

**Bay Area Air Quality Management District**

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**Permit Evaluation  
and  
Statement of Basis  
for  
MAJOR FACILITY REVIEW PERMIT  
Reopening – Revision 3**

for  
**Tesoro Refining and Marketing Company  
Facility B2758 & B2759**

**Facility Addresses:**

Avon Refinery  
150 Solano Way  
Martinez, CA 94553

Amorco Terminal  
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Application: 12599

Site Engineer: Pamela Leong  
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## TABLE OF CONTENTS

A.	Background .....	3
B.	Facility Description.....	4
C.	Permit Content .....	4
I.	Standard Conditions.....	4
II.	Equipment .....	4
III.	Generally Applicable Requirements .....	5
IV.	Source-Specific Applicable Requirements .....	5
V	Schedule of Compliance .....	16
VI.	Permit Conditions .....	17
VII.	Applicable Limits and Compliance Monitoring Requirements .....	21
VIII.	Test Methods.....	22
IX.	Permit Shield: .....	22
D.	Alternate Operating Scenarios:.....	22
E.	Compliance Status: .....	22
	APPENDIX A Compliance Division Summary of NOV Review .....	25
	APPENDIX B – Engineering Evaluations.....	26
	APPENDIX C – BAAQMD June 13, 2005, Letter Responding to EPA’s March 15, 2005, Order .....	123

## **Title V Statement of Basis**

### **A. Background**

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Volume 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review because it is a major facility as defined by BAAQMD Regulation 2-6-212. It is a major facility because it has the “potential to emit,” as defined by BAAQMD Regulation 2-6-218, of more than 100 tons per year of a regulated air pollutant.

Major Facility Operating permits (Title V permits) must meet specifications contained in 40 CFR Part 70 as contained in BAAQMD Regulation 2, Rule 6. The permits must contain all applicable requirements (as defined in BAAQMD Regulation 2-6-202), monitoring requirements, recordkeeping requirements, and reporting requirements. The permit holders must submit reports of all monitoring at least every six months and compliance certifications at least every year.

In the Bay Area, state and District requirements are also applicable requirements and are included in the permit. These requirements can be federally enforceable or non-federally enforceable. All applicable requirements are contained in Sections I through VI of the permit.

The District issued the initial Title V permit to this facility on December 1, 2003. The permit has been reopened several times, as outlined below.

*Revision 1:* The District issued a reopened permit, Revision 1, that amended flare and Regulation 9-10 requirements, corrected errors, and incorporated some new sources and permit conditions on December 16, 2004. This reopening is generally referred to as “Revision 1”.

*Revision 1.5:* On October 8, 2004, EPA sent a letter formally objecting to the permit because it did not include monitoring or a design review for the destruction efficiency of thermal oxidizers. The permit was revised to address EPA’s objection in a reopening of the permit that was proposed on February 1, 2005. The revised permit was issued on April 12, 2005. This reopening is generally referred to as “Revision 1.5”.

*Revision 2:* EPA’s October 8, 2004 letter also included comments identifying a number of issues to be resolved in the District’s refinery Title V permits. (Note that EPA commented on five refineries in this letter. Not all comments concern this facility.) To address those deficiencies, the District proposed another reopening, generally referred to as “Revision 2”, and published it for public comment on April 15, 2005. In addition, some issues raised in the refinery's appeal to the December 16, 2004 permit and some refinery comments on that permit were addressed.

*Revision 3:* On March 15, 2005, shortly before the Revision 2 reopening was proposed, EPA issued an Order directing the District to reopen the permit to address possible deficiencies that EPA had identified based on petitions it received from the public to object to the permit. The District is undertaking a further reopening, generally referred to as Revision 3, in order to address the issues raised in the Order. The Revision 3 reopening is addressed in this Statement of Basis, and is being conducted concurrently with the Revision 2 reopening discussed above.

The District proposed Revision 3 and published it for public comment on August 2, 2005. EPA and one other organization submitted comments, which are being addressed as appropriate in this revised Statement of Basis for Revision 3.

The District is now finalizing Revision 2 and Revision 3 concurrently. The changes involved in both Revision 2 and Revision 3 are reflected in the accompanying draft permit, and they are explained in this Statement of Basis for Revision 3 and in the accompanying separate Statement of Basis for Revision 2. For ease of reference for reviewers at this draft permit stage, all changes to the permit associated with Revision 2 are clearly shown in "~~strikeout~~/underline" format. Changes associated with Revision 3 are shown in "~~double strikeout~~/double underline" format. When the permit is finalized, all "~~strikeout~~/underline" formatting will be removed.

The reopening is limited to the changes made to the permit. This statement of basis discusses the changes made by this reopening. It also provides additional analysis supporting certain applicability determinations. Where the additional analysis did not result in a permit change, the analysis is provided for information only. The permit is not being reopened with respect to those issues.

This statement of basis does not address the factual and legal basis for any other permit terms. These are addressed in the comprehensive statements of basis that were prepared for the initial issuance of the permit and for the reopening issued on December 16, 2004. These are available on request.

## **B. Facility Description**

The facility description can be found in the statement of basis that was prepared for the reopening issued on December 16, 2004. It is available on request from the Engineering Division of the District.

## **C. Permit Content**

The legal and factual basis for the permit follows. The permit sections are described in the order that they are presented in the permit.

### **I. Standard Conditions**

The District is deleting Miscellaneous Conditions I.J.5 through I.J.10 in the permit. The Conditions referred to determinations that the District had intended to make by February 15, 2005 concerning the applicability of certain regulations to the Facility's processes and equipment. The District has made the determinations, which are set forth below in the section entitled "Source-Specific Applicable Requirements," and is modifying the permit as appropriate.

### **II. Equipment**

The District is making certain changes to the Tables in Section II of the permit. The explanations for these changes are set forth below (along with some further explanation as to why certain tanks are not listed in Section II).

Basis for Tank Exemptions:

The basis for the exemptions for sources S22, S59, S131, S212, and S654 have been added to Table IID Tank Sources Exempt From Permitting. In the proposed reopening noticed on April 15, 2005, a column was added to Table IID to add the citation or reason for the tank exemptions.

Missing Information on Tanks:

S223 Tank A-223 was demolished.

S231 Tank A-231 was demolished.

S240 Tank A-240 was demolished.

S276 Tank A-276 was demolished.

S370 Tank A-370 was demolished.

S371 Tank A-371 was demolished.

S372 Tank A-372 was demolished.

S373 Tank A-373 was demolished.

S375 Tank A-375 was demolished.

S376 Tank A-376 was demolished.

S384 Tank A-384 was demolished.

S387 Tank A-387 was demolished.

S388 Tank A-388 was demolished.

S389 Tank A-389 was demolished.

S390 Tank A-390 was demolished.

The District is adding S506 Tank A-506 to Table IID with the basis for exemption.

S507 Tank A-507 was demolished.

S539 Tank A-539 was demolished.

S615 Tank A-615 was demolished.

S718 Tank A-718 was demolished.

A8 Coker CO Boiler Precipitator and A806 Electrostatic Precipitator for S806 Coker Fluid Coking

S903 No. 5 CO Boiler followed by a single stage electrostatic precipitator abates the S806 Coker. There has been some confusion as to the abatement device number and description of the electrostatic precipitator. The precipitator has been referred to as both "A8 Coker CO Boiler Precipitator" and "A806 Electrostatic Precipitator for S806 Coker Fluid Coking". Both abatement device numbers appear in Table IIB, condition #22150, and in Table VII-M. To resolve this issue, the District has decided to use A8 Coker CO Boiler Precipitator to refer to the electrostatic precipitator. The District is deleting A806 from Table IIB and condition #22150 and changing A806 to A8 in Table II-M.

**III. Generally Applicable Requirements**

No change is being made to this section.

**IV. Source-Specific Applicable Requirements**

Section IV of the permit lists the applicable requirements that apply to permitted or significant sources. These applicable requirements are contained in tables that pertain to one or more sources that have the same requirements. The order of the requirements is:

- District Rules
- SIP Rules (if any) listed following the corresponding District Rules. SIP rules are District rules that have been approved by EPA into the California State Implementation Plan. SIP rules are “federally enforceable” and a “Y” (yes) indication will appear in the “Federally Enforceable” column. If the SIP rule is the current District rule, separate citation of the SIP rule is not necessary and the “Federally Enforceable” column will have a “Y” for “yes”. If the SIP rule is not the current District rule, the SIP rule or the necessary portions of the SIP rule are cited separately after the District rule. The SIP portions will be federally enforceable; the non-SIP versions will not be federally enforceable, unless EPA has approved them through another program.
- Other District requirements, such as the Manual of Procedures, as appropriate.
- Federal requirements (other than SIP provisions)
- BAAQMD permit conditions. The text of BAAQMD permit conditions is found in Section VI of the permit.
- Federal permit conditions. The text of Federal permit conditions, if any, is found in Section VI of the permit.

Section IV of the permit contains citations to all of the applicable requirements. The text of the requirements is found in the regulations, which are readily available on the District’s or EPA’s websites, or in the permit conditions, which are found in Section VI of the permit. All monitoring requirements are cited in Section IV. Section VII is a cross-reference between the limits and monitoring requirements. A discussion of monitoring is included in Section C.VII of this permit evaluation/statement of basis.

This section of the Statement of Basis explains the changes that are being made to Section IV of the permit, and in a few cases explains why there is no need to make changes in areas where issues have been raised about what requirements apply to what sources.

#### **40 CFR 61 Subpart FF Language in Table IV-A**

The language summarizing the requirements of 40 CFR 61.342(e)(2), 61.342(e)(2)(i), and 61.342(e)(2)(ii) has been corrected in Table IV-A Facility #B2758.

At this time, Tesoro does not have any streams with a water content less than 10%, and Tesoro chose to manage and treat facility waste with water content of 10% or greater by complying with 61.342(e)(2)(i), where the total quantity of benzene must be equal to or less than 6.0 Mg/yr.

Should Tesoro have any nonaqueous streams with water content less than 10%, then Tesoro will comply with 61.342(e)(1). Should Tesoro choose to comply using the option provided in 61.342(c), then Tesoro will be required to comply with the standard specified in 61.343 through 61.348 of Subpart FF. Tesoro must maintain records indicating the intended compliance option as required by Permit Condition I.J.4 in the Title V Permit.

The District will remove standards 61.349 for closed vent systems from Table IV – A and will add these standards to the source specific applicable requirements of Table IV – AA for S-950 No. 50 Furnace and Table IV – AG S952, S953, and S954 Internal Combustion Engines.

The District will remove standards 61.351 for tanks from Table IV – A. The standards of 61.351 are already included in the source specific tables for the appropriate tanks.

### **Exemption of Flares from Regulation 8**

On page 20 of the Order, EPA states that the District must either conduct a design review of the refinery flares to better demonstrate that the flares consistently meet a 90% control efficiency to qualify for the Regulation 8-1-110.3 exemption from Regulation 8, Rule 2 or include Regulation 8, Rule 2 as an applicable requirement for those sources. The District did not make either of these changes because the District has no authority to do so and because conducting a design review to qualify for an exemption from Regulation 8, Rule 2 would not be a wise use of resources.

First, as previously stated in the District's June 13, 2005 response to EPA's order, which is incorporated herein by reference and set forth in Appendix C, Regulation 8, Rule 2 does not apply to refinery flares because the term "miscellaneous operation" was never intended to include refinery flares. This applicability determination does not rely on the exemption in Regulation 8-1-110.3. Rather it is based on the general scope of Regulation 8, Rule 2 as supported by a review of the regulatory history and other considerations discussed below.

In its original form, the limit now included in Regulation 8, Rule 2 clearly did not apply to refinery flares. The (then) Bay Area Air Pollution Control District adopted Regulation 3 – the predecessor to Regulation 8, Rule 2 and others – on January 4, 1967. In its original form, Regulation 3 set a standard of 300 ppm total carbon for any organic emission from a *source operation* (former § 3101). A "source operation" was defined (former § 2035) as "the last operation preceding the emission of an air contaminant, which operation (a) results in the separation of the air contaminant from the process materials or in the conversion of these process materials into air contaminants, as in the case of combustion of fuel; and (b) is not an air pollution abatement operation." A refinery flare is not an operation that separates or converts process materials into air contaminants rather its function is to reduce or abate the amount of contaminants in gases that would otherwise be emitted directly into the atmosphere. Accordingly, refinery flares were not subject to the limit in Regulation 3, and the limit was never enforced against flares.

Regulation 3 also included the predecessor to the exemption now contained in Regulation 8-1-110.3 (former § 1215). The exemption provided a mechanism for exempting certain *source operations* from the 300 ppm total carbon limit. Specifically, section 1215 included an exemption for any source operation or group of source operations that achieved an 85% reduction in reactive organic gas emissions. Because a refinery flare was not a source operation, however, this exemption had no relevance for these devices.

Subsequent rulemakings did not include any discussion or analysis of expanding the scope of Regulation 8, Rule 2 to include refinery flares. When Regulation 3 was recodified in 1980 into various Regulation 8 provisions including Regulation 8, Rule 2, the applicability language was revised. The term “source operation” and its definition were deleted. In their place, the regulation now refers to *miscellaneous operations*. The term “miscellaneous operations” was very broadly defined to include “[a]ny operation other than those limited by the other Rules of this Regulation 8 and the Rules of Regulation 10.” While this amendment provides a basis for an argument that the scope of Regulation 8, Rule 2 was expanded to include flares, there is nothing in the rulemaking record to support this claim. If this had been an intended result of the recodification of Regulation 3 or any subsequent amendments to the provisions affecting the applicability of the limit in 8-2, some analysis of the cost and impact of that regulatory impact would have occurred. That there has been no discussion or analysis of the costs or impacts of expanding the scope of the emissions limit in Regulation 8, Rule 2 or the exemption in Regulation 8-1-110.3 to include refinery flares is a strong indication that this was not intended. Flares are safety devices and any regulation of these devices would have been controversial, as the recent flare control rulemaking demonstrates. Safety and costs are weighty issues, and one would expect them to be addressed in any rulemaking that implicated them.

Further support for the District’s determination that Regulation 8, Rule 2 was never intended to apply to refinery flares is that the means of demonstrating compliance with the limit in Regulation 8, Rule 2, as set out in Section 8-2-601, cannot be used for these devices. It can reasonably be assumed that the District would provide a specific means of determining compliance with Regulation 8, Rule 2 for flares if these sources were expected to comply with the rule.

