.99712	7.602706849315
115071	Propylene	1	0	20.08215	2.292482876712

108883	Toluene	1	0	32.49657	3.709654109589
1330207	Xylenes	1	0	37.170234	4.243177397260
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=8 PRO=1 STK=12 NAME=OLYMPIC TANK FARM STACK 12 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000403202	4.602771689497
71432	Benzene	1	0	8.03586	9.173356164383
50328	B[a]P	1	0	0.0006957363	7.942195205479
205992	B[b]fluoranthen	1	0	0.000000022556	2.574977168949
207089	B[k]fluoranthen	1	0	3.587941E-11	4.095823059360
100414	Ethyl Benzene	1	0	6.048042	6.904157534246
74851	Ethylene	1	0	0.0035245	4.023401826484
91203	Naphthalene	1	0	0.944566	1.078271689497
110543	Hexane	1	0	642.8688	7.338684931506
115071	Propylene	1	0	19.38475	2.212871004566
108883	Toluene	1	0	31.36805	3.580827625570
1330207	Xylenes	1	0	35.87941	4.095823059360
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=9 PRO=1 STK=13 NAME=OLYMPIC TANK FARM STACK 13 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	*	*
71432	Benzene	1	0	0.9874	0.004937
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*

207089	B[k]fluoranthen	1	0	*	*
100414	Ethyl Benzene	1	0	0.05777	0.0002889
74851	Ethylene	1	0	*	*
91203	Naphthalene	1	0	0.1044	0.0005221
110543	Hexane	1	0	0.1426	0.0007129
115071	Propylene	1	0	*	*
108883	Toluene	1	0	0.5586	0.002793
1330207	Xylenes	1	0	0.2247	0.001124
106990	1,3-Butadiene	1	0	1.152	0.005761
75070	Acetaldehyde	1	0	4.151	0.02076
107028	Acrolein	1	0	0.1797	0.0008984
7664417	NH3	1	0	4.24	0.0212
7440382	Arsenic	1	0	0.00848	0.0000424
7440439	Cadmium	1	0	0.00795	0.00003975
7440508	Copper	1	0	0.02173	0.0001087
50000	Formaldehyde	1	0	9.148	0.04574
18540299	Cr(VI)	1	0	0.00053	0.04574
7647010	HCl	1	0	0.9874	0.004937
1128	Lead cmp(inorg)	1	0	0.04399	0.00022
7439965	Manganese	1	0	0.01643	0.00008215
7439976	Mercury	1	0	0.0106	0.000053
7440020	Nickel	1	0	0.02067	0.0001034
1151	PAHs-w/o	1	0	0.1919	0.0009593
7782492	Selenium	1	0	0.01166	0.0000583
9901	DieselExhPM	1	0	18.06	0.09028

EMISSIONS FOR FACILITY FAC=2599 DEV=9 PRO=2 STK=14 NAME=OLYMPIC TANK FARM STACK 14 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	*	*
71432	Benzene	1	0	0.9874	0.004937
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
207089	B[k]fluoranthen	1	0	*	*
100414	Ethyl Benzene	1	0	0.05777	0.0002889
74851	Ethylene	1	0	*	*
91203	Naphthalene	1	0	0.1044	0.0005221
110543	Hexane	1	0	0.1426	0.0007129
115071	Propylene	1	0	*	*
108883	Toluene	1	0	0.5586	0.002793
1330207	Xylenes	1	0	0.2247	0.001124
106990	1,3-Butadiene	1	0	1.152	0.005761
75070	Acetaldehyde	1	0	4.151	0.02076
107028	Acrolein	1	0	0.1797	0.0008984
7664417	NH3	1	0	4.24	0.0212
7440382	Arsenic	1	0	0.00848	0.0000424
7440439	Cadmium	1	0	0.00795	0.00003975
7440508	Copper	1	0	0.02173	0.0001087
50000	Formaldehyde	1	0	9.148	0.04574
18540299	Cr(VI)	1	0	0.00053	0.00000265
7647010	HCl	1	0	0.9874	0.004937
1128	Lead cmp(inorg)	1	0	0.04399	0.00022
7439965	Manganese	1	0	0.01643	0.00008215
7439976	Mercury	1	0	0.0106	0.000053
7440020	Nickel	1	0	0.02067	0.0001034
1151	PAHs-w/o	1	0	0.1919	0.0009593
7782492	Selenium	1	0	0.01166	0.0000583
9901	DieselExhPM	1	0	18.06	0.09028

CANCER RISK REPORT

AVERAGE CANCER RISK, RECEPTOR 322

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
UTME	UTMN														
0001	2.11E-14	4.85E-13	6.31E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.48E-13	5.69E-13
0002	1.11E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-07
0003	3.65E-10	8.37E-09	1.09E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.46E-09	9.82E-09
0004	1.18E-15	2.71E-14	3.53E-15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.07E-14	3.18E-14
0005	1.88E-18	4.32E-17	5.61E-18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.88E-17	5.07E-17
0006	7.09E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.09E-09
0007	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0008	1.56E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.56E-08
0009	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0010	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0011	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0012	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0013	1.82E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.82E-08
0014	1.09E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-09
0015	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	2.68E-09	1.23E-08	5.21E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-08	2.02E-08
0018	3.14E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.14E-09
0019	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	5.06E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.06E-09
0021	7.12E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.12E-09
0022	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0023	4.87E-11	9.07E-11	1.53E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-10	2.93E-10
0024	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0025	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0026	4.95E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.95E-10
0027	1.97E-08	4.52E-07	5.88E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.11E-07	5.31E-07
0028	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	5.23E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.23E-07
SUM	7.14E-07	4.73E-07	6.53E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.38E-07	1.25E-06
385213	3739269														

This file: C:\HARP\PROJECTS\2599OTF\2599HRA\2599 MCHI.txt

Created by HARP Version 1.4a Build 23.07.00
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 1/13/2009 2:40:32 PM

EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: C:\HARP\PROJECTS\2599OTF\2599HRA\2599HRA.SRC
   Averaging period adjustment factors file: not applicable
   Emission rates file: database
   Site parameters file: C:\HARP\PROJECTS\Pathway\resident pathway.sit

Coordinate system: UTM NAD27

Screening mode is OFF

Exposure duration: resident
Analysis method: Average Point Estimate
Health effect: Chronic HI
Receptor(s):   322
Sources(s):   All
Chemicals(s):   All

SITE PARAMETERS

DEPOSITION

   Deposition rate (m/s)   0.02

DRINKING WATER

*** Pathway disabled ***

FISH

*** Pathway disabled ***

PASTURE

*** Pathway disabled ***

HOME GROWN PRODUCE

   HUMAN INGESTION
   Fraction of ingested leafy vegetable
     from home grown source   0.052
   Fraction of ingested exposed vegetable
     from home grown source   0.052
   Fraction of ingested protected vegetable
     from home grown source   0.052
   Fraction of ingested root vegetable
     from home grown source   0.052

PIGS, CHICKENS AND EGGS

*** Pathway disabled ***

DERMAL ABSORPTION

*** Pathway enabled ***

SOIL INGESTION

*** Pathway enabled ***

MOTHER'S MILK

*** Pathway enabled ***

CHEMICAL CROSS-REFERENCE TABLE AND BACKGROUND CONCENTRATIONS

CHEM	CAS	ABBREVIATION	POLLUTANT NAME	BACKGROUND (ug/m^3)
0001	56553	B[a]anthracene	Benz[a]anthracene	0.000E+00
0002	71432	Benzene	Benzene	0.000E+00
0003	50328	B[a]P	Benzo[a]pyrene	0.000E+00
0004	205992	B[b]fluoranthen	Benzo[b]fluoranthene	0.000E+00
0005	207089	B[k]fluoranthen	Benzo[k]fluoranthene	0.000E+00
0006	100414	Ethyl Benzene	Ethyl benzene	0.000E+00
0007	74851	Ethylene	Ethylene	0.000E+00
0008	91203	Naphthalene	Naphthalene	0.000E+00
0009	110543	Hexane	Hexane	0.000E+00
0010	115071	Propylene	Propylene	0.000E+00
0011	108883	Toluene	Toluene	0.000E+00
0012	1330207	Xylenes	Xylenes (mixed)	0.000E+00
0013	106990	1,3-Butadiene	1,3-Butadiene	0.000E+00
0014	75070	Acetaldehyde	Acetaldehyde	0.000E+00
0015	107028	Acrolein	Acrolein	0.000E+00
0016	7664417	NH3	Ammonia	0.000E+00
0017	7440382	Arsenic	Arsenic	0.000E+00
0018	7440439	Cadmium	Cadmium	0.000E+00
0019	7440508	Copper	Copper	0.000E+00
0020	50000	Formaldehyde	Formaldehyde	0.000E+00
0021	18540299	Cr(VI)	Chromium, hexavalent (& compounds)	0.000E+00
0022	7647010	HCl	Hydrochloric acid	0.000E+00
0023	1128	Lead cmp(inorg)	Lead compounds (inorganic)	0.000E+00
0024	7439965	Manganese	Manganese	0.000E+00
0025	7439976	Mercury	Mercury	0.000E+00
0026	7440020	Nickel	Nickel	0.000E+00
0027	1151	PAHs-w/o	PAHs, total, w/o individ. components reported [Treated as B(a)P for HRA]	0.000E+00
0028	7782492	Selenium	Selenium	0.000E+00
0029	9901	DieselExhPM	Diesel engine exhaust, particulate matter (Diesel PM)	0.000E+00