Last year the District adopted the flare control rule, Regulation 12, Rule 12. As a part of the rulemaking, the District amended Regulation 8, Rule 2 to clarify that it does not apply to refinery flares. As explained in the Staff Report and other documents for this rulemaking, the amendment to Regulation 8, Rule 2 was intended to reflect existing law. While this clarification was not strictly necessary, the District determined that it would be best to spell out the regulatory structure for refinery flares to avoid the apparent confusion regarding the scope of Regulation 8, Rule 2 as evidenced by the issues raised in the context of the Title V permitting for Bay Area refineries.

Although none of these points is definitive in and of itself, taken together they comprise a compelling case for the District’s determination that Regulation 8, Rule 2 was never intended to apply to refinery flares. The District is bound by its purpose in adopting the regulation; the District may not, and EPA cannot order the District to, enforce or apply a regulation – even one approved for inclusion in the State Implementation Plan – inconsistent with its intended purpose. Thus, the District has no authority to include this rule as an applicable requirement or to require a design review to establish qualification for the exemption from the rule under Regulation 8-1-110.3 as directed by EPA.

Second, the flares at this facility are not subject to Regulation 8, Rule 2 because they are subject to a rule in Regulation 10. Regulation 8, Rule 2 applies to miscellaneous operations, which do not include operations limited by any other rule in Regulation 8 or any rule in Regulation 10. Certain refinery flares, including the flares at this facility, are subject to 40 CFR Part 60, which



includes Subpart J. This federal regulation has been incorporated by reference in Regulation 10; consequently a flare subject to Subpart J is also subject to a Regulation 10 rule. The flares at this facility will be certified for compliance with Subpart J, which includes an acceptance of Subpart J applicability, in accordance with the provisions of the Consent Decree filed in the U.S. District Court, Western District of Texas in *United States v. Valero Refining Company*. Because the flares are limited by a Regulation 10 rule, Regulation 8, Rule 2 does not apply to these devices.

Finally, even if Regulation 8, Rule 2 did apply to refinery flares, the District continues to maintain that these devices are designed and operated so that they would meet the conditions of the exemption under Regulation 8-1-110.3 and that monitoring to ensure these conditions are met is unnecessary. In fact, previously, in issuing the permit, the District determined that on the basis of available information, refinery flares when properly operated easily meet a 90% reduction efficiency. The District explained that the design of the flares has been dictated by requirements of another agency charged with ensuring the protection of refinery workers but that a properly operating flare so designed will consistently meet the 90% reduction efficiency by a significant margin. The District does not believe that there is any benefit to be realized by performing a design review, particularly now that all Bay Area refineries are preparing Flare Minimization Plans to be submitted by August 1, 2006 as required by Regulation 12, Rule 12, Flares at Petroleum Refineries.

The Order further provides that the permit lacks periodic monitoring for compliance with permit conditions added to ensure that flares are properly operated. The District also has no authority to take this action. In response to concerns previously raised by EPA about the need to ensure the flares will meet the conditions for the exemption from Regulation 8, Rule 2 under Regulation 8-1-110.3, the District added permit conditions to ensure the flares are operated in a manner consistent with the operational parameters assumed in determining that they would qualify for the exemption. Although the permit conditions were not necessary to ensure compliance with an applicable requirement, they were identified as federally enforceable; this was in error. If the District had retained these conditions, the permit would have been modified to reflect this conclusion. Because Regulation 8, Rule 2 does not apply to refinery flares and the exemption in Regulation 8-1-110.3 is, therefore, irrelevant for these devices, these conditions are not necessary or authorized and must be deleted. And because the conditions have been deleted, the issue of adding periodic monitoring to ensure compliance with the permit conditions is moot.

### **Monitoring for NSPS Subpart J at Flares**

The Orders for Chevron and Valero state that the Air District must either impose the requirements contained in 40 CFR § 60.105(a)(3) or (4), or add monitoring to assure compliance with Chevron permit Condition 18656, Part 7 and Valero Condition 20806, Part 7 (referred to below as “prohibitory conditions”). The Orders for Tesoro and ConocoPhillips indicate EPA’s intent to treat those permits similarly in the near future. The Air District interprets the Order, in this respect, to assert the need for monitoring to determine whether the refineries are properly claiming that certain flares continue to be exempt from the H<sub>2</sub>S standard of § 60.104(a)(1), i.e., that the flares are not used to combust gases on a “routine” basis. The Order does not assert that the exemption has been improperly claimed, but rather that Title V monitoring is required to verify on an ongoing basis whether the exemption is properly claimed. As explained below, the

District is deleting the prohibitory conditions, and is otherwise deferring response on this issue until there is new guidance from EPA.

Regarding this issue, the Orders reflect views expressed in earlier comments from EPA. In an October 6, 2004, letter responding to these comments, the Air District affirmed the importance of determining applicability of Subpart J on a continuing basis but noted that, as a Title V matter, the imposition of monitoring is authorized only for requirements determined to be applicable. The District reasoned that therefore, to the extent a flare is, as a factual matter, exempt per § 60.104(a)(1), then the H<sub>2</sub>S standard of Subpart J is not applicable and Title V monitoring is not authorized. The October 6 letter sought clarification from EPA on three points: 1) articulation of the broader Title V implementation principle being asserted by EPA, 2) the legal rationale for that principle, and 3) EPA's plan for ensuring national consistency. To date, EPA has not addressed the first two points.

Concurrent with the March 15, 2005, Orders, EPA also issued guidance addressing the same issue. This guidance would have served to address the Air District's concern regarding national consistency. However, on May 16, 2005, EPA issued a brief statement withdrawing the March 15 guidance and stating that new guidance would be issued "in the upcoming weeks." The District interprets this to mean either that EPA is reconsidering its position or, at the least, that the new guidance will serve to clarify EPA's position and rationale. The District therefore believes the most efficient course is to defer its response to the Orders until new guidance is issued.

Regarding the prohibitory conditions referred to above, the District is deleting these conditions because they are neither required nor helpful. The Air District initially believed these conditions might obviate the need to resolve the disagreement over monitoring for applicability of Subpart J described above. This belief has proven false. Judging from the March 15 Orders, the effect was merely to transpose the very same monitoring issue onto the new prohibitory conditions themselves. In general, there is no requirement in Title V or the implementing regulations to impose such prohibitions. Whether the exemption from the Subpart J H<sub>2</sub>S standard has been properly claimed is determined based upon actual events at the refinery, not upon what the refinery is legally authorized to do. Consistent with this principle, if "routine" flaring does occur, then the flare is subject to the H<sub>2</sub>S standard of Subpart J and the monitoring requirements of § 60.105(a) regardless of whether any such prohibition exists in the Title V permit. The prohibitory conditions are simply redundant. Deletion of the conditions should facilitate further discussions on this issue by returning the focus to the exemption language of Subpart J.

The permit is not being reopened with respect to this issue.

#### **Monitoring for 6-311 for Cooling Towers:**

On page 35 of EPA's order responding to OCE's petition that the Administrator object to issuance of Tesoro's Title V permit, EPA states the District should add periodic monitoring to assure compliance with BAAQMD Regulation 6-311.

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

BAAQMD Regulation 6-311 limits the maximum particulate emission from a source even if the grain loading limitation of BAAQMD Regulation 6-310 is satisfied. The following emission calculations for the cooling towers at Tesoro demonstrate a significant margin for compliance

with BAAQMD Regulation 6-311. Therefore, periodic monitoring is not justified and is not being added.

The PM10 factors in AP-42 are not the proper factors to use since the factor is based on a total dissolved solids content of 11,500 ppm in the cooling water. Furthermore, AP-42 states “a conservatively high PM-10 emission factor can be obtained by (a) multiplying the total liquid drift factor by the total dissolved solids (TDS) fraction in the circulating water and (b) assuming that, once the water evaporates, all remaining solid particles are within the PM-10 size range.” While this method would be conservative in predicting PM-10 emissions, it would be adequate to estimate total particulate emissions. The calculations below, using the largest cooling tower, S976 No. 5 Gas Plant Cooling Tower, use this method of determining particulate emissions. [Note that for purposes of determining the applicable Regulation 6-311 emission limit, the “process weight rate” for cooling towers is based on the weight of the water circulating in the cooling towers, which is the “material introduced into the operation” for purposes of the definition of “process weight” in Regulation 6-203. The TDS concentrations used in the PM10 calculations were average TDS concentrations in the circulating water at the cooling towers, as provided by Tesoro.]

Cooling Tower Operating Data for S846 No. 3 HDS Cooling Tower:

Design Circulation Rate: 75,000 gpm x(8.34 lb/gal)x(60 min/hr) = 37,530,000 lb/hr

Drift Rate: 0.02%, or 0.0002 lb drift per lb of cooling water (AP-42, Fifth Edition, Table 13.4-1)

Total Dissolved Solids (TDS) = 387.5 ppm

Regulation 6-311 limit for Process wt rate > 57,320 lb/hr = 40 lb/hr particulate emissions

Particulate Emissions = (circulation rate)x(drift rate)x(measured TDS)

= (75,000 gal/min)x(60min/hr)x(8.34 lb/gal) x (0.0002 lb drift/lb water)x(387.5/1000000)

= 2.91 lb/hr average particulate emissions

This calculation demonstrates that S976 Cooling Tower has a significant margin for compliance with BAAQMD Regulation 6-311. The results of the same calculations for each of the cooling towers at Tesoro are tabulated below. As can be seen, all emissions are substantially below 40 lb/hr.

Source	Cooling Tower Description	Circulation (gpm)	Drift (lb/hr)	TDS (ppm)	PM10 (lb/hr)
846	3 HDS	12,125	1214	812.5	1
975	4 Gas Plant	69,000	6,906	1698	12
976	5 Gas Plant	75,000	7,506	387.5	3
977	3 Crude	22,000	2,202	812.5	2
978	FWS	4,100	410	783	0.32
979	2 Feed Prep	15,000	1502	1637.5	3
980	Isocracker	12,000	1201	712.5	1
981	1 HDS	14,000	1,401	762.5	1
982	2 HDS	18,000	1,801	2100	4
983	Alky/2 Ref	34,900	3,493	750	3

985	1 Gas/MTBE	16,000	1,601	762.5	1
987	50 Crude	15,000	1,501	462.5	1
988	3 Reformer	10,000	1,001	825	1

Even taking the highly conservative approach of calculating PM10 emissions using the *greatest* reasonably foreseeable TDS concentrations instead of the *average* measured TDS concentrations used above, emissions are still substantially below 40 lb/hr. For S975, the highest TDS concentration obtained since 2002 was 2485 ppm (46% greater than average). For S983, the highest TDS concentration obtained was 3084 ppm (46% greater than average). When Tesoro sees the conductivity and therefore TDS concentration increasing in the circulating water, more makeup or fresh water is added and the concentrated blowdown is increased. This procedure prevents TDS concentrations from large variations and increases. Historical data has shown that TDS concentrations have never increased by 100%. Good operating procedures will prevent TDS concentrations from ever approaching a 100% increase from the average. Therefore, doubling the average TDS concentrations will more than account for the highest concentrations that could reasonably be expected. But even by doubling the average concentrations used in the calculations above, PM10 emissions are still well below the 40 lb/hr. limit, as presented below.

Source	Cooling Tower Description	Circulation (gpm)	Drift (lb/hr)	TDS (ppm)	PM10 (lb/hr)
846	3 HDS	12,125	1214	1,625	1.97
975	4 Gas Plant	69,000	6,906	3,396	23.45
976	5 Gas Plant	75,000	7,506	775	5.82
977	3 Crude	22,000	2,202	1,625	3.58
978	FWS	4,100	410	1,566	0.64
979	2 Feed Prep	15,000	1502	3,275	4.92
980	Isocracker	12,000	1201	1,425	1.71
981	1 HDS	14,000	1,401	1525	2.14
982	2 HDS	18,000	1,801	4200	7.56
983	Alky/2 Ref	34,900	3,493	1500	5.24
985	1 Gas/MTBE	16,000	1,601	1525	2.44
987	50 Crude	15,000	1,501	925	1.39
988	3 Reformer	10,000	1,001	1650	1.65

This analysis demonstrates that, even using very conservative assumptions, emissions will be well below the limit of 40 lb/hr and periodic monitoring to assure compliance with Regulation 6-311 is not justified. Therefore, the permit is not being reopened with respect to this issue.

**Monitoring for 6-301 and 6-310 for Diesel Backup Engines S1487 and S1488:**

On page 40 of EPA's order responding to OCE's petition that the Administrator object to issuance of Tesoro's Title V permit, EPA states that the District should add monitoring for the limit in BAAQMD Regulation 6-310 or explain in the Statement of Basis why it is not needed. Both will be addressed below.

The District has determined that no periodic monitoring is required for the engines for several reasons.

First, the potential to emit (PTE) for particulate for these engines is low. The following table shows the emissions using the factor of 0.0022 lb PM10/hp-hr for diesel engines in Chapter 3, Stationary Internal Combustion Engines, of AP-42, Compilation of Air Pollutant Emission Factors, Volume 1, Stationary Point and Area Sources, Fifth Edition. Each engine is assumed to operate for 500 hours, using the guidance in John Seitz' memo of September 6, 1995 entitled Calculating Potential to Emit (PTE) for Emergency Generators, which states that "...500 hours is an appropriate default assumption for estimating the number of hours that an emergency generator could be expected to operate under worst-case conditions."

Source #	HP	lb/yr @ 500 hr/yr	tons/yr @ 500 hr/yr
1486	420	462	0.231
1488	538	592	0.296
Total			0.527

The emissions would likely be lower than the above estimates because engines in California generally use low-sulfur fuel containing less than 0.05% S, which lowers emissions by some additional amount.

Second, the engines are not subject to BAAQMD Regulation 6-301, which does not allow sources to exceed Ringelmann 1 for more than 3 minutes in any hour, but rather are subject to BAAQMD Regulation 6-303.1, which does not allow sources to exceed Ringelmann 2 for more than 3 minutes in any hour. This standard is roughly equivalent to 40% opacity. The engines are not likely to exceed Ringelmann 2 at any time, particularly because they are likely to use low-sulfur fuel containing less than 0.05% S.

Third, the grain loading is not likely to exceed the limit in BAAQMD Regulation 6-310.

BAAQMD Regulation 6-310 limits PM emissions to 0.15 gr/dscf. If it is assumed that the diesel engine exhaust gases contain 15% excess oxygen under normal operating conditions, the Regulation 6-310 limit can be compared to the AP-42 PM emission factor as follows:

From 40 CFR 60, Appendix A, Method 19, Table 19-1, a stoichiometric dry gas combustion factor of 9,190 dscf/MMBTU is given for distillate oil combustion. At 15% excess O<sub>2</sub> this factor becomes:

$$9,190 \times [21\% / (21\% - 15\%)] = 32,165 \text{ dscf (combustion products)/MMBTU}$$

The conversion of 0.15 gr/dscf @ 15% O<sub>2</sub> to lb/MMBTU is then:

$$(32,165 \text{ dscf/MMBTU}) \times (0.15 \text{ gr/dscf}) \times (1\text{lb}/7,000 \text{ gr}) = 0.689 \text{ lb/MMBTU}$$

In the absence of actual emissions data for these engines, the District considers the AP-42 PM10 emission factor for diesel IC engines to be representative. From AP-42 Table 3.3-1, "Emission Factors For Uncontrolled Gasoline And Diesel Industrial Engines", the PM10 emission factor (based on fuel consumption) is 0.31 lb/MMBTU. Since this assumed emission factor is well below the converted Regulation 6-310 emission rate, compliance is assumed.

Fourth, the "CAPCOA/CARB/EPA Region IX Recommended Periodic Monitoring for Generally Applicable Grain Loading Standards in the SIP: Combustion Sources" dated July 2001 recommends that the only monitoring necessary for grain-loading for non-utility distillate-oil-fueled emergency piston-type IC engines is recordkeeping for fuel usage, which is already required for these engines.

The permit is not being reopened with respect to this issue.

**Monitoring for 6-301 and 6-310 for Electrostatic Precipitators:**

The Order found that the permit is deficient because EPA did not believe that the monitoring for compliance with the grain loading standards of Regulation 6-310 was adequate. The District addressed this issue in connection with the Revision 2 reopening. Please refer to the Revision 2 Statement of Basis.

**Monitoring for 6-301 and 6-310 for FCCU Catalyst Fines Hoppers:**

Table IV – B S97-Catalyst Fines Hopper, S98-FCCU: Catalyst Fines Hopper, S99-FCCU:Catalyst Fines Hopper

A4 Catalytic Cracker Fines Cyclone and Baghouse abates all three hoppers at the FCCU: S97, S98, and S99. Tesoro is required to conduct monthly visual inspections of A4 when it is abating S99 pursuant to Condition 19528 Part 13 in order to demonstrate compliance with District Regulations 6-301 and 6-310. This monitoring requirement does not apply when A4 is abating S97 or S98, however. To require the same monitoring for S97 and S98, the District is adding those sources to Condition 19528 part 13, such that Tesoro will be required to monitor A4 when A4 is abating *any* of the three FCCU catalyst hoppers. Table IV-B is being updated to indicate that Condition 19528 part 13 now applies to Source S97 and S98 as well as S99, and Table IV-C is being updated to indicate that monthly visual inspections are required with respect to those sources.

[Note that when the Revision 3 reopening was initially proposed, staff inadvertently overlooked the existence of Table VII-C, which covers S97 and S98. As a result, Rev. 3 initially proposed to add the monitoring requirements for S97 and S98 in Table VII-D, which applies to S99. Staff have now realized that Table VII-C covers S97 and S98, and that the monitoring requirements for those sources should be inserted there, instead of in Table VII-D as initially proposed. There is no substantive difference in moving the requirements to the correct table.]

The monthly visible inspections and the procedures in condition 19528 part 13 shall ensure that the abatement ducting and A-4 Cyclone and Baghouse are properly maintained and operated to demonstrate compliance with Regulations 6-301 and 6-310. Monthly visible inspections are considered appropriate monitoring for both opacity limits and grain loading from these

baghouses per EPA's June 24, 1999 agreement with CAPCOA and ARB, entitled "Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP". The monitoring recommended under that agreement is based on the amount of potential uncontrolled particulate matter emissions. For uncontrolled emissions between 300 and 1,300 tpy, the recommended monitoring frequency is once a month. In the Title V permit for Tesoro, the annual grandfathered throughput limits of S97, S98, and S99 are 14,600 tpy, 5,475 tpy, and 9,125 tpy, respectively. Uncontrolled emissions from the catalyst hoppers are only a small fraction of the total throughputs. At these throughputs the emissions of uncontrolled particulate are expected to be well below 1,300 tpy. Monthly visible emissions monitoring shall ensure that the baghouse is in good operating condition and that emissions meet the limit in Regulation 6-310. The EPA, CAPCOA and ARB agreement also requires that the baghouse be inspected annually. This requirement is being added to Condition #19528 as part 13A, with corresponding changes to Tables IV-B and VII-C.

Finally, in Condition #19528, part 13 and in Table VII – D, the future effective date of 4/11/04 has passed and the reference to it is being removed.

#### **Monitoring for 6-301 and 6-304 for S823 Heat Exchanger Cleaning Pit North and S824 Heat Exchanger Cleaning Pit South:**

Table IV – P S823–Heat Exchanger Cleaning Pit North, S824–Heat Exchanger Cleaning Pit South

Regulation 6 applicable requirements are being added to Table IV-P. The District is creating condition 22227 to ensure compliance with Regulation 6-301 when cleaning heat exchanger tubes at S823 and S824. Condition 22227 is being added to Table IV-P. Hourly visual emissions checks while tube cleaning during daylight hours shall ensure that there are no visible emissions and ensure compliance with Regulation 6-301. If visible emissions are detected, corrective action shall be taken to prevent emissions from improper cleaning of soot from furnace tubes. Hourly visual inspections are required after corrective action is taken. The hourly frequency is expected to ensure compliance with Regulations 6-301 since the regulation is based on limitations of visible emissions of three minutes in an hour long period. Regulation 6-304 is not being included for these sources in Tables IV-P and VII-O because it applies solely to fuel fired equipment such as boilers and furnaces and does not apply to heat exchangers.

#### **V Schedule of Compliance**

The facility is currently engaging in an ongoing pattern of recurring violations of various District regulations as a result of emissions of flue gas from its Coker, S-806. The District has opted to pursue the matter by petitioning the District's Hearing Board for a conditional order for abatement to require Tesoro to address this problem (Docket No. 3492). The Hearing Board approved the Stipulated Conditional Order for Abatement on May 5, 2005, which was superseded by a Second Stipulated Conditional Order for Abatement entered on December 22, 2005. The terms of the current conditional order for abatement have been incorporated into the permit as a schedule of compliance.



## VI. Permit Conditions

As part of the Title V permit reopening, the District is incorporating changes made to several permit conditions, including conditions regarding flares and Regulation 9-10 requirements<sup>[AGC1]</sup>, and, as appropriate, revised conditions for clarity and enforceability. The Title V permit is being updated to accurately reflect these applicable requirements. All changes to existing permit conditions involved in this Revision 3 are clearly shown in “~~double strike-out~~/double underline” format in the draft permit. (Changes in “single strike-out/single underline” format are addressed in Revision 2.) When the permit is issued, all “strikeout” language will be deleted; all “underline” language will be retained, subject to consideration of comments received. Where changes will be made more than once as a result of comments from Tesoro, the original underlined text will be struck through and the proposed new text is italicized and underlined.

The District is updating condition 19528 part 13 to require monitoring of S97 Catalyst Fines Hopper and S98 FCCU Catalyst Fines Hopper to ensure compliance with Regulations 6-301 and 6-310.

The District is creating condition 22227 to ensure compliance with Regulation 6-301 and 6-304 at S823 and S824 Heat Exchanger Cleaning Pits. Monitoring will be required when cleaning heat exchanger tubes at S823 and S824.

The following changes are being made as a result of new permit applications which were not included in the July 2005 Draft of the permit. These changes are “minor modifications” as defined in Regulation 2-6-215, and do not need notice as per Regulation 2-6-412. The engineering evaluations are in Appendix B. The potential increase of criteria pollutant emissions for each of these applications is summarized as follows:

Permit Application #	Pollutant Increase (tons/yr)				
	NOx	CO	POC	SO2	PM
11901	0.000	0.000	0.000	0.000	0.000
12592	0.000	0.000	0.000	0.000	0.000
13047	0.000	0.000	0.0087	0.000	0.000
13076	0.000	0.000	0.000	0.000	0.000
13228	0.000	0.000	8.384 – 5.1805 (onsite credit) = 3.204	0.000	0.000
13240	0.000	0.000	1.6368	0.000	0.041
13401	0.500	0.000	0.0384	0.000	0.000
13493	0.000	0.000	0.000	0.000	0.000
13803	0.000	0.000	0.000	0.000	0.000
14047	0.000	0.000	0.000	0.000	0.000
<b>Total</b>	0.000	0.000	<b>4.8879</b>	0.000	0.000

In accordance with BAAQMD Regulation 2-2-302, Tesoro was required to provide emissions offsets for NOx and POC at a ratio of 1.15 to 1.0. A total of 5.621 tons/yr POC offsets were provided as follows.

Banking Certificate Number	Offsets Provided (tons/yr)		
	NOx	PM10	POC
940	N/A	N/A	5.621

Application 11091:

Tesoro applied for an increase in throughput of ethyl alcohol through S-612 Tank A-612. Tesoro will no longer store pure gasoline at S-612. Condition 6740 is being updated to allow the increase in throughput and to eliminate the storage of gasoline in the tank.

Application 12592:

In application 12592, Tesoro is planning to improve the transfer and metering capability from the Amorco Wharf (Plant #14629, S-55 Amorco Wharf Terminal) to the Golden Eagle Refinery (Plant #14629). The project will allow for an increase in the transfer rate from the Amorco Wharf to the Refinery. Tesoro will continue to be subject to the limit of 70,080,000 barrels per year of material transferred at the Amorco Terminal and Wharf. Amorco Wharf tank throughput limits will not change, nor will the tank throughput limits at the Refinery. This project does not include any modifications to crude or other operating units. Refinery capacity and utilization will not change. In addition, there will be no changes to the existing permit limits for crude throughput across Amorco, for any of the operating unit rates, or for the refinery-wide emissions bubble. The project does not include any new tanks. By increasing the transfer rate from the wharf to the refinery, the Amorco Wharf Transfer and Metering project will address demurrage and logistics issues, which will decrease operating costs, decrease demurrage, decrease emissions from ships per trip, and improve safety. After the upgrades are made for the Amorco Wharf Transfer and Metering Project, annual throughput will not increase beyond the Title V annual limit and annual emissions will not change. The project is not considered a “modification” but an “alteration”. Because S-55 Amorco Wharf Terminal was a grandfathered source, no conditions exist for the source. Condition 22455 is being created to conditionally limit Tesoro to the Title V throughput limit and to require recordkeeping. The throughput is being made a hard limit in Table II – C.

Tesoro is already subject to 40 CFR 63 Subpart EEEE. Subpart EEEE appears in the Facility Wide Source Specific Applicable Requirement table of Section IV, Table IV – A for B4628, but was erroneously omitted from Table IV – A1 for B4629. 40 CFR 63 Subpart EEEE is being added to Table IV – A1 for B4629. Condition 22455 applies to the entire wharf and is being added to Table IV – A1.

Application 13047:

Tesoro has applied for a modification to the authority to construct or install low NOx burners at S-913 No. Feed Prep Heater (F13). Tesoro was given the Authority to Construct the low NOx burner in application 2209. But with the installation of the low NOx burner, Tesoro would like to change the fuel gas feed from their 40 pound fuel gas to the 100 pound fuel gas. Liquid hydrocarbon in the 40 psig fuel gas could potentially plug the ports in the low NOx burners, therefore Tesoro would like to burn 100 psig fuel gas to decrease the likelihood of plugging. SO2 emissions are expected to decrease as a result of burning 100 psig fuel gas instead of 40 psig fuel gas. Condition 22621 is being created to require Tesoro to sample the 100 pound fuel gas for total sulfur, to ensure that SO2 emissions will not increase. Condition 22621 is being

added to Table IV – AA for Source Specific Applicable Requirements. Monitoring is being added to Table VI – Y.

#### Application 13076:

Tesoro has applied for a modification to S-904 No. 6 Boiler, 775 MMBtu/hr. Tesoro plans to install natural gas pilots at S-904 Boiler. Tesoro will replace the existing “fire eyes” that detect the presence of a flame at the burners. The fire eyes only detect whether a flame is present. If a flame at one of the current burners is out, a torch is inserted into a port in the boiler to reignite the burner. The new natural gas pilots will have a continuous feed or flow of natural gas to prevent the flame from extinguishing, or if it does go out, it can be quickly reignited. Each pilot will have a maximum firing rate of 4.5 MMBtu/hr. There will be twelve new pilots with a combined maximum firing rate of 54 MMBtu/hr. As per Tesoro’s Engineering group, the normal firing rate for the pilots will be approximately 27 MMBtu/hr. S-904 is fired on refinery fuel gas and natural gas. Tesoro is currently permitted not to exceed a firing rate of 775 MMBtu/hr. With the addition of the new pilots, Tesoro will continue to be conditionally permitted not to exceed a firing rate of 775 MMBtu/hr from the new natural gas for the pilots, the existing natural gas supply, and the refinery fuel gas. Condition 22590 is being created for this application. Condition 22590 is being added to Table IV – Z and Table VII- W.

#### Application 13228:

Tesoro has applied for an authority to construct two new external floating roof tanks, S-1506 Tank A-893 and S-1507 Tank A-894, which will hold gasoline and gasoline blending stock. S-1506 and S-1507 will replace two existing internal floating roof tanks, S-280 Tank A-280 and S-311 Tank A-311. S-1506 and S-1507 are being added to Table II – Permitted Sources. Condition 22640 is being added to Table IV – BV, Section VI, and Table VII – BL.