CHEMICAL HEALTH VALUES

CHEM	CAS	ABBREVIATION	CancerPF(Inh) (mg/kg-d)^-1	CancerPF(Oral) (mg/kg-d)^-1	ChronicREL(Inh) ug/m^3	ChronicREL(Oral) mg/kg-d	AcuteREL ug/m^3
0001	56553	B[a]anthracene	3.90E-01	1.20E+00	*	*	*
0002	71432	Benzene	1.00E-01	*	6.00E+01	*	1.30E+03
0003	50328	B[a]P	3.90E+00	1.20E+01	*	*	*
0004	205992	B[b]fluoranthen	3.90E-01	1.20E+00	*	*	*
0005	207089	B[k]fluoranthen	3.90E-01	1.20E+00	*	*	*
0006	100414	Ethyl Benzene	8.70E-03	*	2.00E+03	*	*
0007	74851	Ethylene	*	*	*	*	*
0008	91203	Naphthalene	1.20E-01	*	9.00E+00	*	*

0009	110543	Hexane	*	*	7.00E+03	*	*
0010	115071	Propylene	*	*	3.00E+03	*	*
0011	108883	Toluene	*	*	3.00E+02	*	3.70E+04
0012	1330207	Xylenes	*	*	7.00E+02	*	2.20E+04
0013	106990	1,3-Butadiene	6.00E-01	*	2.00E+01	*	*
0014	75070	Acetaldehyde	1.00E-02	*	9.00E+00	*	*
0015	107028	Acrolein	*	*	6.00E-02	*	1.90E-01
0016	7664417	NH3	*	*	2.00E+02	*	3.20E+03
0017	7440382	Arsenic	1.20E+01	1.50E+00	3.00E-02	3.00E-04	1.90E-01
0018	7440439	Cadmium	1.50E+01	*	2.00E-02	5.00E-04	*
0019	7440508	Copper	*	*	*	*	1.00E+02
0020	50000	Formaldehyde	2.10E-02	*	3.00E+00	*	9.40E+01
0021	18540299	Cr(VI)	5.10E+02	*	2.00E-01	2.00E-02	*
0022	7647010	HCl	*	*	9.00E+00	*	2.10E+03
0023	1128	Lead cmp(inorg)	4.20E-02	8.50E-03	*	*	*
0024	7439965	Manganese	*	*	2.00E-01	*	*
0025	7439976	Mercury	*	*	9.00E-02	3.00E-04	1.80E+00
0026	7440020	Nickel	9.10E-01	*	5.00E-02	5.00E-02	6.00E+00
0027	1151	PAHs-w/o	3.90E+00	1.20E+01	*	*	*
0028	7782492	Selenium	*	*	2.00E+01	*	*
0029	9901	DieselExhPM	1.10E+00	*	5.00E+00	*	*

EMISSIONS DATA SOURCE: Emission rates loaded from database
CHEMICALS ADDED OR DELETED: none

EMISSIONS FOR FACILITY FAC=2599 DEV=1 PRO=1 STK=1 NAME=OLYMPIC TANK FARM STACK 1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.0000002288	2.611872146118
71432	Benzene	1	0	4.56	5.205479452054
50328	B[a]P	1	0	0.0003948	4.506849315068
205992	B[b]fluoranthen	1	0	0.0000000128	1.461187214611
207089	B[k]fluoranthen	1	0	0.000000000020	2.324200913242
100414	Ethyl Benzene	1	0	3.432	3.917808219178
74851	Ethylene	1	0	0.002	2.283105022831
91203	Naphthalene	1	0	0.536	6.118721461187
110543	Hexane	1	0	364.8	4.164383561643
115071	Propylene	1	0	11	1.255707762557
108883	Toluene	1	0	17.8	2.031963470319
1330207	Xylenes	1	0	20.36	2.324200913242
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=2 PRO=1 STK=2 NAME=OLYMPIC TANK FARM STACK 2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000610793	6.972523287671
71432	Benzene	1	0	12.173148	1.389628767123
50328	B[a]P	1	0	0.00105393834	1.203125958904
205992	B[b]fluoranthen	1	0	0.000000034170	3.900712328767
207089	B[k]fluoranthen	1	0	5.4352038E-11	6.204570547945
100414	Ethyl Benzene	1	0	9.1618956	1.045878493150
74851	Ethylene	1	0	0.0053391	6.094863013698
91203	Naphthalene	1	0	1.4308788	1.633423287671
110543	Hexane	1	0	973.85184	0.111170301369
115071	Propylene	1	0	29.36505	3.352174657534
108883	Toluene	1	0	47.51799	5.424428082191
1330207	Xylenes	1	0	54.352038	6.204570547945
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=2 PRO=2 STK=3 NAME=OLYMPIC TANK FARM STACK 3 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000217789	2.486175799086
71432	Benzene	1	0	4.34055	4.954965753424
50328	B[a]P	1	0	0.00037580025	4.289957191780
205992	B[b]fluoranthen	1	0	0.000000012184	1.390867579908
207089	B[k]fluoranthen	1	0	1.9380175E-11	2.212348744292
100414	Ethyl Benzene	1	0	3.266835	3.729263698630
74851	Ethylene	1	0	0.00190375	2.173230593607
91203	Naphthalene	1	0	0.510205	5.824257990867
110543	Hexane	1	0	347.244	3.963972602739
115071	Propylene	1	0	10.470625	1.195276826484
108883	Toluene	1	0	16.943375	1.934175228310
1330207	Xylenes	1	0	19.380175	2.212348744292
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*

1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=3 PRO=1 STK=4 NAME=OLYMPIC TANK FARM STACK 4 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000610793	6.972523287671
71432	Benzene	1	0	12.173148	1.389628767123
50328	B[a]P	1	0	0.00105393834	1.203125958904
205992	B[b]fluoranthen	1	0	0.000000034170	3.900712328767
207089	B[k]fluoranthen	1	0	5.4352038E-11	6.204570547945
100414	Ethyl Benzene	1	0	9.1618956	1.045878493150
74851	Ethylene	1	0	0.0053391	6.094863013698
91203	Naphthalene	1	0	1.4308788	1.633423287671
110543	Hexane	1	0	973.85184	0.111170301369
115071	Propylene	1	0	29.36505	3.352174657534
108883	Toluene	1	0	47.51799	5.424428082191
1330207	Xylenes	1	0	54.352038	6.204570547945
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=3 PRO=2 STK=5 NAME=OLYMPIC TANK FARM STACK 5 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000217789	2.486175799086
71432	Benzene	1	0	4.34055	4.954965753424
50328	B[a]P	1	0	0.00037580025	4.289957191780
205992	B[b]fluoranthen	1	0	0.000000012184	1.390867579908
207089	B[k]fluoranthen	1	0	1.9380175E-11	2.212348744292
100414	Ethyl Benzene	1	0	3.266835	3.729263698630
74851	Ethylene	1	0	0.00190375	2.173230593607
91203	Naphthalene	1	0	0.510205	5.824257990867
110543	Hexane	1	0	347.244	3.963972602739
115071	Propylene	1	0	10.470625	1.195276826484
108883	Toluene	1	0	16.943375	1.934175228310
1330207	Xylenes	1	0	19.380175	2.212348744292
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*

18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=4 PRO=1 STK=6 NAME=OLYMPIC TANK FARM STACK 6 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000610793	6.972523287671
71432	Benzene	1	0	12.173148	1.389628767123
50328	B[a]P	1	0	0.00105393834	1.203125958904
205992	B[b]fluoranthen	1	0	0.000000034170	3.900712328767
207089	B[k]fluoranthen	1	0	5.4352038E-11	6.204570547945
100414	Ethyl Benzene	1	0	9.1618956	1.045878493150
74851	Ethylene	1	0	0.0053391	6.094863013698
91203	Naphthalene	1	0	1.4308788	1.633423287671
110543	Hexane	1	0	973.85184	0.111170301369
115071	Propylene	1	0	29.36505	3.352174657534
108883	Toluene	1	0	47.51799	5.424428082191
1330207	Xylenes	1	0	54.352038	6.204570547945
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=4 PRO=2 STK=7 NAME=OLYMPIC TANK FARM STACK 7 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000217789	2.486175799086
71432	Benzene	1	0	4.34055	4.954965753424
50328	B[a]P	1	0	0.00037580025	4.289957191780
205992	B[b]fluoranthen	1	0	0.000000012184	1.390867579908
207089	B[k]fluoranthen	1	0	1.9380175E-11	2.212348744292
100414	Ethyl Benzene	1	0	3.266835	3.729263698630
74851	Ethylene	1	0	0.00190375	2.173230593607
91203	Naphthalene	1	0	0.510205	5.824257990867
110543	Hexane	1	0	347.244	3.963972602739
115071	Propylene	1	0	10.470625	1.195276826484
108883	Toluene	1	0	16.943375	1.934175228310
1330207	Xylenes	1	0	19.380175	2.212348744292
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*

107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=5 PRO=1 STK=8 NAME=OLYMPIC TANK FARM STACK 8 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000610793	6.972523287671
71432	Benzene	1	0	12.173148	1.389628767123
50328	B[a]P	1	0	0.00105393834	1.203125958904
205992	B[b]fluoranthen	1	0	0.000000034170	3.900712328767
207089	B[k]fluoranthen	1	0	5.4352038E-11	6.204570547945
100414	Ethyl Benzene	1	0	9.1618956	1.045878493150
74851	Ethylene	1	0	0.0053391	6.094863013698
91203	Naphthalene	1	0	1.4308788	1.633423287671
110543	Hexane	1	0	973.85184	0.111170301369
115071	Propylene	1	0	29.36505	3.352174657534
108883	Toluene	1	0	47.51799	5.424428082191
1330207	Xylenes	1	0	54.352038	6.204570547945
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=5 PRO=2 STK=9 NAME=OLYMPIC TANK FARM STACK 9 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000217789	2.486175799086
71432	Benzene	1	0	4.34055	4.954965753424
50328	B[a]P	1	0	0.00037580025	4.289957191780
205992	B[b]fluoranthen	1	0	0.000000012184	1.390867579908
207089	B[k]fluoranthen	1	0	1.9380175E-11	2.212348744292
100414	Ethyl Benzene	1	0	3.266835	3.729263698630
74851	Ethylene	1	0	0.00190375	2.173230593607
91203	Naphthalene	1	0	0.510205	5.824257990867