#### Application 13240:

Tesoro has applied to correct the Title V permit limit for S-1452 Hydrocarbon Recovery System from 1000 bbl/yr to 5,000,000 bbl/yr. The BAAQMD database shows a throughput of 50,000 bbls/hr, 7days/wk, 24 hrs/day or 436,800,000 bbls/yr. The limit of 5,000,000 bbl/yr is based on the rated average pump flow rates. Condition 9875 for S-1452 does not have a throughput limit. The grandfathered limit of 1,000 bbl/yr in the Title V permit was incorrect. The condition is being modified to conditionally limit Tesoro to a throughput of 5,000,000 bbl/yr. The correct throughput limit is being added to Table II. The equipment description in Table II is also being modified to add the number of pumps at S-1452. Condition 9875 modifications are being added to Table IV – AY and Section VI.

#### Application 13401:

Tesoro has applied to alter S-1009 Alkylation Unit. Tesoro had a second pressure relief event at the C-2 Deisobutanizer (DIB) of the S-1009 Alkylation Unit in five years. Due to the second ‘release event’ from a pressure relief device in organic compound service on the same source, Tesoro is required to install a vapor recovery or disposal system with at least 95% by weight organic compound control efficiency as per the requirements of Regulation 8-28-304.2. To meet the requirements of Regulation 8-28-304.2, Tesoro is installing the V-104 knockout drum and associated equipment. The installation of the V-104 System is an emission control measure that will reduce organic emissions to the atmosphere. There will be no increase in organic compound

emissions. Condition 22693 is being created for this project and is being added to Table IV – AL and Section VI.

Application 13493:

Tesoro has applied for a change in the conditions for the authority to construct the S-1025 Bulk Terminal Bottom Loading Facilities. Tesoro was given the authority to construct the Loading Rack Modernization Project in application 10668. In application 10668, Tesoro originally agreed to meet the BACT emission limit of 0.02 lb POC/1000 gallons of material loaded although the project did not actually trigger a BACT review. Emissions from the loading of cargo trucks after the modernization project will not increase beyond the grandfathered limits. The throughput limits were not increased at the loading rack and the number of permitted arms was decreased from 24 to 20. The previous loading rack was subject to the emission limit of 0.08 pounds of POC per 1000 gallons of liquid transferred as per Regulation 8-33-301. Tesoro would like to maintain the RACT and Regulation 8-8-301 emission limit of 0.08 lb POC/1000 gallon of material loaded since the BACT limit of 0.02 lb POC/1000 gallons of material transferred was not triggered. With this application for a change in permit conditions, no physical or operational changes will be made at S-1025. The condition modification will allow for variability in source testing of POC's from the vapor processing system and from source testing of the heaters POC destruction efficiencies without causing Tesoro to go into noncompliance for exceeding the BACT limit, which was not required. Condition 21849 is being updated in Section VI, as well as Table VII – Df.

Application 13803:

Tesoro has applied for a modification or clarification to the permit conditions for S-1106 Furnace FU72, No. 4 Hydrodesulfurization Reactor Feed Heater abated by A-1106 Selective Catalytic Reduction (SCR) System. At S-1006 and A-1106 startup, a provision allowing Tesoro to stop ammonia injection into the A-1106 SCR was permitted in Condition 19199 part H9. Shutdown was overlooked and Tesoro applied to allow them to stop ammonia injection into A-1106 during shutdown. During shutdown, ammonia is no longer injected at 525F. The S-1106 Furnace is fired for a short period after the ammonia is removed to steadily reduce the temperatures in the heater, rather than abruptly changing temperature and potentially thermally stressing the heater. The SCR catalyst must be at a minimum temperature for ammonia to be injected to 1) prevent the accumulation of ammonia that could result in an explosive mixture, 2) make NOx reduction possible, and 3) prevent the sublimation of solids that result from the reaction of ammonia with either carbon dioxide, sulfur dioxide, or hydrogen sulfide. Condition 19199 is being modified to allow ammonia injection to be stopped during shutdown (Section VI). Condition 19199 was erroneously omitted and is being added to Table IV – AF1. No changes need to be made to Table VII – AI.

Application 14047:

Tesoro has applied for a modification or clarification to the permit conditions for S-974 No. 3 HDS Fract Feed Heater (F56). The Operations Department at Tesoro's Golden Eagle Refinery has a goal to minimize flaring. During the No. 3 HDS Shutdown, a chemical called CATnap (Catalyst Passivation Chemical) will be used to help recover the hydrocarbon instead of purging the material to the flare. The CATnap does not contain any materials on the District list of Toxic Air Contaminants in Regulation 2-5. The boiling point of CATnap is between 460 to 920 F, which makes it exempt from permits as per Regulation 2-1-1232. To use CATnap, the S-974

Heater needs to be operated at low flow conditions during shutdown. The owner/operator is subject to condition 8077 part A2A for the S-74 Heater. A startup provision was written into the condition, which allows the owner/operator to stop ammonia injection into A-31 Selective Catalytic Reduction System or SCR. At startup the temperature of S-974 and A-31 need to increase above approximately 525F to inject ammonia. Part A2A allows the owner/operator to bypass A-31 for 144 hours per 12-month consecutive period for startup only. Tesoro is requesting a modification to the permit condition that will allow the injection of ammonia into A-31 SCR to be stopped during shutdown as well as startup. During shutdown, ammonia is no longer injected at 525F. The S-974 Heater will be fired for a short period after the ammonia is removed to operate the heater at low flow conditions during shutdown. This will allow the use of the CATnap to recover hydrocarbon instead of purging the material to the flare. In addition, by steadily reducing the temperatures in the heater, rather than abruptly changing temperature the potential for thermally stressing the heater is reduced and/or eliminated.

The emissions will not change from current permitted levels. The existing permit condition 8077 part A2A limits the amount of NO<sub>x</sub> to 146 lbs in a consecutive 24 hour period and to 876 lbs of NO<sub>x</sub> in a consecutive 12 month period. Tesoro will continue to comply with these mass emission limits of NO<sub>x</sub>. Condition 8077 part A2A is being modified to allow ammonia injection to be stopped during shutdown as well as startup (Section VI). Condition 8077 is being modified in Table IV – AF.

## **VII. Applicable Limits and Compliance Monitoring Requirements**

This section of the permit is a summary of numerical limits and related monitoring requirements for each source. The summary includes a citation for each monitoring requirement, frequency of monitoring, and type of monitoring. The applicable requirements for monitoring are completely contained in Sections IV, Source-Specific Applicable Requirements, and VI, Permit Conditions, of the permit.

Changes to this section of the permit generally reflect the changes to other parts of the permit that have previously been discussed. The "Future Effective Dates" for the Permit Conditions are being entered.

### Monitoring for 6-301 and 6-310 for S97 FCCU Catalyst Fines Hopper and S98 FCCU East Catalyst Hopper:

A-4 Catalytic Cracker Fines Cyclone and Baghouse abates all three hoppers at the FCCU: S97, S98, and S99. Tesoro is required to conduct monthly visual inspections of A4 when it is abating S99 pursuant to Condition 19528 Part 13 in order to demonstrate compliance with District Regulations 6-301 and 6-310. This monitoring requirement does not apply when A4 is abating S97 or S98, however. To require the same monitoring for S97 and S98, the District is adding those sources to Condition 19528 part 13, such that Tesoro will be required to monitor A4 when A4 is abating *any* of the three FCCU catalyst hoppers. Table IV-C is being updated to indicate that monthly visual inspections are required with respect to those sources.

[Note that when the Rev. 3 permit was initially proposed, staff inadvertently overlooked the existence of Table VII-C, which covers S97 and S98. As a result, Rev. 3 initially proposed to add the monitoring requirements for S97 and S98 in Table VII-D, which applies to S99. Staff have now realized that Table VII-C covers S97 and S98, and that the monitoring requirements for those sources should be inserted there, instead of in Table VII-D as initially proposed. There is no substantive difference in moving the requirements to the correct table.]

In addition, in Table VII – D, the future effective date of 4/11/04 has passed and the reference to it is being removed.

Monitoring for 6-301 and 6-304 for S823 Heat Exchanger Cleaning Pit North and S824 Heat Exchanger Cleaning Pit South:

Table VII – O S823–Heat Exchanger Cleaning Pit North-Tank M286 and S824–Heat Exchanger Cleaning Pit South-Tank M287

The District is creating condition 22227 to ensure compliance with Regulation 6-301 and 6-304 when cleaning heat exchanger tubes at S823 and S824. Condition 22227 is being added to Table VII-O.

**VIII. Test Methods**

This section of the permit lists test methods that are associated with standards in District or other rules. It is included only for reference. In most cases, the test methods in the rules are source test methods that can be used to determine compliance but are not required on an ongoing basis. They are not applicable requirements.

If a rule or permit condition requires ongoing testing, the requirement will also appear in Section VI of the permit.

No change is being made to this section.

**IX. Permit Shield:**

No change is being made to this section.

**D. Alternate Operating Scenarios:**

No change is being made to this section.

**E. Compliance Status:**

EPA required the District to address the NOVs that the District had issued to the facility – and, in particular, NOVs that had not been resolved at the time of permit issuance – because they may evidence ongoing non-compliance with applicable regulatory requirements.

There were no NOVs that are unresolved because they involve continuing non-compliance. All instances of noncompliance documented in NOVs issued to the facility have been corrected. Some NOV files remain unresolved, but only because settlement of penalties has not yet been completed.

### **Four-Year Compliance Review**

The District has conducted a compliance review of the 159 Notices of Violation (covering 171 violations) issued to Tesoro from January 1, 2001, through December 31, 2004. With the exception of the Coker flue gas issue discussed below, the District has found no instances of noncompliance that would justify imposition of a schedule of compliance. While the refinery received numerous violations over this 4-year period, that is not unexpected for large, complex, and heavily-regulated facilities such as refineries. It is important to note that all of the 171 violations were cured and brought back into compliance. Furthermore, the District's analysis of all the violations for the 4-year period indicated that there is no ongoing violation or pattern of recurring violation that would require a compliance schedule.

Understanding how the District handles violations is important to understanding how the District evaluated the facility's compliance status. Whenever the District discovers a violation, it begins a two-step process. The first step is to ensure that the violation ceases and the violator comes back into compliance. Once compliance is achieved, the second step is to proceed with penalty assessment. It is District policy to not proceed with penalty assessment until compliance has been achieved. If a facility has not achieved compliance in a timely fashion, the District proceeds with additional enforcement action. The vast majority of Notice of Violation penalties are resolved through settlement negotiations. Therefore, a violation indicating a "Pending" resolution does not indicate ongoing violation; it simply indicates that the penalty assessment is still pending a final disposition.

The results of the District's compliance review are shown in Appendix A, which identifies each violation that was evaluated and indicates how and when compliance was achieved. As stated earlier, all of the 171 violations have been brought back into compliance. For 71% of the violations, compliance was achieved within 1 day of discovery of the violation. In the remaining 29% of the violations, the violation occurred over a multi-day period, but compliance was eventually achieved and the violation is not ongoing. 58% of the violations involved sources that experienced multiple violations during the period reviewed, but causal analysis indicated different causes for each violation and there was no recurrent pattern that would require a compliance schedule. Based on this review and analysis of all the violations for the 4-year period, the District has concluded that no schedule of compliance is necessary (other than for the Coker flue gas issue) because in each case the facility returned to compliance, the violation did not evidence on-going non-compliance, there was no pattern of recurring violations with a common cause, and the source involved is currently in compliance with all applicable permit requirements.

The permit is not being reopened with respect to this issue.

See Appendix A for details.

#### Coker Flue Gas Issue

The one exception to the foregoing analysis is that Tesoro has been engaged in an ongoing pattern of repeated, recurring violation involving flue gas emissions from its Coker, Source S-806, which requires additional enforcement action. On January 12, 2005, after the current Title

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

V permit was issued in December of 2004, Tesoro experienced a boiler tube failure on the #5 CO Boiler on the fluid coker unit following a major turnaround of the boiler in November of 2004. This multi-day violation was the 4<sup>th</sup> incident in 18 months and confirmed the facility's inability to handle coker flue gases in an adequate manner. The excessively recurrent violation was deemed to be an ongoing pattern of repeated violations requiring additional enforcement action.

The District has opted to pursue the matter by petitioning the District's Hearing Board for a conditional order for abatement to require Tesoro to address the problem (Docket No. 3492). The Hearing Board approved a Stipulated Conditional Order for Abatement on May 5, 2005, and a Second Stipulated Conditional Order for Abatement on December 22, 2005. This Second Order requires Tesoro to modify the coker to upgrade from the existing fluid coking technology to a delayed coking technology, which will eliminate coker flue gas emissions altogether. The refinery must also take interim steps to reduce the likelihood of further upsets and to minimize impacts should an upset occur pending completion of the delayed coker modification, including revision of operating procedures and retraining of staff.

The District is incorporating the terms of the Second Order into the permit as a schedule of compliance. See Section C, V of this Statement of Basis and Section V of the Title V permit.



**APPENDIX A Compliance Division Summary of NOV Review**

Key to Abbreviations used in this Appendix:

<u>Column Title:</u>	<u>Description:</u>
V#	The District violation identification number
S#	The District permitted source identification number
Occur	The violation or occurrence date
Issued	The date the Notice of Violation was issued
Reg	The regulation allegedly violated
Violation Comments	Summarized description of the alleged violation
Compliance Achieved	The date the District determined the violation to cease and/or to be back in compliance
# NOVs	The number of violations issued during the 4-year period for this source (1/1/2001-12/31/2004)
Ongoing	Ongoing Violations Code: A-Single-day Violation, Single Violation in 4-year period B- Single-day Violation, Multiple/Repeat Violations in 4-year period, Different Causes C-Multi-day Violation, Single Violation in 4-year period D-Multi-day Violation, Multiple/Repeat Violations in 4-year period, Different Causes E-Ongoing/recurring violation requiring a compliance schedule

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

## **APPENDIX B – Engineering Evaluations**

**ENGINEERING EVALUATION**  
Tesoro Refining and Marketing Company  
PLANT NO. 14628  
APPLICATION NO. 11091

**BACKGROUND**

The Tesoro Refining and Marketing Company (Tesoro) is applying for a modification to the Permit to Operate the following equipment:

S-612 Tank A-612; Internal Floating Roof, Capacity: 420K Gallons, Storing: Ethyl Alcohol

In permit condition #6740, Tesoro is permitted at a throughput of 243,000 barrels per year of gasoline or ethyl alcohol (ethanol). Tesoro would like to increase the throughput of ethyl alcohol through S-612 from 243,000 barrels to 400,000 barrels per year. Tesoro will no longer store pure gasoline at S-612. The ethanol is used as a fuel-blending component. The MSDS shows that the ethanol can contain up to 5% unleaded gasoline.

**EMISSIONS SUMMARY**

**Annual Emissions:**

Emissions were calculated using the EPA AP-42 Tanks 4.0 computer program. Regulation 8-5-301 requires that the owner/operator of tanks greater than 39,626 gallons with material with a true vapor pressure greater than 0.5 psia and less than 1.5 psia use an internal floating roof, external floating roof, or approved emission control system. Tank S-612 is an internal floating roof tank. The tank specifications, throughput limits, and POC emissions for 243,000 barrels/yr of gasoline and 400,000 barrels of ethanol are tabulated below. The Tanks 4.0 results are attached to the engineering evaluation report.

	<u>Capacity</u> <u>(Gallons)</u>	<u>Throughput</u> <u>(Gallons)</u>	<u>Vapor Pressure</u> <u>(Psia)</u>	<u>Total POC</u>
Ethanol	420,000	16,800,000	0.72 @ 60F	200.81 lb/yr = 0.100 tpy
Gasoline*	420,000	10,206,000	7.58 @ 60F	2679.33 lb/yr = 1.340 tpy

\*Current permitted emissions from the storage of 243,000 barrels of gasoline results in higher organic emissions than the storage of 243,000 barrels of ethanol since gasoline has a higher volatility.

Change in POC emissions = 200.81 – 2679.33 = -2478.52 lb/yr = - 1.240 tpy

As seen from the results of Tanks 4.0, there will be a decrease in POC emissions.

**Maximum Daily Emissions:**

Tesoro is currently permitted at POC emissions of 2679.33 lb/yr.

Permitted Daily Maximum POC Emissions from S-612 = (2679.33 lb/yr)(yr/365 days) = 7.34 lb/day

Expected Daily Maximum POC Emissions from S-612 = (200.81 lb/yr)(yr/365 days) = 0.55 lb/day

**Toxic Risk Screening:**

Ethanol is not found on Table 2-5 of the District's list of "Toxic Air Contaminant Trigger Levels". The ethanol or fuel ethanol can contain up to 5% gasoline. Therefore the effective gasoline throughput is decreasing from 10,206,000 gallons per year to 840,000 gallons per year (up to 5% of 16,800,000 gallons/year of fuel ethanol) and there will be no increase in toxic air contaminants. Any emissions of toxic air contaminants will decrease and a risk screening analysis is not required.

## STATEMENT OF COMPLIANCE

The owner/operator of S-612 Internal Floating Roof Tank is subject to Regulation 8-5-301 Storage Tank Control Requirements. For tanks greater than 150 m<sup>3</sup> (39,626 gallons) with organic contents with a true vapor pressure greater than 0.5 psia and less than 1.5 psia, an internal floating roof, external floating roof, or approved emission control system is required. The owner/operator of S-612 is subject to Regulation 8-5-305 Requirements for Internal Floating Roofs. The owner/operator is also subject to the tank fitting requirements of Regulation 8-5-320, the primary seal requirements of Regulation 8-5-321, the secondary seal requirements of Regulation 8-5-322, and the tank degassing requirements of Regulation 8-5-328. The owner/operator is also subject to recordkeeping as per Regulation 8-5-501.

Because ethanol replaces MTBE that used to be blended into gasoline, this project is associated with MTBE removal from Tesoro and is subject to California Environmental Quality Act (CEQA) review. No other agency conducted a Negative Declaration or Environmental Impact Report for the project. The District has prepared and certified a Negative Declaration for the project. The 30-day public review period began on August 31, 2005 and ended on September 30, 2005. One comment on the project was received from the general public. A response was mailed addressing the concerns of the citizen. No other objections or comments were received from the public agencies, including: the SF Bay Region Water Quality Control Board, the State Water Resources Control Board, EPA Region 9, the California Air Resources Board, the State Department of Toxic Substances Control, the State Clearinghouse, the State Department of Fish and Game, and the Governor's Office of Emergency Services. The Negative Declaration was approved on October 19, 2007. A copy of the Negative Declaration, comment letter, and response are attached.

The project is over 1000 feet from the nearest school and therefore not subject to the public notification requirements of Reg. 2-1-412.

**Best Available Control Technology:** In accordance with Regulation 2, Rule 2, Section 301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NO<sub>x</sub>, CO, SO<sub>2</sub> or PM<sub>10</sub>. Based on the emission calculations above, the owner/operator of S-612 Internal Floating Roof Tank is not subject to BACT for emissions of POC.

**Offsets:** There will be no increase in emissions and no offsets are required for this application.

### Federal NESHAPS and NSPS

The owner/operator of S-612 is subject to the requirements of the refinery MACT (40 CFR 63, Subpart CC). A summary of the requirements may be found in Appendix A of this engineering evaluation.

NSPS Subpart Kb contains the Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced after July 23, 1984. S-612 was originally installed in 1949 and was "grandfathered" into the District's permit system. In 1992, the owner/operator applied for a modification (application 6167) to replace the existing internal floating roof with welded shell with a new steel pan roof. The existing toroidal primary seal was replaced with a mechanical shoe and a new secondary seal was also installed. The upgrades to S-612 decreased POC emissions. Although not required at the time, the owner/operator installed 'BACT-level-of-control features' such as Mesa vapor seal boots on the adjustable roof legs and a zero gap secondary seal. These upgrades and changes resulted in a decrease in POC emissions and was therefore not considered a modification as per 40 CFR 60.14(a). In addition, 40 CFR 60.14(5) states that "the following shall not, by themselves, be considered modifications" and includes "the addition or use of any system or device whose primary function is the reduction of air pollutants". Emissions did not increase and the project was not a "modification" as defined by 40 CFR 60.14 and NSPS did not apply.

In this application, the modification of the permit conditions for S-612 to change the throughput from 243,000 barrels per year of gasoline to 400,000 barrels per year of ethanol does not result in an increase in emissions and

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

therefore is not considered a modification as per 40 CFR 60.14(a). Emissions will not increase and the project is not a "modification" as defined by 40 CFR 60.14(a) and NSPS does not apply.

PSD does not apply.

## **PERMIT CONDITIONS**

Condition changes are in ~~strikeout~~ and underline format.

COND# 6740 -----

Application 6167 (August 1992) amended by application 12404 (April 2005) to correct permit condition to explicitly allow storage of ethyl alcohol, eliminate repetition of District Rules in condition. Application 11091 (October, 2005): increase ethyl alcohol throughput from 243,000 bbl/yr to 400,000 bbl/yr, eliminate storage of gasoline.

**S612 Tank A-612; Internal Floating Roof, Capacity: 420K Gallons, Storing: Gasoline and Ethyl Alcohol**

1. Owner/Operator shall ensure that the total liquid throughput for storage tank S-612 does not exceed 243,000400,000 barrels during any consecutive 12-month period.  
(basis: cumulative increase)
2. Owner/Operator shall ensure that only gasoline and ethyl alcohol areis stored in tank S-612. If an alternative material is to be stored in S-612, the owner/operator shall first apply for and receive from the District written approval for the storage of the alternative material(s).  
(basis: cumulative increase)
3. In order to demonstrate compliance with the above conditions, the Owner/Operator of tank S-612 shall maintain the following records in a District approved log:
  - a. The types of material stored and the dates that the materials were stored.
  - b. The total throughput of each material stored, summarized on a monthly basis.Owner/Operator shall ensure that these records are kept on site and made available for District inspection for a period of 5 years from the date that the last record was made.  
(basis: cumulative increase, Regulation 8-5-501)

## **RECOMMENDATION**

Issue a modification to the Permit to Operate the Tesoro Refining and Marketing Company for the following source:

**S-612 Tank A-612; Internal Floating Roof, Capacity: 420K Gallons, Storing: Ethyl Alcohol**

## **EXEMPTIONS**

none

By: \_\_\_\_\_  
Pamela J. Leong  
Air Quality Engineer II  
October 26, 2005

Appendix A  
Federal NESHAPS

**S612 – Tank A-612**

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
<i>Refinery</i> <i>MACT</i>	<b>NESHAP for Petroleum Refineries</b> <i>REQUIREMENTS FOR INTERNAL FLOATING ROOF TANKS</i>	Y	
<b>63.642(e)</b>	<b>General recordkeeping requirements:</b> Time period for keeping records, unless specified otherwise.	63.642(e) & 63.654(i)(4) <b>keep all other records 5 years, retrievable within 24 hr</b>	Y
	<b>General recordkeeping requirements:</b> Keep all reports and notification for the specified period of time.	63.642(e) & 63.654(i)(4) <b>required</b>	Y
<b>63.646(a)</b>	<b>The source only needs to comply with the provisions as they relate to existing internal floating roof tanks.</b>	Y	
<b>63.646(a)</b>	<b>IFRT operating requirements:</b> When landing the floating roof on its support legs, is the tank to be emptied & either refilled or degassed AS SOON AS POSSIBLE?	63.646(a) 63.119(b)(1) & (b)(2) <b>YES</b>	Y
	Temporary exemption from operating requirements while the internal floating roof is landed on its support legs? *	63.646(a) 63.119(b)(1) <b>EXEMPT</b>	Y
	<b>IFR Rim Seals:</b> vapor-mounted primary seal: liquid-mounted primary seal: mechanical-shoe primary seal:	63.646(a) 63.119(b)(3)(i) - (3)(iii) <b>OK with rim-mounted secondary</b> <b>OK alone</b> <b>OK alone</b>	Y
	Must IFR vapor-mounted rim seals be continuous?	63.646(a) 63.119(b)(3)(iii) <b>REQUIRED</b>	Y
	<b>Tank Top Visual Inspections</b> (of IFR/CFR from manways and hatches of the fixed roof):	63.646(a) & 63.120(a) <b>annually after initial fill or compliance</b>	Y
	<b>IFR/CFR Internal Inspections:</b> (up close visual inspection of the floating roof, seals, & fittings):	63.646(a) & 63.120(a) <b>at least every 10 years, including each emptying/degassing</b>	Y
	<b>Notification of Inspections:</b> Are notifications of inspections to demonstrate initial compliance required, For IFR/CFR internal inspections:	63.646(a) 63.120(a)(2)(ii) & (3) <b>internal inspection not required for initial compliance</b>	Y

**S612 – Tank A-612**

<b>Applicable Requirement</b>	<b>Regulation Title or Description of Requirement</b>	<b>Federally Enforceable (Y/N)</b>	<b>Future Effective Date</b>
	OPTION: Does this rule allow an internal inspection every 5 years to replace <u>both</u> inspections noted above, if the IFR/CFR is equipped with a secondary seal?	63.646(a) 63.120(a)(3)(i) <b>YES</b>	<b>Y</b>
	Is there to be no liquid on the internal floating roof?	63.646(a) 63.120(a)(4) <b>REQUIRED</b>	<b>Y</b>
	Are there to be no IFR rim seal gaps that are visible from the tank top?	63.646(a) 63.120(a)(4) <b>REQUIRED *</b>	<b>Y</b>
	Shall there be no holes, tears, or openings in the IFR seals?	63.646(a) 63.120(a)(4) & (7) <b>REQUIRED</b>	<b>Y</b>
	IFRT REPAIRS: Time allowed for repair of defects found during in-service inspections:	63.646(a) 63.120(a)(4) <b>make repairs within 45 days</b>	<b>Y</b>
	IFRT REPAIRS: If unable to repair, empty the tank & remove from service?	63.646(a) 63.120(a)(4) <b>YES, within 45 days</b>	<b>Y</b>
	EXTENSIONS OF TIME: If defects cannot be repaired & the IFRT cannot be emptied within 45 days?	63.646(a) 63.120(a)(4) <b>up to 2 extensions of 30 days each, if needed</b>	<b>Y</b>
	IFRT REPAIRS: Repair of defects if the tank is empty?	63.646(a) 63.120(a)(7) <b>prior to refilling</b>	<b>Y</b>
<b>63.646(c)</b>	IFR well covers to be gasketed?	63.646(c) <b>not required at existing sources</b>	<b>Y</b>
	IFR vents to be gasketed?	63.646(c) <b>not required at existing sources</b>	<b>Y</b>
	IFR deck openings other than for vents to project into liquid?	63.646(c) <b>not required at existing sources</b>	<b>Y</b>
	IFR access hatch & gauge float well covers to be bolted closed?	63.646(c) <b>not required at existing sources</b>	<b>Y</b>
	IFR guidepole & column wells allowed a flexible-fabric sleeve seal or a gasketed cover?	63.646(c) <b>not applicable at existing sources</b>	<b>Y</b>
	IFRT unslotted guidepoles to have a gasketed cap at the top of the pole?	63.646(c) <b>not required at existing sources</b>	<b>Y</b>
	IFRT slotted guidepoles to have a deck cover gasket and pole wiper, and either an internal float or a pole sleeve?	63.646(c) <b>not required at existing sources</b>	<b>Y</b>

**S612 – Tank A-612**

<b>Applicable Requirement</b>	<b>Regulation Title or Description of Requirement</b>	<b>Federally Enforceable (Y/N)</b>	<b>Future Effective Date</b>
63.646(e)	Exempts existing source from complying with inspection requirements for gaskets, slotted membranes and sleeve seals.	Y	
63.646(f)	Deck openings (wells) other than for vents, drains, or legs to have covers that are kept closed except for access?	63.646(f)(1) <b>REQUIRED</b> Y	
	IFR rim space vents to remain closed except when the pressure setting is exceeded?	63.646(f)(2) <b>REQUIRED</b> Y	
	IFR auto. bleeder vent (vacuum breaker) to be closed except when the deck is landed?	63.646(f)(3) <b>REQUIRED</b> Y	
63.646(g)	<b>This notes that the failure to perform inspections and required monitoring is a violation of the application standard.</b>	Y	
63.646(l)	<b>Notification of Inspections:</b> Is the State or local authority allowed to waive the notification requirements?	63.646(l) 63.654(h)(2)(i)(C)&(ii) <b>YES</b> Y	
63.654(g), (h) and (i)	The source only needs to comply with provisions as they relate to existing internal floating roof tanks.	Y	
63.654(g)	Report of periodic inspections, etc. AFTER documenting initial compliance?	63.654(g) <b>begin Sept 13, 1999 then semiannual</b> Y	
	<b>Periodic Reports:</b> Report of IFR/CFR inspections that find out-of-compliance?	63.654(g)(2) - (4) <b>Required within 60 days after each semiannual period</b> Y	
	<b>Periodic Reports:</b> Report of IFR/CFR inspection failures to include:	63.654(g)(2) - (4) <b>date of inspec, identification of tank, description of failure, &amp; date of repair or emptying</b> Y	
	<b>Periodic Reports:</b> IFR/CFR report to include prior request for 30-day extension, w/ documentation of need?	63.654(g)(2) - (4) <b>prior request is not required</b> Y	
	<b>Periodic Reports:</b> Additional information to be included if an extension is utilized for an IFR/CFR:	63.654(g)(2)(i) 63.654(g)(3)(ii) <b>document the reason for the extension</b> Y	