110543	Hexane	1	0	347.244	3.963972602739
115071	Propylene	1	0	10.470625	1.195276826484
108883	Toluene	1	0	16.943375	1.934175228310
1330207	Xylenes	1	0	19.380175	2.212348744292
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=6 PRO=1 STK=10 NAME=OLYMPIC TANK FARM STACK 10 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000417708	4.768364383561
71432	Benzene	1	0	8.324964	9.503383561643
50328	B[a]P	1	0	0.00072076662	8.227929452054
205992	B[b]fluoranthen	1	0	0.000000023368	2.667616438356
207089	B[k]fluoranthen	1	0	3.7170234E-11	4.243177397260
100414	Ethyl Benzene	1	0	6.2656308	7.152546575342
74851	Ethylene	1	0	0.0036513	4.168150684931
91203	Naphthalene	1	0	0.9785484	1.117064383561
110543	Hexane	1	0	665.99712	7.602706849315
115071	Propylene	1	0	20.08215	2.292482876712
108883	Toluene	1	0	32.49657	3.709654109589
1330207	Xylenes	1	0	37.170234	4.243177397260
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=7 PRO=1 STK=11 NAME=OLYMPIC TANK FARM STACK 11 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000417708	4.768364383561
71432	Benzene	1	0	8.324964	9.503383561643

50328	B[a]P	1	0	0.00072076662	8.227929452054
205992	B[b]fluoranthen	1	0	0.000000023368	2.667616438356
207089	B[k]fluoranthen	1	0	3.7170234E-11	4.243177397260
100414	Ethyl Benzene	1	0	6.2656308	7.152546575342
74851	Ethylene	1	0	0.0036513	4.168150684931
91203	Naphthalene	1	0	0.9785484	1.117064383561
110543	Hexane	1	0	665.99712	7.602706849315
115071	Propylene	1	0	20.08215	2.292482876712
108883	Toluene	1	0	32.49657	3.709654109589
1330207	Xylenes	1	0	37.170234	4.243177397260
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=8 PRO=1 STK=12 NAME=OLYMPIC TANK FARM STACK 12 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000403202	4.602771689497
71432	Benzene	1	0	8.03586	9.173356164383
50328	B[a]P	1	0	0.0006957363	7.942195205479
205992	B[b]fluoranthen	1	0	0.000000022556	2.574977168949
207089	B[k]fluoranthen	1	0	3.587941E-11	4.095823059360
100414	Ethyl Benzene	1	0	6.048042	6.904157534246
74851	Ethylene	1	0	0.0035245	4.023401826484
91203	Naphthalene	1	0	0.944566	1.078271689497
110543	Hexane	1	0	642.8688	7.338684931506
115071	Propylene	1	0	19.38475	2.212871004566
108883	Toluene	1	0	31.36805	3.580827625570
1330207	Xylenes	1	0	35.87941	4.095823059360
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=9 PRO=1 STK=13 NAME=OLYMPIC TANK FARM STACK 13 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	*	*
71432	Benzene	1	0	0.9874	0.004937
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
207089	B[k]fluoranthen	1	0	*	*
100414	Ethyl Benzene	1	0	0.05777	0.0002889
74851	Ethylene	1	0	*	*
91203	Naphthalene	1	0	0.1044	0.0005221
110543	Hexane	1	0	0.1426	0.0007129
115071	Propylene	1	0	*	*
108883	Toluene	1	0	0.5586	0.002793
1330207	Xylenes	1	0	0.2247	0.001124
106990	1,3-Butadiene	1	0	1.152	0.005761
75070	Acetaldehyde	1	0	4.151	0.02076
107028	Acrolein	1	0	0.1797	0.0008984
7664417	NH3	1	0	4.24	0.0212
7440382	Arsenic	1	0	0.00848	0.0000424
7440439	Cadmium	1	0	0.00795	0.00003975
7440508	Copper	1	0	0.02173	0.0001087
50000	Formaldehyde	1	0	9.148	0.04574
18540299	Cr(VI)	1	0	0.00053	0.04574
7647010	HCl	1	0	0.9874	0.004937
1128	Lead cmp(inorg)	1	0	0.04399	0.00022
7439965	Manganese	1	0	0.01643	0.00008215
7439976	Mercury	1	0	0.0106	0.000053
7440020	Nickel	1	0	0.02067	0.0001034
1151	PAHs-w/o	1	0	0.1919	0.0009593
7782492	Selenium	1	0	0.01166	0.0000583
9901	DieselExhPM	1	0	18.06	0.09028

EMISSIONS FOR FACILITY FAC=2599 DEV=9 PRO=2 STK=14 NAME=OLYMPIC TANK FARM STACK 14 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	*	*
71432	Benzene	1	0	0.9874	0.004937
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
207089	B[k]fluoranthen	1	0	*	*
100414	Ethyl Benzene	1	0	0.05777	0.0002889
74851	Ethylene	1	0	*	*
91203	Naphthalene	1	0	0.1044	0.0005221
110543	Hexane	1	0	0.1426	0.0007129
115071	Propylene	1	0	*	*
108883	Toluene	1	0	0.5586	0.002793
1330207	Xylenes	1	0	0.2247	0.001124
106990	1,3-Butadiene	1	0	1.152	0.005761
75070	Acetaldehyde	1	0	4.151	0.02076
107028	Acrolein	1	0	0.1797	0.0008984
7664417	NH3	1	0	4.24	0.0212
7440382	Arsenic	1	0	0.00848	0.0000424
7440439	Cadmium	1	0	0.00795	0.00003975
7440508	Copper	1	0	0.02173	0.0001087
50000	Formaldehyde	1	0	9.148	0.04574
18540299	Cr(VI)	1	0	0.00053	0.00000265
7647010	HCl	1	0	0.9874	0.004937
1128	Lead cmp(inorg)	1	0	0.04399	0.00022

7439965	Manganese	1	0	0.01643	0.00008215
7439976	Mercury	1	0	0.0106	0.000053
7440020	Nickel	1	0	0.02067	0.0001034
1151	PAHs-w/o	1	0	0.1919	0.0009593
7782492	Selenium	1	0	0.01166	0.0000583
9901	DieselExhPM	1	0	18.06	0.09028

CHRONIC HI REPORT

AVERAGE CHRONIC HI, RECEPTOR 322

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX	UTME	UTMN
0001	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0002	0.00E+00	3.23E-04	0.00E+00	3.23E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.23E-04	3.23E-04		
0003	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0004	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0005	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0006	0.00E+00	0.00E+00	0.00E+00	7.13E-06	7.13E-06	0.00E+00	7.13E-06	0.00E+00	7.13E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.13E-06		
0007	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0008	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.52E-04	0.00E+00	0.00E+00	2.52E-04		
0009	0.00E+00	2.16E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.16E-04		
0010	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.52E-05	0.00E+00	0.00E+00	1.52E-05		
0011	0.00E+00	2.47E-04	0.00E+00	2.47E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.47E-04	0.00E+00	0.00E+00	2.47E-04		
0012	0.00E+00	1.21E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E-04	0.00E+00	0.00E+00	1.21E-04		
0013	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.65E-05	0.00E+00	0.00E+00	2.65E-05		
0014	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.13E-04	0.00E+00	0.00E+00	2.13E-04		
0015	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-03	0.00E+00	0.00E+00	1.38E-03		
0016	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.77E-06	0.00E+00	0.00E+00	9.77E-06		
0017	1.87E-04	1.30E-04	0.00E+00	1.30E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.63E-05	0.00E+00	1.87E-04		
0018	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E-04	0.00E+00	1.83E-04	0.00E+00	0.00E+00	2.24E-04		
0019	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0020	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-03	0.00E+00	0.00E+00	1.41E-03		
0021	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-06	0.00E+00	4.31E-08	1.22E-06		
0022	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.06E-05	0.00E+00	0.00E+00	5.06E-05		
0023	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0024	0.00E+00	3.79E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.79E-05		
0025	0.00E+00	5.43E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-04	1.46E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-04		
0026	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.41E-07	0.00E+00	0.00E+00	0.00E+00	1.90E-04	0.00E+00	1.90E-04	1.90E-04		
0027	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0028	2.69E-07	2.69E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.69E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.69E-07		
0029	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.66E-03	0.00E+00	0.00E+00	1.66E-03		
SUM	1.87E-04	1.13E-03	0.00E+00	7.07E-04	7.13E-06	2.79E-03	8.33E-06	1.46E-04	3.77E-04	2.65E-05	5.73E-03	5.63E-05	5.13E-04	5.73E-03	385213	3739269

This file: C:\HARP\PROJECTS\2599OTF\2599HRA\2599 MAHI.txt

Created by HARP Version 1.4a Build 23.07.00
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 1/13/2009 2:41:20 PM

EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: C:\HARP\PROJECTS\2599OTF\2599HRA\2599HRA.SRC
   Averaging period adjustment factors file: not applicable
   Emission rates file: database
   Site parameters file: C:\HARP\PROJECTS\Pathway\resident pathway.sit