**S612 – Tank A-612**

<b>Applicable Requirement</b>	<b>Regulation Title or Description of Requirement</b>	<b>Federally Enforceable (Y/N)</b>	<b>Future Effective Date</b>
<b>63.654(h)</b>	<b>Notification of Inspections:</b> Is 30-day notice required for internal inspections of IFRTs & CFRTs (i.e., prior to filling or refilling); but a 7-day verbal notice acceptable if the event is unplanned?	63.654(h)(2)(i) 63.646(a) 63.120(a)(5)&(6) <b>REQUIRED</b>	
	Report applicability for varying-use tanks?	63.654(h)(6)(ii) <b>w/the initial NOC Status report</b>	<b>Y</b>
	<b>Other (initial) Reports:</b> Report applicability for varying-use tanks?	63.654(h)(6)(ii) <b>required with the initial Notification of Compliance Status report</b>	<b>Y</b>
<b>63.654(i)</b>	<b>Applicability records:</b> Time period for keeping records of applicability determination, unless specified otherwise.	63.654(i)(1) 63.123(a) <b>Keep record readily accessible for the service life of the tank</b>	<b>Y</b>
	<b>Applicability records:</b> Records of dimensions & capacity required for nonexempt tanks?	63.654(i)(1) 63.646(a)&63.119(a)(3) 63.123(a) <b>Required</b> <b>Keep record readily accessible for service life of the tank *</b>	<b>Y</b>
	<b>Recordkeeping for inspections:</b> Keep inspection reports as specified.	63.654(i)(1) 63.123(c) - (e) <b>all inspections</b>	<b>Y</b>
	Records of IFR & CFR inspection reports:	63.654(i)(1) 63.123(c) & (e) <b>all inspections</b>	<b>Y</b>
	<b>Recordkeeping for delayed repairs:</b> When utilizing a delay of repair provision, keep documentation of the reason for the delay.	63.654(i)(1) 63.123 (g) <b>required</b>	<b>Y</b>
	<b>Applicability records:</b> Additional recordkeeping requirements for certain tanks.	63.654(i)(1)(iv) <b>determination of HAP content</b> <b>Keep record readily accessible for service life of the tank</b>	<b>Y</b>

**ENGINEERING EVALUATION**  
Tesoro Refining and Marketing Company  
PLANT NO. 14629  
APPLICATION NO. 12592

Amorco Wharf Transfer and Metering Project

**BACKGROUND**

The Tesoro Refining and Marketing Company (Tesoro) is planning to improve the transfer and metering capability from the Amorco Wharf (Plant #14629) to the Golden Eagle Refinery (Plant #14629).

**S-55 Amorco Wharf Terminal, Crude Oil, Diesel, Gas Oil, Naphtha, Kerosene, Fuel Oils,  
70,080,000 bbl/yr**

Tesoro currently receives San Joaquin Valley crude via pipeline. The supply of San Joaquin Valley crude has been and will continue to decline. As the source of San Joaquin Valley crude declines, the refinery will be increasing the amount of crude received via cargo ship. The Amorco Terminal (S-55) currently has a grandfathered throughput limit of 70,080,000 barrels per year. The storage tanks at the wharf (S-19, S-21, S30, S-45, and S-50) have a combined grandfathered throughput limit of 70,080,000 barrels per year. The Amorco Wharf and tankage limit of 70,080,000 barrels per year is capable of supplying the necessary volume of crude to the refinery and the limits will not change. As the San Joaquin Valley crude supply decreases, the amount of waterborne crude will increase. This increase will occur regardless of the Amorco Wharf Transfer and Metering Project. However, the existing equipment will result in high utilization of transfer equipment that will lead to additional ship demurrage and greater logistics efforts to manage ship movements. The Amorco Wharf Transfer and Metering project will address demurrage and logistics issues, which will decrease operating costs, decrease demurrage, decrease emissions from ships per trip, and improve safety.

Tesoro would like to add a metering station to expedite the unloading of ships. The metering station with sampling skid will accurately measure the flow of crude as it is pumped from the cargo vessel to both tanks at the Amorco Wharf and to the Refinery. Currently, crude is pumped into the crude tanks at the Amorco Wharf. The amount of crude is then determined by verifying tank levels. The crude is then pumped to the refinery. The metering skid would measure the crude receipt in-line and allow direct transfer of the crude to the refinery. This reduces the time that ships are in the bay.

Tesoro plans to replace two existing transfer pumps, with a total nominal capacity of 8,000 barrels per hour, with two larger pumps, with a total nominal capacity of 14,000 barrels per hour. The increased pumping rate will also expedite the unloading of ships. By increasing the transfer rate of the crude to the refinery, the time that the ships are docked at the wharf will be decreased. Thereby, the associated emissions from hotelling should also decrease. Piping modifications will also be made within the refinery to reduce the pressure drop of the crude transfer lines to the refinery tanks. These changes will include the addition of a 24-inch line and re-routing existing pipelines.

The only impact of the Amorco Wharf Transfer and Metering project will be to increase the transfer rate from the Amorco Wharf to the Refinery. Tesoro will continue to be subject to the limit of 70,080,000 barrels per year of material transferred at the Amorco Terminal and Wharf. Amorco Wharf tank throughput limits will not change, nor will the tank throughput limits at the Refinery. This project does not include any modifications to crude or other operating units. Refinery capacity and utilization will not change. In addition, there will be no changes to the existing permit limits for crude throughput across Amorco, for any of the operating unit rates, or for the refinery-wide emissions bubble. The project does not include any new tanks. The existing tanks are currently permitted for crude. Because the Amorco Wharf Transfer and Metering Project impacts only the rate at which crude is transferred from the Wharf to the Refinery, the only emissions increase result from fugitive emissions from the pump and piping modifications. Piping modifications include valves, pressure relief valves, and connectors.

In the Federal Title V Operating Permit, the Amorco Wharf has a grandfathered throughput limit of 70,080,000 barrels/year. The S-55 Amorco Terminal has a transfer limit of 70,080,000 barrels per year and the tanks (S-19, S-21, S-30, S-49, and S-50) have a combined throughput limit of 70,080,000 barrels per year. Capacities identified as

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

a grandfathered limit are based upon District records at the time of the Major Facility Review permit issuance. The facility must report any exceedance of these limits. The reporting requirement is intended to facilitate a determination of whether a modification has occurred as defined in Regulation 2-1-234.3. The throughput limits for grandfathered sources are for reporting purposes only. Exceedance of this limit does not establish a presumption that a modification has occurred, nor does compliance with the limit establish a presumption that a modification has not occurred. Although the Amorco Wharf (S-55 Amorco Terminal and tanks S-19, S-20, S-30, S-49, and S-50) was issued a permit to operate, no conditions were imposed limiting daily or annual emissions. As per Regulation 2-1-234.3, a modification occurs if there is

“an increase of either daily or annual emission level of any regulated air pollutant or the production rate or capacity that is used to estimate the emission level above the lowest of the following:

2-1-234.3.1 The highest of the following:

- 3.1.1 The highest attainable design capacity, as shown in preconstruction design drawings, including process design drawings and vendor specifications.
- 3.1.2 The capacity listed in the District permit to operate.
- 3.1.3 The highest documented actual levels attained by the source prior to March 1, 2000.

2-1-234.3.2 The capacity of the source, as limited by the capacity of any upstream or downstream process that acts as a bottleneck (a grandfathered source with an emission increase due to debottlenecking is considered to be modified).”

No capacity is listed in the District permit to operate as per Regulation 2-1-234.3.2. For the Federal Title V permit the grandfathered limit was developed using the design capacity as per Regulation 2-1-234.3.1.1. Tesoro has never run the Wharf close to capacity and the higher of either the highest attainable design capacity (Regulation 2-1-234.3.1.1) or the highest documented actual level attained (Regulation 2-1-234.3.1.3) would be the design capacity. The maximum design rate of the two current transfer pumps is 4,000 barrels per hour per pump. Assuming 8760 hrs per year of operation, the highest attainable design capacity as per Regulation 2-1-234.3.1 is 70,080,000 barrels per year (= 2 pumps X 4000 barrels/yr X 8760 hrs/yr). In consideration of Regulation 2-1-234.3.2, the tanks at the Amorco Wharf have a combined throughput limit of 70,080,000 barrels per year, which is equivalent to the Amorco Wharf limit and no debottlenecking will occur. Tesoro will be conditionally permitted not to exceed the Title V throughput limit of 70,080,000 barrels per year for transfer at the S-55 Amorco Terminal and for the combined throughput limit for the tanks, S-19, S-20, S-30, S-49, and S-50. After the upgrades are made for the Amorco Wharf Transfer and Metering Project, annual throughput will not increase beyond the Title V annual limit and annual emissions will not change. The project is not considered a “modification” but an “alteration”.

Tesoro will not be loading ships from the Amorco Terminal for shipment of material out of the area. Tesoro will not ship material received via cargo ship to other refineries via pipeline. The Amorco Wharf does not have direct links to the other refineries. There are connections within the Golden Eagle Refinery and Kanab Terminals to other refineries, but Tesoro has guaranteed that they will not become an off-loading facility for other businesses.

Emissions from the cargo tanks and barges are already limited by permit condition #4357 as part of the No. 3 HDS Project. Marine emissions are submitted to the District monthly and are a part of the refinery wide emissions cap. All organic liquid storage tanks are permitted and have either permitted or grandfathered limits, which will not be exceeded. The standing and working losses of organic vapors are associated with the storage tanks.

Any increase in emissions from the Amorco Wharf Transfer and Metering Project will be fugitive precursor organic compounds.

#### **List of Sources affected by the Amorco Wharf Transfer and Metering Project**

Note that no alterations or modifications will be made directly to the sources, but to fugitive sources, such as transfer pumps and piping.

Amorco Wharf (Plant #14629)

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

- S-19 Tank B-19, external floating roof, 3318K gal, Crude Oil, 70,080,000 bbl/yr limit applies to S-19, S-21, S-30, S-49, and S-50 combined
- S-21 Tank B-21, external floating roof, 3276K gal, Crude Oil, Gasoline, 70,080,000 bbl/yr limit applies to S-19, S-21, S-30, S-49, and S-50 combined
- S-30 Tank B-30, external floating roof, 3318K gal, Crude Oil, Gasoline, 70,080,000 bbl/yr limit applies to S-19, S-21, S-30, S-49, and S-50 combined
- S-49 Tank B-49, external floating roof, 5964K gal, Crude Oil, 70,080,000 bbl/yr limit applies to S-19, S-21, S-30, S-49, and S-50 combined
- S-50 Tank B-50, external floating roof, 5922K gal, Crude Oil, 70,080,000 bbl/yr limit applies to S-19, S-21, S-30, S-49, and S-50 combined

Golden Eagle Refinery (Plant #14628)

- S-690 Tank A-690, external floating roof, 13,020K gal, Crude Oil, 25,550K bbl/yr
- S-694 Tank A-694, external floating roof, 13,230K gal, Crude Oil, 21,900K bbl/yr
- S-701 Tank A-701, external floating roof, 13,020K gal, Crude Oil, 21,900K bbl/yr
- S-705 Tank A-702, external floating roof, 9,366K gal, Crude Oil, 21,900K bbl/yr
- S-706 Tank A-706, external floating roof, 4,746K gal, Crude Oil, 18,250K bbl/yr
- S-707 Tank A-707, external floating roof, 4,746K gal, Crude Oil, Hydrocarbon, 18,250K bbl/yr
- S-708 Tank A-708, external floating roof, 13,146K gal, Crude Oil, 21,900K bbl/yr
- S-709 Tank A-709, external floating roof, 4,746K gal, Crude Oil, Waste Oil, 18,250K bbl/yr
- S-871 Tank A-871, external floating roof, 13,146K gal, Crude Oil, Low Sulfur Vacuum Gas Oil, 20,000K bbl/yr
- S-1461 Tank A-866, external floating roof, 10,080K gal, Crude Oil, 50,000K bbl/yr
- S-1463 Tank A-867, external floating roof, 10,080K gal, Crude Oil, HDS Gas Oil, 50,000K bbl/yr

The Amorco pipeline can reach other tanks at the refinery, but these are not part of this project. The other tanks have existing grandfathered throughput limits, which will not change.

**EMISSIONS SUMMARY**

**Annual Emissions:**

As described in the “Background” section, emissions from the Amorco Wharf Transfer and Metering Project are all fugitive precursor organic compounds. All fugitive emissions associated with this application are calculated below.

Because the limit of 70,080,000 barrels per year of material transferred at the Amorco Wharf will not be changed, there will be no increase in ship emissions. The project will decrease the amount of time that ships are in the bay, and should actually decrease ship emissions per trip.

Fugitive Component Emissions

The majority of emissions from the Loading Rack Modernization Project are all fugitive precursor organic compounds. The fugitive component emission factors were developed by Tesoro based on screening value data collected throughout the Tesoro Refinery by their fugitive component contractors pursuant to US EPA Reference Method 21 (40 CFR 60, Appendix A). Tesoro developed the fugitive component toxic emission factors for the original CARB Phase 3 Clean Fuels Project (Application Number 2508). The fugitive component emission factors are based on refinery wide fugitive component screening data applied to the US EPA Correlation Equations. The District reviewed and approved the emissions factors developed for the original Phase 3 Clean Fuels Project.

Tesoro has estimated the number of fugitive components and corresponding emission increases for the project.