Coordinate system: UTM NAD27

Screening mode is OFF

Analysis method: Point Estimate
Health effect: Acute HI Simple (Concurrent Max.)
Receptor(s):   779
Sources(s):   All
Chemicals(s):   All

CHEMICAL CROSS-REFERENCE TABLE AND BACKGROUND CONCENTRATIONS

CHEM	CAS	ABBREVIATION	POLLUTANT NAME	BACKGROUND (ug/m^3)
0001	56553	B[a]anthracene	Benz[a]anthracene	0.000E+00
0002	71432	Benzene	Benzene	0.000E+00
0003	50328	B[a]P	Benzo[a]pyrene	0.000E+00
0004	205992	B[b]fluoranthen	Benzo[b]fluoranthene	0.000E+00
0005	207089	B[k]fluoranthen	Benzo[k]fluoranthene	0.000E+00
0006	100414	Ethyl Benzene	Ethyl benzene	0.000E+00
0007	74851	Ethylene	Ethylene	0.000E+00
0008	91203	Naphthalene	Naphthalene	0.000E+00
0009	110543	Hexane	Hexane	0.000E+00
0010	115071	Propylene	Propylene	0.000E+00
0011	108883	Toluene	Toluene	0.000E+00
0012	1330207	Xylenes	Xylenes (mixed)	0.000E+00
0013	106990	1,3-Butadiene	1,3-Butadiene	0.000E+00
0014	75070	Acetaldehyde	Acetaldehyde	0.000E+00
0015	107028	Acrolein	Acrolein	0.000E+00
0016	7664417	NH3	Ammonia	0.000E+00
0017	7440382	Arsenic	Arsenic	0.000E+00
0018	7440439	Cadmium	Cadmium	0.000E+00
0019	7440508	Copper	Copper	0.000E+00
0020	50000	Formaldehyde	Formaldehyde	0.000E+00
0021	18540299	Cr(VI)	Chromium, hexavalent (& compounds)	0.000E+00
0022	7647010	HCl	Hydrochloric acid	0.000E+00
0023	1128	Lead cmp(inorg)	Lead compounds (inorganic)	0.000E+00
0024	7439965	Manganese	Manganese	0.000E+00
0025	7439976	Mercury	Mercury	0.000E+00
0026	7440020	Nickel	Nickel	0.000E+00
0027	1151	PAHs-w/o	PAHs, total, w/o individ. components reported [Treated as B(a)P for HRA]	0.000E+00
0028	7782492	Selenium	Selenium	0.000E+00
0029	9901	DieselExhPM	Diesel engine exhaust, particulate matter (Diesel PM)	0.000E+00

CHEMICAL HEALTH VALUES

CHEM	CAS	ABBREVIATION	CancerPF(Inh) (mg/kg-d)^-1	CancerPF(Oral) (mg/kg-d)^-1	ChronicREL(Inh) ug/m^3	ChronicREL(Oral) mg/kg-d	AcuteREL ug/m^3
0001	56553	B[a]anthracene	3.90E-01	1.20E+00	*	*	*
0002	71432	Benzene	1.00E-01	*	6.00E+01	*	1.30E+03
0003	50328	B[a]P	3.90E+00	1.20E+01	*	*	*
0004	205992	B[b]fluoranthen	3.90E-01	1.20E+00	*	*	*
0005	207089	B[k]fluoranthen	3.90E-01	1.20E+00	*	*	*
0006	100414	Ethyl Benzene	8.70E-03	*	2.00E+03	*	*
0007	74851	Ethylene	*	*	*	*	*
0008	91203	Naphthalene	1.20E-01	*	9.00E+00	*	*
0009	110543	Hexane	*	*	7.00E+03	*	*
0010	115071	Propylene	*	*	3.00E+03	*	*
0011	108883	Toluene	*	*	3.00E+02	*	3.70E+04
0012	1330207	Xylenes	*	*	7.00E+02	*	2.20E+04
0013	106990	1,3-Butadiene	6.00E-01	*	2.00E+01	*	*
0014	75070	Acetaldehyde	1.00E-02	*	9.00E+00	*	*
0015	107028	Acrolein	*	*	6.00E-02	*	1.90E-01
0016	7664417	NH3	*	*	2.00E+02	*	3.20E+03
0017	7440382	Arsenic	1.20E+01	1.50E+00	3.00E-02	3.00E-04	1.90E-01
0018	7440439	Cadmium	1.50E+01	*	2.00E-02	5.00E-04	*
0019	7440508	Copper	*	*	*	*	1.00E+02
0020	50000	Formaldehyde	2.10E-02	*	3.00E+00	*	9.40E+01
0021	18540299	Cr(VI)	5.10E+02	*	2.00E-01	2.00E-02	*
0022	7647010	HCl	*	*	9.00E+00	*	2.10E+03
0023	1128	Lead cmp(inorg)	4.20E-02	8.50E-03	*	*	*
0024	7439965	Manganese	*	*	2.00E-01	*	*
0025	7439976	Mercury	*	*	9.00E-02	3.00E-04	1.80E+00
0026	7440020	Nickel	9.10E-01	*	5.00E-02	5.00E-02	6.00E+00
0027	1151	PAHs-w/o	3.90E+00	1.20E+01	*	*	*
0028	7782492	Selenium	*	*	2.00E+01	*	*
0029	9901	DieselExhPM	1.10E+00	*	5.00E+00	*	*

EMISSIONS DATA SOURCE: Emission rates loaded from database
CHEMICALS ADDED OR DELETED: none

EMISSIONS FOR FACILITY FAC=2599 DEV=1 PRO=1 STK=1 NAME=OLYMPIC TANK FARM STACK 1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.0000002288	2.611872146118
71432	Benzene	1	0	4.56	5.205479452054
50328	B[a]P	1	0	0.0003948	4.506849315068
205992	B[b]fluoranthen	1	0	0.0000000128	1.461187214611
207089	B[k]fluoranthen	1	0	0.000000000020	2.324200913242
100414	Ethyl Benzene	1	0	3.432	3.917808219178
74851	Ethylene	1	0	0.002	2.283105022831
91203	Naphthalene	1	0	0.536	6.118721461187
110543	Hexane	1	0	364.8	4.164383561643
115071	Propylene	1	0	11	1.255707762557
108883	Toluene	1	0	17.8	2.031963470319
1330207	Xylenes	1	0	20.36	2.324200913242
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*

7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=2 PRO=1 STK=2 NAME=OLYMPIC TANK FARM STACK 2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000610793	6.972523287671
71432	Benzene	1	0	12.173148	1.389628767123
50328	B[a]P	1	0	0.00105393834	1.203125958904
205992	B[b]fluoranthen	1	0	0.000000034170	3.900712328767
207089	B[k]fluoranthen	1	0	5.4352038E-11	6.204570547945
100414	Ethyl Benzene	1	0	9.1618956	1.045878493150
74851	Ethylene	1	0	0.0053391	6.094863013698
91203	Naphthalene	1	0	1.4308788	1.633423287671
110543	Hexane	1	0	973.85184	0.111170301369
115071	Propylene	1	0	29.36505	3.352174657534
108883	Toluene	1	0	47.51799	5.424428082191
1330207	Xylenes	1	0	54.352038	6.204570547945
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=2 PRO=2 STK=3 NAME=OLYMPIC TANK FARM STACK 3 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000217789	2.486175799086
71432	Benzene	1	0	4.34055	4.954965753424
50328	B[a]P	1	0	0.00037580025	4.289957191780
205992	B[b]fluoranthen	1	0	0.000000012184	1.390867579908
207089	B[k]fluoranthen	1	0	1.9380175E-11	2.212348744292
100414	Ethyl Benzene	1	0	3.266835	3.729263698630
74851	Ethylene	1	0	0.00190375	2.173230593607
91203	Naphthalene	1	0	0.510205	5.824257990867
110543	Hexane	1	0	347.244	3.963972602739
115071	Propylene	1	0	10.470625	1.195276826484
108883	Toluene	1	0	16.943375	1.934175228310
1330207	Xylenes	1	0	19.380175	2.212348744292
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*

7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=3 PRO=1 STK=4 NAME=OLYMPIC TANK FARM STACK 4 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000610793	6.972523287671
71432	Benzene	1	0	12.173148	1.389628767123
50328	B[a]P	1	0	0.00105393834	1.203125958904
205992	B[b]fluoranthen	1	0	0.000000034170	3.900712328767
207089	B[k]fluoranthen	1	0	5.4352038E-11	6.204570547945
100414	Ethyl Benzene	1	0	9.1618956	1.045878493150
74851	Ethylene	1	0	0.0053391	6.094863013698
91203	Naphthalene	1	0	1.4308788	1.633423287671
110543	Hexane	1	0	973.85184	0.111170301369
115071	Propylene	1	0	29.36505	3.352174657534
108883	Toluene	1	0	47.51799	5.424428082191
1330207	Xylenes	1	0	54.352038	6.204570547945
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=3 PRO=2 STK=5 NAME=OLYMPIC TANK FARM STACK 5 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000217789	2.486175799086
71432	Benzene	1	0	4.34055	4.954965753424
50328	B[a]P	1	0	0.00037580025	4.289957191780
205992	B[b]fluoranthen	1	0	0.000000012184	1.390867579908
207089	B[k]fluoranthen	1	0	1.9380175E-11	2.212348744292
100414	Ethyl Benzene	1	0	3.266835	3.729263698630
74851	Ethylene	1	0	0.00190375	2.173230593607
91203	Naphthalene	1	0	0.510205	5.824257990867
110543	Hexane	1	0	347.244	3.963972602739