Fugitive Component	Emission Factor (lb/day/source)	Net Change in component	Increase in POC emissions (lb/day)	Increase in POC emissions (lb/yr)
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Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

Valves in gas service	0.0015288	0	0	0
Valves in liquid service	0.0014736	121	0.1783	65.09
Pumps	0.028872	1	0.028872	10.54
Compressors	0.00804	0	0	0
PRV's in gas service	0.00972	0	0	0
PRV's in liquid service	0.006312	8	0.0505	18.43
Connectors & flanges	0.004	312	1.248	455.52
<b>Total Emissions</b>			<b>1.5057</b>	<b>549.58</b>

Total Amorcó Wharf Transfer and Metering Project

POC Emissions from fugitive components = 1.5057 lb/day = 549.58 lb/yr = 0.275 tpy

**Maximum Daily Emissions:**

Maximum daily POC emissions from the fugitive components are 1.5057 lb/day for the project.

**Toxic Risk Screening:**

Crude oil will be the primary material transferred at the Amorcó Wharf. Fugitive emissions of benzene in the crude oil are 10.99 lb/yr, which is greater than the District trigger level of 6.7 lb/yr, and a Risk Screening Analysis is required.

Based on 549.58 lb/yr of fugitive emissions from crude oil.

Toxic Pollutant	% by volume in crude oil	Emissions (lb/yr)	Risk Screening Trigger (lb/yr)
Benzene (MSDS)	up to 2%	<b>10.99</b>	<b>6.7</b>
Toluene*	up to 7.5%	40.43	39000
n-Hexane*	up to 25%	134.76	83000
Hydrogen Sulfide	up to 1%	5.39	8100

\*Hexane and toluene are estimated using the ARB Speciation Manual Second Edition, Volume 1, Identification of Volatile Organic Compound Species Profiles, March 19, 2003 (<http://www.arb.ca.gov/ei/speciate/speciate.htm>).

As required by the District's Risk Management Policy, the cumulative impacts from all related projects are included in the Risk Analysis. The Risk Analysis includes health risks due to the emissions from the following sources.

Application #	Source #	Description
9129	871	Tank A-871
12592	S-55 and fugitives	Amorcó Wharf Transfer and Metering Project

The risk screen was performed for emission from the Amorcó Wharf (plant 14629), S-55 Amorcó Wharf Terminal new metering skid and transfer pump area and from the Golden Eagle Refinery (plant 14628), piping modifications at Tracts 2 and 4. The risk screen for each facility is based on the worst-case assumption that all the emissions are attributed to each plant. The table below shows the sources/areas that were considered for each plant.

Plant #	Application #	Source #	Description
14628	9129	871	Tank A-871
14628	12592	Fugitives	Piping Modifications Tract 2 and 4
14629	12592	S-55	Amorcó Wharf Terminal new metering skid and transfer

			pump area
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The maximum increase in cancer risk due to the emissions from the above sources for each facility is less than one in a million and the chronic hazard index is less than 1.0. These levels of risk comply with Regulation 2-5-302. The level of risk is considered acceptable under the district's Risk Management Policy. (See memo in application folder #12952 from Toxics Group, August 18, 2005.)

## STATEMENT OF COMPLIANCE

For the Amorco Wharf Transfer and Metering Project modifications, Tesoro is subject to Regulation 8 Rule 18: Organic Compounds: Equipment Leaks. Tesoro has indicated in the permit application that all new fugitive components will comply with BACT requirements. BACT requirements are more stringent than Regulation 8 Rule 18 and compliance with Regulation 8 Rule 18 is expected. Tesoro shall also comply with the leak criteria, repair requirements, and monitoring requirements of Regulation 8 Rule 18.

For fugitive organic emissions from process valves, the BACT emission limit is 100 ppm expressed as methane. BACT also requires that the valves be included in a District approved maintenance and quarterly inspection program.

For fugitive organic emissions from connectors and flanges, the BACT emission limit is 100 ppm expressed as methane. BACT also requires that the connectors and flanges be included in a District approved maintenance and quarterly inspection program.

For fugitive organic emissions from pump and compressor seals, the BACT 2 emission limit is 500 ppm expressed as methane. The BACT 1 limit is 100 ppm as methane. Because BACT is not triggered by fugitive emissions, the BACT 2 limit of 500 ppm plus inclusion of the components in the maintenance and quarterly inspection program will be considered BACT.

For fugitive organic emissions from emergency pressure relief valves, BACT requires venting to the refinery fuel gas system, furnace, or flare with a recovery and destruction efficiency greater than 98%. If vented to the refinery fuel gas system or other combustion source, the owner/operator is subject to NSPS Subpart J.

Tesoro does not load ships from the S-55 Amorco Terminal and Regulation 8 Rule 44: Organic Compounds, Marine Vessel Loading Terminals does not apply. The S-55 Amorco Terminal is neither an organic liquid bulk terminal or bulk plant and Regulation 8 Rule 6: Organic Compounds, Organic Liquid, Bulk Terminals and Bulk Plants does not apply. The S-55 Amorco Terminal is not a gasoline bulk terminal and Regulation 8 Rule 33: Organic Compounds, Gasoline Bulk Terminals and Gasoline Delivery Vehicles does not apply.

The owner/operator of organic liquid storage tanks at the Amorco Wharf (Plant 14629) and at the Golden Eagle Refinery (Plant 14628) is subject to Regulation 8 Rule 5: Organic Compounds, Storage of Organic Liquids. The tanks receiving crude, which are listed in the "Background" section of the Engineering Evaluation, are all external floating roof tanks as required by Regulation 8-5-301. The owner/operator shall adhere to Regulation 8-5-304 Requirement for External Floating Roofs, Regulation 8-5-320 Tank Fitting Requirements, Regulation 8-5-321 Primary Seal Requirements, and Regulation 8-5-322 Secondary Seal Requirements. The owner/operator is also subject to recordkeeping requirements of Regulation 8-5-501.

This permit application is categorically exempt from CEQA because the project has no potential for causing a significant adverse environmental impact and is categorically exempt from CEQA under Regulation 2-1-312.11.4. The project satisfies the "no net emission increase" provisions of District Regulation 2, Rule 2 for which there will be some increase in the emissions of any toxic air contaminant, but for which the District staff's preliminary health risk screening analysis shows that a formal health risk assessment is not required, and for which there will be no other significant environmental effect. An Appendix H, Environmental Information Form has been completed and certified by Tesoro.

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

The project is over 1000 feet from the nearest school and therefore not subject to the public notification requirements of Reg. 2-1-412.

**Best Available Control Technology:** In accordance with Regulation 2, Rule 2, Section 301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NO<sub>x</sub>, CO, SO<sub>2</sub> or PM<sub>10</sub>. Emissions from the Amorco Wharf Transfer and Metering Project consist solely of fugitive POC. Although BACT is not triggered for POC fugitives, Tesoro has indicated in their permit application that all new fugitive components will comply with BACT requirements.

**Valves –** The valves will be equipped with graphite packing or District approved equivalent technology. These new components will be included in Tesoro’s quarterly inspection and maintenance program in compliance with BAAQMD Regulation 8, Rule 18, with a leak criteria of 100 ppmv expressed as methane. This meets BAAQMD BACT guidelines for POCs.

**Pump and Compressor Seals --** The pump and compressor seals will be equipped with double mechanical seals with barrier fluid or District approved equivalent technology. The pumps will be included in Tesoro’s quarterly inspection and maintenance program in compliance with BAAQMD Regulation 8, Rule 18, with a leak criteria of 500 ppmv expressed as methane. This meets BAAQMD BACT guidelines for POCs.

**Flanges/Connectors --** The flanges/connectors will use graphite or equivalent designed flange gaskets to reduce POC fugitive emissions. These new flanges/connectors will be included in Tesoro’s quarterly inspection and maintenance program in compliance with BAAQMD Regulation 8, Rule 18, with a leak criteria of 100 ppmv expressed as methane. This meets BAAQMD BACT guidelines for POCs.

**Pressure Relief Valves --** Tesoro will vent emergency pressure relief valves to the refinery fuel gas system or an abatement device with a recovery and destruction efficiency greater than 98%. This meets BAAQMD BACT guidelines for POCs.

**Offsets:** Offsets are required because Tesoro emits more than 35 tpy of POC emissions. Regulation 2-2-302 requires that offsets for POC be provided at a ratio of 1.15 to 1.0. The required offsets are:

$$\text{POC offsets} = 539.04 \text{ lb/yr} (1.15) = 619.896 \text{ lb/yr} = 0.310 \text{ tpy}$$

Tesoro has supplied Banking Certificate #940 to provide the required offsets.

Banking Certificate #	POC Banking Credits
932	34.527 tpy

$$\text{Balance of Banking Certificate \#940} = 34.527 - 0.310 = 34.217 \text{ tpy}$$

### Federal NSPS

For the Amorco Wharf Transfer and Metering Project, the owner/operator is not subject to 40 CFR 60 Subpart GGG- Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries. As per 60.590(a), Subpart GGG applies to compressors or to “the group of all equipment (defined in 60.591) within a process unit”.

### § 60.591 Definitions.

*Equipment* means each valve, pump, pressure relief device, sampling connection system, open-ended valve or line, and flange or other connector in VOC service. For the purposes of recordkeeping and reporting only, compressors are considered equipment.

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

*Process unit* means components assembled to produce intermediate or final products from petroleum, unfinished petroleum derivatives, or other intermediates; a process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.

The pumps, valves, pressure relief devices, and connectors that are being installed as part of the project are not part of a process unit as defined in 60.591 and as per 60.590(a), Subpart GGG does not apply.

### **Federal NESHAPS**

For the Amorco Wharf Transfer and Metering Project, the owner/operator is not subject to 40 CFR 63 Subpart CC--National Emission Standards for Hazardous Emissions from Petroleum Refineries. As per 63.640(c)(4), Subpart CC applies to equipment leaks from petroleum refining process units. But, the fugitive components installed as part of this project are not part of a 'petroleum refining process unit' as defined in 63.641.

### **§ 63.640 Applicability and Designation of Affected Source**

(c) For the purpose of this subpart, the affected source shall comprise all emission points, in combination, listed in paragraphs (c)(1) through (c)(7) of this section that are located at a single refinery plant site.

**(4) All equipment leaks from petroleum refining process units meeting the criteria in paragraph (a) of this section;**

### **§ 63.641 Definitions**

*Petroleum refining process unit* means a process unit used in an establishment primarily engaged in petroleum refining as defined in the Standard Industrial Classification code for petroleum refining (2911), and used primarily for the following:

(1) Producing transportation fuels (such as gasoline, diesel fuels, and jet fuels), heating fuels (such as kerosene, fuel gas distillate, and fuel oils), or lubricants;

(2) Separating petroleum; or

(3) Separating, cracking, reacting, or reforming intermediate petroleum streams.

(4) Examples of such units include, but are not limited to, petroleum-based solvent units, alkylation units, catalytic hydrotreating, catalytic hydrorefining, catalytic hydrocracking, catalytic reforming, catalytic cracking, crude distillation, lube oil processing, hydrogen production, isomerization, polymerization, thermal processes, and blending, sweetening, and treating processes. Petroleum refining process units also include sulfur plants.

For the Amorco Wharf Transfer and Metering Project, the owner/operator is not subject to 40 CFR 63 Subpart Y--National Emission Standards for Marine Vessel Tank Loading Operations. The owner/operator does not load ships from the Amorco Wharf. Crude oil is unloaded at the terminal for transfer to storage tanks either at the wharf or at the refinery for further processing into gas at the Golden Eagle Refinery. The owner/operator will be conditionally prohibited from loading ships from the Amorco Wharf.

The owner/operator is subject to the 40 CFR 63 Subpart EEEE--National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline). The standards apply to the storage or transfer of organic liquids other than gasoline, into, out of, or within a plant site. Subpart EEEE requires that the owner/operator comply with 40 CFR 63 Subpart TT--National Emission Standards for Equipment Leaks - Control Level 1 and/or Subpart UU--National Emission Standards for Equipment Leaks - Control Level 2 Standards for fugitive components. The owner/operator shall incorporate the new fugitive components into the facility fugitive equipment monitoring and repair program. The District requirements of Regulation 8 Rule 18: Organic Compounds, Equipment Leaks are more stringent than Subpart UU and TT and the Federal NESHAPS requirement will be met.

### **PSD**

PSD does not apply.



## **PERMIT CONDITIONS**

Application #12592 (August, 2005)

Amorco Transfer and Metering Project

### Fugitive Components

- 1) Not more than 30 days after the start-up of the Amorco Transfer and Metering Project, the owner/operator shall provide the District's Engineering Division with a final count of fugitive components installed. The owner/operator has been permitted for an increase in the following fugitive components:

0 valves in gas service  
121 valves in liquid service  
1 pump  
0 compressors  
0 PRV in gas service  
8 PRVs in liquid service  
312 connectors/flanges

(basis: cumulative increase, offsets, toxics risk screen)

- 2) If there is an increase in the total fugitive component emissions, the plant's cumulative emissions for the project shall be adjusted to reflect the difference between emissions based on predicted versus actual component counts. The owner/operator shall provide to the District all additional required offsets at an offset ratio of 1.15:1 no later than 14 days after submittal of the final POC fugitive count. If the actual component count is less than the predicted, the total will be adjusted accordingly and all emission offsets applied by the owner/operator in excess of the actual total fugitive emissions will be credited back to the owner/operator.

(basis: offsets)

- 3) The owner/operator shall install valves, in light hydrocarbon service, that are of District approved BACT compliant technology (bellows valves, diaphragm valves, live loaded valves, or the equivalent) such that fugitive organic emissions shall not exceed 100 ppm.

(basis: BACT, Regulation 8-18, toxics risk screen)

- 4) The owner/operator shall install flanges and connectors, in light hydrocarbon service, that are of District approved BACT compliant technology (graphitic gaskets or the equivalent) such that fugitive organic emissions shall not exceed 100 ppm.

(basis: BACT, Regulation 8-18, toxics risk screen)

- 5) The owner/operator shall install pump seals, in light hydrocarbon service, that are of District approved BACT compliant technology (double mechanical seals with barrier fluid or the equivalent) such that fugitive organic emissions shall not exceed 500 ppm.

(basis: BACT, Regulation 8-18, toxics risk screen)

- 6) The owner/operator shall ensure that each pressure relief valve installed in hydrocarbon service is vented back to the process or to the refinery fuel gas system with a capture and destruction efficiency of at least 98% by weight.