115071	Propylene	1	0	10.470625	1.195276826484
108883	Toluene	1	0	16.943375	1.934175228310
1330207	Xylenes	1	0	19.380175	2.212348744292
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=4 PRO=1 STK=6 NAME=OLYMPIC TANK FARM STACK 6 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000610793	6.972523287671
71432	Benzene	1	0	12.173148	1.389628767123
50328	B[a]P	1	0	0.00105393834	1.203125958904
205992	B[b]fluoranthen	1	0	0.000000034170	3.900712328767
207089	B[k]fluoranthen	1	0	5.4352038E-11	6.204570547945
100414	Ethyl Benzene	1	0	9.1618956	1.045878493150
74851	Ethylene	1	0	0.0053391	6.094863013698
91203	Naphthalene	1	0	1.4308788	1.633423287671
110543	Hexane	1	0	973.85184	0.111170301369
115071	Propylene	1	0	29.36505	3.352174657534
108883	Toluene	1	0	47.51799	5.424428082191
1330207	Xylenes	1	0	54.352038	6.204570547945
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=4 PRO=2 STK=7 NAME=OLYMPIC TANK FARM STACK 7 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000217789	2.486175799086
71432	Benzene	1	0	4.34055	4.954965753424
50328	B[a]P	1	0	0.00037580025	4.289957191780

205992	B[b]fluoranthen	1	0	0.000000012184	1.390867579908
207089	B[k]fluoranthen	1	0	1.9380175E-11	2.212348744292
100414	Ethyl Benzene	1	0	3.266835	3.729263698630
74851	Ethylene	1	0	0.00190375	2.173230593607
91203	Naphthalene	1	0	0.510205	5.824257990867
110543	Hexane	1	0	347.244	3.963972602739
115071	Propylene	1	0	10.470625	1.195276826484
108883	Toluene	1	0	16.943375	1.934175228310
1330207	Xylenes	1	0	19.380175	2.212348744292
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=5 PRO=1 STK=8 NAME=OLYMPIC TANK FARM STACK 8 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000610793	6.972523287671
71432	Benzene	1	0	12.173148	1.389628767123
50328	B[a]P	1	0	0.00105393834	1.203125958904
205992	B[b]fluoranthen	1	0	0.000000034170	3.900712328767
207089	B[k]fluoranthen	1	0	5.4352038E-11	6.204570547945
100414	Ethyl Benzene	1	0	9.1618956	1.045878493150
74851	Ethylene	1	0	0.0053391	6.094863013698
91203	Naphthalene	1	0	1.4308788	1.633423287671
110543	Hexane	1	0	973.85184	0.111170301369
115071	Propylene	1	0	29.36505	3.352174657534
108883	Toluene	1	0	47.51799	5.424428082191
1330207	Xylenes	1	0	54.352038	6.204570547945
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=5 PRO=2 STK=9 NAME=OLYMPIC TANK FARM STACK 9 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000217789	2.486175799086
71432	Benzene	1	0	4.34055	4.954965753424
50328	B[a]P	1	0	0.00037580025	4.289957191780
205992	B[b]fluoranthen	1	0	0.000000012184	1.390867579908
207089	B[k]fluoranthen	1	0	1.9380175E-11	2.212348744292
100414	Ethyl Benzene	1	0	3.266835	3.729263698630
74851	Ethylene	1	0	0.00190375	2.173230593607
91203	Naphthalene	1	0	0.510205	5.824257990867
110543	Hexane	1	0	347.244	3.963972602739
115071	Propylene	1	0	10.470625	1.195276826484
108883	Toluene	1	0	16.943375	1.934175228310
1330207	Xylenes	1	0	19.380175	2.212348744292
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=6 PRO=1 STK=10 NAME=OLYMPIC TANK FARM STACK 10 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000417708	4.768364383561
71432	Benzene	1	0	8.324964	9.503383561643
50328	B[a]P	1	0	0.00072076662	8.227929452054
205992	B[b]fluoranthen	1	0	0.000000023368	2.667616438356
207089	B[k]fluoranthen	1	0	3.7170234E-11	4.243177397260
100414	Ethyl Benzene	1	0	6.2656308	7.152546575342
74851	Ethylene	1	0	0.0036513	4.168150684931
91203	Naphthalene	1	0	0.9785484	1.117064383561
110543	Hexane	1	0	665.99712	7.602706849315
115071	Propylene	1	0	20.08215	2.292482876712
108883	Toluene	1	0	32.49657	3.709654109589
1330207	Xylenes	1	0	37.170234	4.243177397260
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*

7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=7 PRO=1 STK=11 NAME=OLYMPIC TANK FARM STACK 11 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000417708	4.768364383561
71432	Benzene	1	0	8.324964	9.503383561643
50328	B[a]P	1	0	0.00072076662	8.227929452054
205992	B[b]fluoranthen	1	0	0.000000023368	2.667616438356
207089	B[k]fluoranthen	1	0	3.7170234E-11	4.243177397260
100414	Ethyl Benzene	1	0	6.2656308	7.152546575342
74851	Ethylene	1	0	0.0036513	4.168150684931
91203	Naphthalene	1	0	0.9785484	1.117064383561
110543	Hexane	1	0	665.99712	7.602706849315
115071	Propylene	1	0	20.08215	2.292482876712
108883	Toluene	1	0	32.49657	3.709654109589
1330207	Xylenes	1	0	37.170234	4.243177397260
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=8 PRO=1 STK=12 NAME=OLYMPIC TANK FARM STACK 12 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	0.000000403202	4.602771689497
71432	Benzene	1	0	8.03586	9.173356164383
50328	B[a]P	1	0	0.0006957363	7.942195205479
205992	B[b]fluoranthen	1	0	0.000000022556	2.574977168949
207089	B[k]fluoranthen	1	0	3.587941E-11	4.095823059360
100414	Ethyl Benzene	1	0	6.048042	6.904157534246
74851	Ethylene	1	0	0.0035245	4.023401826484
91203	Naphthalene	1	0	0.944566	1.078271689497
110543	Hexane	1	0	642.8688	7.338684931506
115071	Propylene	1	0	19.38475	2.212871004566
108883	Toluene	1	0	31.36805	3.580827625570
1330207	Xylenes	1	0	35.87941	4.095823059360
106990	1,3-Butadiene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*

7440508	Copper	1	0	*	*
50000	Formaldehyde	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7647010	HCl	1	0	*	*
1128	Lead cmp(inorg)	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
1151	PAHs-w/o	1	0	*	*
7782492	Selenium	1	0	*	*
9901	DieselExhPM	1	0	*	*

EMISSIONS FOR FACILITY FAC=2599 DEV=9 PRO=1 STK=13 NAME=OLYMPIC TANK FARM STACK 13 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	*	*
71432	Benzene	1	0	0.9874	0.004937
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
207089	B[k]fluoranthen	1	0	*	*
100414	Ethyl Benzene	1	0	0.05777	0.0002889
74851	Ethylene	1	0	*	*
91203	Naphthalene	1	0	0.1044	0.0005221
110543	Hexane	1	0	0.1426	0.0007129
115071	Propylene	1	0	*	*
108883	Toluene	1	0	0.5586	0.002793
1330207	Xylenes	1	0	0.2247	0.001124
106990	1,3-Butadiene	1	0	1.152	0.005761
75070	Acetaldehyde	1	0	4.151	0.02076
107028	Acrolein	1	0	0.1797	0.0008984
7664417	NH3	1	0	4.24	0.0212
7440382	Arsenic	1	0	0.00848	0.0000424
7440439	Cadmium	1	0	0.00795	0.00003975
7440508	Copper	1	0	0.02173	0.0001087
50000	Formaldehyde	1	0	9.148	0.04574
18540299	Cr(VI)	1	0	0.00053	0.04574
7647010	HCl	1	0	0.9874	0.004937
1128	Lead cmp(inorg)	1	0	0.04399	0.00022
7439965	Manganese	1	0	0.01643	0.00008215
7439976	Mercury	1	0	0.0106	0.000053
7440020	Nickel	1	0	0.02067	0.0001034
1151	PAHs-w/o	1	0	0.1919	0.0009593
7782492	Selenium	1	0	0.01166	0.0000583
9901	DieselExhPM	1	0	18.06	0.09028

EMISSIONS FOR FACILITY FAC=2599 DEV=9 PRO=2 STK=14 NAME=OLYMPIC TANK FARM STACK 14 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
56553	B[a]anthracene	1	0	*	*
71432	Benzene	1	0	0.9874	0.004937
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
207089	B[k]fluoranthen	1	0	*	*
100414	Ethyl Benzene	1	0	0.05777	0.0002889
74851	Ethylene	1	0	*	*
91203	Naphthalene	1	0	0.1044	0.0005221
110543	Hexane	1	0	0.1426	0.0007129
115071	Propylene	1	0	*	*
108883	Toluene	1	0	0.5586	0.002793
1330207	Xylenes	1	0	0.2247	0.001124

106990	1,3-Butadiene	1	0	1.152	0.005761
75070	Acetaldehyde	1	0	4.151	0.02076
107028	Acrolein	1	0	0.1797	0.0008984
7664417	NH3	1	0	4.24	0.0212
7440382	Arsenic	1	0	0.00848	0.0000424
7440439	Cadmium	1	0	0.00795	0.00003975
7440508	Copper	1	0	0.02173	0.0001087
50000	Formaldehyde	1	0	9.148	0.04574
18540299	Cr(VI)	1	0	0.00053	0.00000265
7647010	HCl	1	0	0.9874	0.004937
1128	Lead cmp(inorg)	1	0	0.04399	0.00022
7439965	Manganese	1	0	0.01643	0.00008215
7439976	Mercury	1	0	0.0106	0.000053
7440020	Nickel	1	0	0.02067	0.0001034
1151	PAHs-w/o	1	0	0.1919	0.0009593
7782492	Selenium	1	0	0.01166	0.0000583
9901	DieselExhPM	1	0	18.06	0.09028

ACUTE HI REPORT

ACUTE HI, RECEPTOR 779

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX	UTME	UTMN
0001	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0002	0.00E+00	0.00E+00	0.00E+00	8.12E-04	0.00E+00	0.00E+00	0.00E+00	8.12E-04	0.00E+00	8.12E-04	0.00E+00	0.00E+00	8.12E-04	8.12E-04		
0003	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0004	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0005	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0006	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0007	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0008	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0009	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0010	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0011	0.00E+00	1.11E-04	0.00E+00	1.11E-04	0.00E+00	1.11E-04	0.00E+00	0.00E+00	0.00E+00	1.11E-04	1.11E-04	0.00E+00	0.00E+00	1.11E-04		
0012	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.98E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.98E-04	0.00E+00	0.00E+00	1.98E-04		
0013	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0014	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0015	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.20E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.20E-01	0.00E+00	0.00E+00	8.20E-01		
0016	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-03	0.00E+00	0.00E+00	1.15E-03		
0017	0.00E+00	0.00E+00	0.00E+00	2.53E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.53E-02	0.00E+00	0.00E+00	0.00E+00	2.53E-02		
0018	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0019	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.89E-04	0.00E+00	0.00E+00	1.89E-04		
0020	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.44E-02	0.00E+00	8.44E-02	0.00E+00	0.00E+00	8.44E-02	0.00E+00	0.00E+00	8.44E-02		
0021	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0022	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.08E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.08E-04	0.00E+00	0.00E+00	4.08E-04		
0023	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0024	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0025	0.00E+00	0.00E+00	0.00E+00	5.11E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.11E-03	0.00E+00	0.00E+00	0.00E+00	5.11E-03		
0026	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.99E-03	0.00E+00	0.00E+00	2.99E-03	0.00E+00	0.00E+00	2.99E-03		
0027	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0028	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0029	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
SUM	0.00E+00	1.11E-04	0.00E+00	3.13E-02	0.00E+00	9.06E-01	0.00E+00	8.82E-02	0.00E+00	3.13E-02	9.10E-01	0.00E+00	8.12E-04	9.10E-01	385142	3739215

APPENDIX D

AUGUST 2002 FINAL EIR
OLYMPIC TANK FARM EMISSIONS SUMMARY

TABLE D-1

CONSTRUCTION SUMMARY
Olympic Tank Farm August 2002 Final SEIR

Construction Period		Estimated Emissions (lbs/day) CO	VOC	NOx	SOx	PM10	PM2.5	Estimated Emissions (metric tons/yr) CO2
Month 1								
Construction Equipment		395.52	187.81	386.59	66.39	26.44	24.33	2367.54
Vehicle Emissions		51.76	3.73	7.21	0.00	0.29	0.27	186.65
Fugitive PM10 Emissions		0.00	0.00	0.00	0.00	5.00	0.91	0
Fugitive Dust		0.00	0.00	0.00	0.00	276.00	57.42	0
TOTAL EMISSIONS		447.28	191.54	393.80	66.39	307.73	82.92	2554.19

In the August 2002 Final SEIR PM2.5 and CO2 emissions were not required to be calculated or included in an EIR. The emissions in this Appendix were prepared to estimate what PM2.5 and CO2 emissions would have been in the August 2002 Final SEIR for the construction and operational activities at the Olympic Tank Farm (only) Peak construction emissions for all pollutants were determined to occur in Month 1 of construction activities for all pollutants, except VOC emissions. Therefore, construction activities in Month 1 were used to estimated PM2.5 and CO2 emissions associated with the previous project because GHG emissions are associated with combustion emissions and Month 1 was the peak month for construction activities.

TABLE D-2

Construction Equipment
Olympic Tank Farm August 2002 Final SEIR

Equipment Type	Number	Hours Per Day	Emission Factors lb/hr						Daily Emissions (lbs/day)						
			CO	VOC	NOx	SOx	PM10	CO2[2]	CO	VOC	NOx	SOx	PM10	PM2.5[1]	CO2[2]
Air Compressor 130 CFM	5	8	0.20	0.04	0.32	0.04	0.02	63.6	7.81	1.42	12.79	1.42	0.71	0.65	2544.29
Backhoe	3	8	0.83	0.17	1.22	0.11	0.06	263.0	19.92	3.98	29.22	2.66	1.33	1.22	6312.00
Dozer	2	8	--	--	--	0.35	0.17	239.1	0.00	0.00	0.00	5.60	2.64	2.43	3825.73
Plate Compactor (Gasoline)	2	8	1.83	9.46	0.88	1.10	0.00	4.3	29.22	151.36	14.08	17.60	0.01	0.01	68.80
Cranes	2	8	0.75	0.25	1.92	0.17	0.13	129.0	12.01	4.00	30.70	2.67	2.00	1.84	2064.00
Dump Trucks	3	8	1.80	0.19	4.17	0.45	0.26	7.6	43.20	4.56	100.08	10.80	6.24	5.74	182.40
Flatbed Truck	3	8	1.80	0.19	4.17	0.45	0.26	7.6	43.20	4.56	100.08	10.80	6.24	5.74	182.40
Front End Loader	2	8	0.57	0.23	1.90	0.18	0.17	109.0	9.15	3.68	30.40	2.91	2.72	2.50	1744.00
Manlifts (Boom and Scissor)	2	8	0.28	0.07	0.67	0.04	0.03	34.7	4.52	1.04	10.77	0.69	0.52	0.48	555.20
Motor Grader	1	8	0.68	0.04	0.05	0.45	0.06	133.0	5.40	0.31	0.43	3.60	0.49	0.45	1064.00
Paver	1	8	0.99	0.20	2.38	0.20	0.10	77.9	7.92	1.60	19.04	1.60	0.80	0.74	623.49
Pile Driver	1	8	0.68	0.15	1.70	0.45	0.14	123.0	5.40	1.20	13.60	3.60	1.12	1.03	984.00
Trench Machine	1	8	1.20	0.18	1.32	0.12	0.09	58.7	9.60	1.44	10.56	0.96	0.72	0.66	469.78
Forklift 4000 lb.	1	8	0.52	0.17	1.54	0.14	0.09	54.4	4.16	1.36	12.32	1.14	0.74	0.68	435.17
Generators (Gasoline)	1	8	24.08	0.88	0.03	0.01	0.00	61.0	192.62	7.03	0.26	0.08	0.03	0.03	487.94
Weld Machine	1	8	0.17	0.03	0.28	0.03	0.02	25.6	1.39	0.25	2.27	0.25	0.13	0.12	204.82
Total Emission Totals									395.52	187.81	386.59	66.39	26.44	24.33	21748.02

CO2 Emissions (metric tons/const. period) = CO2 (lbs/day) x 240 days of construction/2204.62 lbs per metric ton
CO2 Emissions (metric tons/ const. period) = 2367.5389

* Emissions factors from SCAQMD CEQA Air Quality Handbook, Table 9-8-A.

* Emissions factors from SCAQMD CEQA Air Quality Handbook, Table 9-8-C. Table 9-8-C, *Pounds/hour calculated from load factor and hp rating.*

* Trucks Emissions factors from SCAQMD CEQA Air Quality Handbook Table 9-8-A,*Trucks:off highway diesel used for truck:pickup/stake bed*.

* Emissions factors from SCAQMD CEQA Air Quality Handbook, Table 9-8-A,*Emissions for equipment not specifically listed can be found under miscellaneous.*

(1) PM2.5 is calculated using the SCAQMD Methodology to Calculate Particulate Matter (PM2.5) and PM2.5 CEQA Significance Thresholds, Appendix A , October 2006, https://www.aqmd.gov/ceqa/handbook/pm2_5/pm2_5ratio.htm

(2) CO2 emission factors based on OFF-ROAD 2007 emission factors http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html.

TABLE D-3

Construction Vehicle Emissions
Olympic Tank Farm August 2002 Final SEIR
Month 1

On Road Mobile Emission Factors from California ARB EMFAC2000

	CO		VOC					NOx		PM10
Vehicle Type	Exhaust Emissions Factor (g/mile)	Continuous Start EF (g/trip)	Exhaust Emission Factor (g/mile)	Continuous Start EF (g/trip)	Hot Soak Factor (g/trip)	Diurmal & Resting Losses (g/hr)	Evap Running Losses (g/mile)	Exhaust Emissions Factor (g/mile)	Continuous Start EF (g/trip)	Emission Factor (g/mile)
Construction Workers Commuting	8.99	11.76	0.54	1.18	0.37	0.17	0.39	0.88	0.72	0.05
Light Duty Trucks	11.28	13.95	0.57	1.25	0.37	0.16	0.34	1.36	1.07	0.07
Heavy Diesel Trucks	48.75	NA	1.39	2.55	0.09	NA	0.11	19.06	1.57	0.61

	Parameters			Peak Day Emissions, lbs/day							
				CO		VOC			NOx		PM10
Source	Number of Vehicles	Total Number of Trips	Distance Traveled In Miles per Trip	Exhaust Emissions	Continuous Start Emissions	Exhaust & Running Emission	Other VOC Emissions	Diurnal and Resting Loss Emissions	Exhaust Emission	Continuous Start Emissions	Emission
Construction Workers Commuting	50	100	11.5	22.79	2.59	2.36	0.34	0.15	2.23	0.16	0.13
On-site Cars	0	0	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty Trucks	6	12	11.5	14.83	0.37	0.46	0.04	0.02	0.41	0.03	0.02
Daily Delivery Trucks	1	2	50	10.75	NA	0.33	0.01	NA	4.20	0.00	0.13
Heavy Diesel Trucks	1	1	4	0.43	NA	0.01	0.01	NA	0.17	0.00	0.01

Source	Parameters			CO	VOC	NOx	PM10	PM2.5[(1)]
Total Emissions for Construction Workers Commuting	50	100		25.38	2.85	2.39	0.13	0.12
Total Emissions for Light Duty Trucks	6	12		15.20	0.52	0.44	0.02	0.02
Total Emissions for Heavy Diesel Trucks	2	3		11.18	0.36	4.38	0.14	0.13
Total Trip Emissions				51.76	3.73	7.21	0.29	0.27

Emission factors for light duty trucks include trucks have non-catalyst/gasoline, catalyst/gasoline engines, and diesel engines

Diurnal & Resting losses vehicle ROG emission based on the vehicle being not being operated and the ambient temperature is rising

Based on California ARB EMFAC2000 model years 1965-2001, state-wide annual simple averages

EMFAC2000 was finalized in May 2000

(1) PM2.5 is calculated using the SCAQMD Methodology to Calculate Particulate Matter (PM2.5) and PM2.5 CEQA Significance Thresholds, Appendix A , October 2006, https://www.aqmd.gov/ceqa/handbook/pm2_5/pm2_

CO2	Emission Rate (lb/mi)[(1)]	Emissions (lbs/day)	Emissions (metric tons/const. period)
Light Duty	1.10672236	1425.46	155.18
Medium Duty	2.72245619	272.25	29.64
Heavy Duty	4.22184493	16.89	1.84
		Total:	186.65

(1)Source: SCAQMD 2007 on-road emission rates, http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html.

TABLE D-4

Fugitive Dust Construction Emission Estimates
From Trucks and Employee Vehicles Olympic Tank Farm August 2002 Final EIR

Month 1

Source Type	Number	Fuel	Peak Daily Trips	One-way Distance	Emission Factor (lb/vmt)	Peak PM-10 (lbs/day)	Peak PM2.5 (lbs/day)(1)
Passenger Vehicle/ On Paved Roadways	50	Gasoline	2	11.5	0.000856	0.98	0.17
Pickup Trucks on Paved Roadways	6	Gasoline	2	11.5	0.0026	0.36	0.06
Trucks on Paved Roadways	1	Diesel	2	50	0.0206	2.06	0.35
Trucks on Unpaved Roads	1	Diesel	1	1	1.6	1.60	0.34
Total	58					5.00	0.91

* Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1

$E = k(sL/2)^{0.65} \times (W/3)^{1.5}$

Where: k = 0.016 lb/VMT for PM10, sL = road silt loading (gms/m2) from CARB Methodology 7.9 for paved roads (0.240 for local roads and 0.037 for major/collector roads), W = weight of vehicles (2.4 tons for cars; 5 for pickup trucks, and 20 for heavy trucks)

**Emission Calculations for travel on unpaved roads from EPA AP-42 Section 13.2.2

$E = 2.6(s/12)^{0.8} \times (W/3)^{0.4}/(M/0.2)^{0.3}$

Where: s = surface silt content (assumed to be 11%, AP-42 Table 13.2.2-1), W = vehicle weight (tons) same assumptions as above, and M = material moisture content (assumed to be 10 percent since these emissions would only come from a water truck watering the site).

(1) PM2.5 is calculated using the SCAQMD Methodology to Calculate Particulate Matter (PM2.5) and PM2.5 CEQA Significance Thresholds, Appendix A , October 2006, https://www.aqmd.gov/ceqa/handbook/pm2_5/pm2_5ratio.htm

TABLE D-5

Fugitive Constuction
Emission Estimates
Olympic Tank Farm August 2002 Final SEIR

REFINERY CONSTRUCTION (Month 1)

						Controlled Emissions		Uncontrolled Emissions		
Grading Operations	Average Pieces of Equipment Operating	Peak Pieces of Equipment Operating	Hours of Operation	PM10 Emission Factor (lb/hour)	Water Control Factor	Average PM10 Emissions (lbs/day)	Peak PM10 Emissions (lbs/day)	Average PM10 Emissions (lbs/day)	Peak PM10 Emissions (lbs/day)	SCAQMD Emission Factor Source
Construction Activities[1]	5	8	8	7.7	0.5	154.00	246.40	308	492.8	Table A9-9-F

					Controlled Emissions		Uncontrolled Emissions		
TRENCHING OPERATIONS (Backhoe) TEMPORARY STOCKPILES	Average Tons of Materials Handled Per Day	Peak Tons of Materials Handled Per Day	PM10 Emission Factor (lb/ton)	Water Control Factor	Average PM10 Emissions Pounds/day	Peak PM10 Emissions Pounds/day	Average PM10 Emissions Pounds/day	Peak PM10 Emissions Pounds/day	SCAQMD Emission Factor Source
Construction Activities[2]	2500	5000	0.0035	0.5	4.375	5.95	8.75	17.5	Table A9-9-G
Assumptions: 1cubic yard trench spoils = 1 ton									

WIND EROSION Disturbed Area and Temporary Stockpiles	Days of Construction	Average Acreage Disturbed Per Day	Peak Acreage Disturbed Per Day	PM10 Emission Factor (lb/day/acre)	Average PM10 Emissions Pounds/day	Peak PM10 Emissions Pounds/day	Average PM10 Emissions Tons/Year	Peak PM10 Emissions Tons/Year	SCAQMD Emission Factor Source
Construction Activities	30	0.5	1	19.800	9.900	19.800	0.149	0.297	Table A9-9-E

					Controlled Emissions		Uncontrolled Emissions		
TRUCK FILLING/DUMPING	Estimated Materials Handled Per Day (tons)	Peak Tons of Materials Handled Per Day	PM10 Emission Factor (lb/ton)	Water Control Factor	Average PM10 Emissions Pounds/day	Peak PM10 Emissions Pounds/day	Average PM10 Emissions Pounds/day	Peak PM10 Emissions Pounds/day	SCAQMD Emission Factor Source
Truck Filling[4]	250	500	0.02205	0.5	2.75625	5.5125	5.5125	11.025	Table A9-9
Truck Dumping	250	500	0.009075	0.5	1.134375	2.26875	2.26875	4.5375	Table A9-9

TOTAL PM10 Pounds/day		Average	Peak	PM2.5 (lbs/day)[5]
(Controlled Emissions)	Construction	172.1656	276.04063	57.42
(Uncontrolled Emissions)		334.431	545.663	113.50
Mitigated Emissions (assumes water 3 times/day)		113.707	185.525	38.59

(1) Emissions (lbs/hr) = [0.45 x ($G^{1.5}$)/($H^{1.4}$) x 2.2046 x J; where G = silt content (7.5%), H = moisture content (2.0%) and J = hrs of operation.
(2) Emissions (lbs/ton) = 0.00112 x [(G/5)$^{1.3}$/(H/2)$^{1.4}$] x I/J; where G=mean wind speed (12 mph), H=moisture content of surface material (2%); I=lbs of dirt handled per day (10,000 lbs); and J=2,000 lbs/ton
(3) Emissions (lbs/day/acre) = 1.7 x [(G/1.5)/(365-H/235)] x I/15 x J; where G = silt content (7.5%); H = days with >0.01 inch of rain (34); I = percentage of time wind speed exceeds 12 mph (50%) and J= fraction of TSP (0.5)
(4) Used SCAQMD Table 9-9 Default emission factors.
(5) PM2.5 is calculated using the SCAQMD Methodology to Calculate Particulate Matter (PM2.5) and PM2.5 CEQA Significance Thresholds, Appendix A , October 2006, https://www.aqmd.gov/ceqa/handbook/pm2_5/pm2_5ratio.htm

TABLE D-6

Ultramar Olympic Tank Farm
Localized Significance Threshold Evaluation

On-site Source Emissions (lbs/day)

	CO	VOC	NOx	SOx	PM10	PM2.5
Construction Equipment	395.52	12.88	386.59	66.39	26.44	24.33
Fugitive Construction Emissions	0	0	0	0	185.53	38.59
Total On-site Emissions	**395.52**	**12.88**	**386.59**	**66.39**	**211.97**	**62.92**
Screening Value(1)	**2,613**	**NA**	**101**	**NA**	**58**	**18**
Above Value?	**NO**	**-**	**YES**	**-**	**YES**	**YES**

(1) Screening values for LST analysis from SCAQMD Final Localized Significance Threshold Methodology, Appendix C, Tables C-1, C-2, and C-4 for SRA No. 4 for 5-acre sites at 100 meters (July 2008).

TABLE D-7

Olympic Tank Farm Diesel Fire Water Pump Emissions
August 2002 Final SEIR

			Emission Factor (lb/1000 gal)[1]					
			CO	VOC	NOx	SOx	PM10	PM2.5[2]
Equipment	Estimated Fuel Usage (1000 gal)		102	37.5	469	7.1	33.5	33.17
Diesel Fire Water Pumps	1	Emissions (lb/yr)	102	37.5	469	7.1	33.5	33.17
Diesel Fire Water Pumps	1	Emissions (lb/day)	8.50	3.13	39.08	0.59	2.79	2.76

(1) Emission factors from SCAQMD General Instruction Book for the 2000-2001 AER Program Appendix A.

(2) PM2.5 is calculated using the SCAQMD Methodology to Calculate Particulate Matter (PM2.5) and PM2.5 CEQA Significance Thresholds, Appendix A , October 2006, https://www.aqmd.gov/ceqa/handbook/pm2_5/pm2_5ratio.htm

CO2 Emission Calculations

	Emission Factor	Emissions	Emissions
Pollutant	kg/gal	kg/yr	tonnes/yr
CO2	10.15	10,150.00	10.15
CH4	0.003	3.00	0.00
N2O	0.0006	0.60	0.00

Reference: California Climate Action Registry, General Report Protocol, January 2009

TABLE D-8

Operational Vehicle and Truck Emissions for the Olympic Tank Farm
August 2002 Final SEIR

On Road Mobile Emission Factors from California ARB EMFAC2000

	CO		VOC					NOx		PM10
Vehicle Type	Exhaust Emissions Factor (g/mile)	Continuous Start EF (g/trip)	Exhaust Emission Factor (g/mile)	Continuous Start EF (g/trip)	Hot Soak Factor (g/trip)	Diurmal & Resting Losses (g/hr)	Evap Running Losses (g/mile)	Exhaust Emissions Factor (g/mile)	Continuous Start EF (g/trip)	Emission Factor (g/mile)
Workers Commuting	8.99	11.76	0.54	1.18	0.37	0.17	0.39	0.88	0.72	0.05
Light Duty Trucks	11.28	13.95	0.57	1.25	0.37	0.16	0.34	1.36	1.07	0.07
Heavy Diesel Trucks	48.75	NA	1.39	2.55	0.09	NA	0.11	19.06	1.57	0.61

	Parameters			Peak Day Emissions, lbs/day							
				CO		VOC			NOx		PM10
Source	Number of Vehicles	Total Number of Trips	Distance Traveled In Miles per Trip	Exhaust Emissions	Continuous Start Emissions	Exhaust & Running Emission	Other VOC Emissions	Diurnal and Resting Loss Emissions	Exhaust Emission	Continuous Start Emissions	Emission
Workers Commuting	8	16	11.5	3.65	0.41	0.38	0.05	0.02	0.36	0.03	0.02
On-site Cars	0	0	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty Trucks	0	0	11.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Delivery Trucks	0	0	50	0.00	NA	0.00	0.00	NA	0.00	0.00	0.00
Heavy Diesel Trucks	0	0	50	0.00	NA	0.00	0.00	NA	0.00	0.00	0.00

Source	Parameters			CO	VOC	NOx	PM10	PM2.5[(1)]
Emissions for Workers Commuting	8	16		4.06	0.46	0.38	0.02	0.02
Total Emissions for Light Duty Trucks	0	0		0.00	0.00	0.00	0.00	0.00
Total Emissions for Heavy Diesel Trucks	0	0		0.00	0.00	0.00	0.00	0.00
Total Trip Emissions				4.06	0.46	0.38	0.02	0.02

Emission factors for light duty trucks include trucks have non-catalyst/gasoline, catalyst/gasoline engines, and diesel engines

Diurnal & Resting losses vehicle ROG emission based on the vehicle being not being operated and the ambient temperature is rising

Based on California ARB EMFAC2000 model years 1965-2001, state-wide annual simple averages

EMFAC2000 was finalized in May 2000

(1) PM2.5 is calculated using the SCAQMD Methodology to Calculate Particulate Matter (PM2.5) and PM2.5 CEQA Significance Thresholds, Appendix A , October 2006, https://www.aqmd.gov/ceqa/handbook/pm2_5/pr

CO2	Emission Rate (lb/mi)[(1)]	Emissions (lbs/day)	Emissions (metric tons/year)
Light Duty	1.10672236	203.64	22.17
Medium Duty	2.72245619	0.00	0.00
Heavy Duty	4.22184493	0.00	0.00
		Total:	22.17

(1)Source: SCAQMD 2007 on-road emission rates, http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html.

TABLE D-9

Operational Fugitive Dust Emissions
From Employee Vehicles
August 2002 Final SEIR

Source Type	Number	Fuel	Peak Daily Trips	One-way Distance	Emission Factor (lb/vmt)	Peak PM-10 (lbs/day)	Peak PM2.5 (lbs/day)(1)
Passenger Vehicle/ On Paved Roadways	8	Gasoline	2	11.5	0.000856	0.16	0.03
Trucks on Paved Roadways	0	Gasoline	2	11.5	0.0026	0.00	0.00
Trucks on Paved Roadways	0	Diesel	2	20	0.0206	0.00	0.00
Trucks on Paved Roads	0	Diesel	2	50	0.0206	0.00	0.00
Total	8					0.16	0.03

* Emission Calculations from SCAQMD CEQA Air Quality Handbook, Table A9-9

* Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1

$E = k(sL/2)^{0.65} \times (W/3)^{1.5}$

Where: k = 0.016 lb/VMT for PM10, sL = road silt loading (gms/m2) from CARB Methodology 7.9 for paved roads (0.240 for local roads and 0.037 for major/collector roads), W = weight of vehicles (2.4 tons for cars; 5 for pickup trucks, and 20 for heavy trucks)

**Emission Calculations for travel on unpaved roads from EPA AP-42 Section 13.2.2

$E = 2.6(s/12)^{0.8} \times (W/3)^{0.4}/(M/0.2)^{0.3}$

Where: s = surface silt content (assumed to be 11%, AP-42 Table 13.2.2-1), W = vehicle weight (tons) same assumptions as above, and M = material moisture content (assumed to be 10 percent since these emissions would only come from a water truck watering the site).

(1) PM2.5 is calculated using the SCAQMD Methodology to Calculate Particulate Matter (PM2.5) and PM2.5 CEQA Significance Thresholds, Appendix A , October 2006, https://www.aqmd.gov/ceqa/handbook/pm2_5/pm2_5ratio.htm

TABLE D-10

OPERATIONAL EMISSIONS SUMMARY
Olympic Tank Farm August 2002 Final SEIR

Construction Period		Estimated Emissions (lbs/day)						Estimated Emissions (metric tons/yr)
		CO	VOC	NOx	SOx	PM10	PM2.5	CO2
Diesel Fire Pumps		8.50	3.13	39.08	0.59	2.79	2.76	10.15
Vehicle Emissions		4.06	0.46	0.38	0.00	0.02	0.02	22.17
Fugitive Road Dust		0.00	0.00	0.00	0.00	0.16	0.03	0
TOTAL EMISSIONS		12.56	3.59	39.46	0.59	2.97	2.81	32.32

In the August 2002 PM2.5 and CO2 emissions were not required to be calculated or included in an EIR. The emissions in this Appendix were prepared to estimate what PM2.5 and CO2 emissions would have been in the 2002 for the construction and operational activities at the Olympic Tank Farm (only).

Ultramar, Inc. - Wilmington Refinery
CARB Phase 3 Proposed Project

CO2 CONSTRUCTION EMISSION SUMMARY FROM PROJECT EVALUATED IN THE AUGUST 2002 FINAL EIR

Construction Period - Month 1	CO_2
Construction Equipment	21882.88
Vehicle Emissions	1633.79
TOTAL EMISSIONS (lb/day)	23516.66
TOTAL EMISSIONS (tons/yr)	2880.11
SCAQMD Thresholds	--
Significant	--

Ultramar, Inc. - Wilmington Refinery
CO2 Construction Emissions Estimate from August 2002 CARB Phase 3 Final EIR
Month 1 - Construction CO_2 Emissions

Equipment Type	Number	Hours per Day	HP	Emisson Factor (lb/hr)	Daily Emission (lbs/day)
Air Compressor 130 CFM	5	8	Composite	63.61	2544.29
Backhoe	3	8	Composite	66.81	1603.37
Dozer	2	8	Composite	239.11	3825.73
Plate Compactor (Gasoline)	2	8	Composite	4.31	69.02
Cranes	2	8	Composite	128.67	2058.77
Dump Trucks(2)	3	8	Composite	122.75	2946.04
Flatbed Truck(2)	3	8	Composite	122.75	2946.04
Front End Loader	2	8	Composite	66.81	1068.91
Manlifts (Boom and Scissor)	2	8	Composite	34.72	555.55
Motor Grader	1	8	Composite	132.74	1061.95
Paver	1	8	Composite	77.94	623.49
Pile Driver(2)	1	8	Composite	122.75	982.01
Trench Machine	1	8	Composite	58.72	469.78
Forklift 4000 lb.	1	8	Composite	54.40	435.17
Generators (Gasoline)	1	8	Composite	60.99	487.94
Weld Machine	1	8	Composite	25.60	204.82
Emission Totals					21882.88

(1) Based on SCAQMD emission factors for 2007. (http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html)

(2) Calculated as 'Other Construction Equipment'.

Ultramar, Inc. - Wilmington Refinery
CO2 Construction Emissions Estimate from August 2002 CARB Phase 3 Final EIR
Mobile Source CO_2 Emissions

Vehicle	Miles per Day	Month 1
Commuters	23	50
Pickup Trucks	23	6
Total Light Vehicle Miles		1288
Delivery Truck	100	1
Total Medium/Heavy Duty Truck Miles		100
Semi Tractor	4	1
Total Heavy-Heavy Duty Truck Miles		4

	Emission Rate (lb/mi)[1]	Project
CO_2	**2007**	**Month 1**
Light Duty	1.0441535	1344.87
Medium Duty	2.7206448	272.06
Heavy Duty	4.2133560	16.85
Total		1633.79

(1) Based on Emfac2007 model for SCAQMD.