(basis: BACT, Regulation 8-28, toxics risk screen)

- 7) In accordance with the provisions of Regulation 8-18, the owner/operator shall integrate all new fugitive equipment in organic service installed as part of the Amorco Wharf Transfer and Metering Project into the facility fugitive equipment monitoring and repair program.

(basis: BACT, Regulation 8-18)

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

S-55 Amorco Wharf Terminal, Crude Oil, Diesel, Gas Oil, Naphtha, Kerosene, Fuel Oils, 70,080,000 bbl/yr

S-19 Tank B-19, external floating roof, 3318K gal, Crude Oil, 70,080,000 bbl/yr limit applies to S-19, S-21, S-30, S-49, and S-50 combined

S-21 Tank B-21, external floating roof, 3276K gal, Crude Oil, Gasoline, 70,080,000 bbl/yr limit applies to S-19, S-21, S-30, S-49, and S-50 combined

S-30 Tank B-30, external floating roof, 3318K gal, Crude Oil, Gasoline, 70,080,000 bbl/yr limit applies to S-19, S-21, S-30, S-49, and S-50 combined

S-49 Tank B-49, external floating roof, 5964K gal, Crude Oil, 70,080,000 bbl/yr limit applies to S-19, S-21, S-30, S-49, and S-50 combined

S-50 Tank B-50, external floating roof, 5922K gal, Crude Oil, 70,080,000 bbl/yr limit applies to S-19, S-21, S-30, S-49, and S-50 combined

8) The owner/operator of S-55 Amorco Wharf Terminal shall not exceed a throughput of 70,080,000 barrels of crude oil per any consecutive 12 month period.

(basis: cumulative increase, offsets, toxic risk screen)

9) The owner/operator of S-19, S-21, S-30, S-49, and S-50 Tanks shall not exceed a combined throughput of 70,080,000 barrels of crude oil per any consecutive 12 month period.

(basis: cumulative increase, offsets, toxic risk screen)

10) The owner/operator shall not transfer any material received at the Amorco Wharf directly to another refinery via pipeline.

(basis: cumulative increase)

11) The owner/operator shall not ship crude from the Amorco Wharf.

(basis: cumulative increase)

12) The owner/operator shall maintain records, in a District approved log, for

(1) The date(s) and times at which the tank vessel arrived and departed from the marine terminal.

(2) The type and amount of organic liquid cargo unloaded.

All records shall be retained for a period of at least five years from the date of entry. This log shall be kept on site and made available to District staff upon request.

(basis: cumulative increase, recordkeeping, Regulation 1-441)

## **RECOMMENDATION**

Issue an Authority to Construct to Tesoro Refining and Marketing Company for modification of the following sources for the Amorco Wharf Transfer and Metering Project. Grandfathered storage tanks at the Amorco Wharf will also be given permitted limits.

**S-55 Amorco Wharf Terminal, Crude Oil, Diesel, Gas Oil, Naphtha, Kerosene, Fuel Oils, 70,080,000 bbl/yr**

**S-19 Tank B-19, external floating roof, 3318K gal, Crude Oil, 70,080,000 bbl/yr limit applies to S-19, S-21, S-30, S-49, and S-50 combined**

**S-21 Tank B-21, external floating roof, 3276K gal, Crude Oil, Gasoline, 70,080,000 bbl/yr limit applies to S-19, S-21, S-30, S-49, and S-50 combined**

**S-30 Tank B-30, external floating roof, 3318K gal, Crude Oil, Gasoline, 70,080,000 bbl/yr limit applies to S-19, S-21, S-30, S-49, and S-50 combined**

**S-49 Tank B-49, external floating roof, 5964K gal, Crude Oil, 70,080,000 bbl/yr limit applies to S-19, S-21, S-30, S-49, and S-50 combined**

**S-50 Tank B-50, external floating roof, 5922K gal, Crude Oil, 70,080,000 bbl/yr limit applies to S-19, S-21, S-30, S-49, and S-50 combined**

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

**EXEMPTIONS**

none

By: \_\_\_\_\_

Pamela J. Leong  
Air Quality Engineer II  
August 23, 2005

**ENGINEERING EVALUATION**  
Tesoro Refining and Marketing Company  
PLANT NO. 14629  
APPLICATION NO. 13047

**BACKGROUND**

The Tesoro Refining and Marketing Company (Tesoro) is applying for a modification to the Permit to Operate the following equipment:

**S-913 No. 2 Feed Prep Heater (F13), 59 MMBtu/hr fired on Refinery Fuel Gas and Natural Gas; modification to add low NOx burners: Callidus Technologies Inc. LE-CSG Low NOx burners or the equivalent**

Tesoro is planning to install low NOx burners on S-913 Heater. Installation of low NOx burners at S-913 is a part of Tesoro's Regulation 9 Rule 10 NOx Compliance Plan Application 3460. The Authority to Construct the low NOx burners at S-913 was issued to Tesoro in Application 2209. In addition, Tesoro would like to change the fuel gas feed to S-913 from 40 psig to 100 psig fuel gas. Liquid hydrocarbon in the 40 psig fuel gas could potentially plug the ports in the low NOx burners, therefore Tesoro would like to burn 100 psig fuel gas to decrease the likelihood of plugging.

100 psig fuel gas is formed during refinery process operations such as catalytic cracking at S-802, Fluid Catalytic Cracking Unit, and S-806 Coker Fluid Coking Unit. The gas is treated at one of Tesoro's Gas Plants and is bubbled through diethanolamine (DEA) to remove sulfurous compounds. The 100 psig fuel gas is then used as fuel at various combustions sources throughout the refinery. 40 psig fuel gas is made up of approximately 75% by volume 100 psig fuel gas and the balance of the vapors are from the A-12 and A-14 Vapor Recovery Systems. The A-12 and A-14 Vapor Recovery Systems are used to capture VOC's from various tanks, oil water separators, and material transfer sources. The collected vapors are compressed at the No. 1 Gas Plant for processing to remove sulfurous compounds. With S-913 burning 100 psig fuel gas, less 100 psig fuel gas will be added to the 40 psig fuel gas.

S-913 is equipped with a dedicated fuel gas flow meter. The 100 psig fuel gas is sampled daily at the fuel gas mixpot for total sulfur and is recorded in Tesoro's database<sup>1</sup>. The 40 psig fuel gas is not sampled daily for total sulfur but samples and measurements have been taken in the past<sup>2</sup>. The hydrogen sulfide content of the 40 psig and 100 psig fuel gases are routinely measured to determine compliance with NSPS Subpart J 60.104(a)(1). Online analyzers at the 100 psig fuel gas mixpot and the 40 psig fuel gas line at No. 3 Crude measure the BTU content of the fuels. Online measurements are recorded in Tesoro's process records.

The firing rate limitation of 59 MMBtu/hr will not change. Emissions of NOx will decrease with the installation of the low NOx burners. A determination will be made in the Emissions Summary Section of this evaluation to determine if there will be an increase in SO2 emissions from the burning of 100 psig fuel gas versus 40 psig fuel gas. In addition, there will be fugitive organic emissions from the installation of the new 100 psig fuel gas line.

**EMISSIONS SUMMARY**

**Annual Emissions:**

SO2 Emissions

In application 6820, Tesoro applied for and was given the authority to change the refinery fuel gas burned at S-916 No. 16 Furnace – No. 1 HDS Heater and S-917 No. 17 Furnace – No. 1 HDS Prefractionator Reboiler from 40 psig fuel gas to 100 psig fuel gas. In application 6820, based on samples and measurements of total sulfur in conjunction with hydrogen sulfide analyzer results, the average total sulfur content of the 40 psig fuel gas was determined to be

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<sup>1</sup> Tesoro Environmental Contact, Sharon Lim, confirmed with the Tesoro laboratory that 100 pound fuel gas samples were tested for total sulfur (11/21/05).

<sup>2</sup> Brimstone Engineering Services tested for total sulfur compounds in both the 40 pound and 100 pound fuel gases.

281 ppmvd. The total sulfur calculation and engineering evaluation for application 6820 may be found in Appendix B for reference. In application 6820, the average total sulfur content of the 100 psig fuel gas was determined to be 123.7 ppmvd based on only two samples taken from the 100 psig fuel gas. When receiving the permit to operate for application 6820, Tesoro was required to sample and analyze the 100 psig fuel gas daily for sulfur content. Tesoro has been taking daily samples of the 100 psig fuel gas for total sulfur since May of 2004. The average total sulfur concentration from May 2004 to August 2005 is 93.3 ppmvd. The daily total sulfur average of 93.3 ppmvd will be used since it is based on a larger set of data and more recent data.

Tesoro has also provided the BTU (HHV) of the 40 psig and 100 psig fuel gases from May 2002 to August 2005. The 40 psig fuel gas had an average heat content of 1112.2 Btu/SCF. The 100 psig fuel gas had an average heat content of 1133.5 Btu/SCF.

All total sulfur data and BTU data may be found in Appendix A. Assume all sulfur in the fuel gas is converted to SO<sub>2</sub>.

$$40\# \text{ fuel gas SO}_2 \text{ emissions} = (59\text{E}6 \text{ Btu/hr})(8760 \text{ hr/yr})(\text{SCF}/1112.2 \text{ Btu})(1 \text{ lbmol}/359.1 \text{ SCF}) \\ \times (281 \text{ total sulfur}/1\text{E}6)(64 \text{ lb SO}_2/\text{lbmol}) = 23,272.6 \text{ lb/yr} = 11.64 \text{ tpy}$$

$$100\# \text{ fuel gas SO}_2 \text{ emissions} = (59\text{E}6 \text{ Btu/hr})(8760 \text{ hr/yr})(\text{SCF}/1133.5 \text{ Btu})(1 \text{ lbmol}/359.1 \text{ SCF}) \\ \times (93.3 \text{ total sulfur}/1\text{E}6)(64 \text{ lb SO}_2/\text{lbmol}) = 7,581.9 \text{ lb/yr} = 3.79 \text{ tpy}$$

$$\text{Increase in SO}_2 \text{ emissions from 100 \# to 40\# fuel gas} = 7,581.9 - 23,272.6 \text{ lb/yr} \\ = - 15,790.7 \text{ lb/yr} = - 7.9 \text{ tpy}$$

SO<sub>2</sub> emissions decrease as a result of burning 100 psig fuel gas instead of 40 psig fuel gas.

#### Fugitive Component Emissions

The fugitive component emission factors were developed by Tesoro based on screening value data collected throughout the Tesoro Refinery by their fugitive component contractors pursuant to US EPA Reference Method 21 (40 CFR 60, Appendix A). Tesoro developed the fugitive component toxic emission factors for the original CARB Phase 3 Clean Fuels Project (Application Number 2508). The fugitive component emission factors are based on refinery wide fugitive component screening data applied to the US EPA Correlation Equations. The District reviewed and approved the emissions factors developed for the original Phase 3 Clean Fuels Project.

Tesoro has estimated the number of fugitive components and corresponding emission increases for the project.

Fugitive Component	Emission Factor (lb/day/source)	Net Change in component	Increase in POC emissions (lb/day)	Increase in POC emissions (lb/yr)
Valves in gas service	0.0015288	4	0.0061	2.232
Valves in liquid service	0.0014736	0	0	0
Pumps	0.028872	0	0	0
Compressors	0.00804	0	0	0
PRV's in gas service	0.00972	1	0.00972	3.548
PRV's in liquid service	0.006312	0	0	0
Connectors & flanges	0.004	8	0.0320	11.680
<b>Total Emissions</b>			<b>0.0478</b>	<b>17.46</b>

#### Total Emissions

There will be no increase in emissions from the combustion of fuel.

$$\text{POC Emissions from fugitive components} = 0.0478 \text{ lb/day} = 17.46 \text{ lb/yr} = 0.0087 \text{ tpy}$$

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

### **Maximum Daily Emissions:**

Maximum daily POC emissions from the fugitive components are 0.0478 lb/day for the project.

### **Toxic Risk Screening:**

A risk screen is not required for this application. There is no increase in the emission rate of any toxin beyond the District Trigger levels of Regulation 2-5.

### **STATEMENT OF COMPLIANCE**

The owner/operator of S-913 No. 2 Feed Prep Heater (F13) shall comply with Reg. 6 (Particulate Matter and Visible Emissions Standards) and Reg. 9-1-301 (Inorganic Gaseous Pollutants: Sulfur Dioxide for Limitations on Ground Level Concentrations). The owner/operator is expected to comply with Regulation 6 since the unit is fueled with natural gas or refinery fuel gas. Thus for any period aggregating more than three minutes in any hour, there should be no visible emission as dark or darker than No. 1 on the Ringlemann Chart (Regulation 6-301) and no visible emission to exceed 20% opacity (Regulation 6-302). The owner/operator is subject to Regulation 9 Rule 10: Nitrogen Oxides and Carbon Monoxide from Boilers, Steam Generators, and Process Heaters in Petroleum Refineries. The owner/operator is subject to the facility wide emission limit for NO<sub>x</sub> of 0.033 lb NO<sub>x</sub> per million Btu of heat input based on an operating-day average as per Regulation 9-10-301. The owner/operator is also subject to the emission limit for CO of 400 ppmvd at 3% O<sub>2</sub> based on an operating-day average as per Regulation 9-10-305. The owner/operator is subject to the record keeping requirements of Regulation 9-10-504 and the reporting requirements of Regulation 9-10-505.

#### Fugitive Emissions

Tesoro is subject to and will comply with the requirements of Regulation 8 Rule 18: Organic Compounds: Equipment Leaks. Tesoro has indicated in the permit application that all new fugitive components will comply with BACT requirements. Tesoro shall also comply with the leak criteria, repair requirements, and monitoring requirements of Regulation 8 Rule 18.

For fugitive organic emissions from process valves, the BACT emission limit is 100 ppm expressed as methane, measured at 1 centimeter from the component surface. BACT also requires that the valves be included in a District approved maintenance and quarterly inspection program.

For fugitive organic emissions from connectors and flanges, the BACT emission limit is 100 ppm expressed as methane, measured at 1 centimeter from the component surface. BACT also requires that the connectors and flanges be included in a District approved maintenance and quarterly inspection program.

For fugitive organic emissions from emergency pressure relief valves, BACT requires venting to the refinery fuel gas system, furnace, or flare with a recovery and destruction efficiency greater than 98%. If vented to the refinery fuel gas system or other combustion source, the owner/operator is subject to NSPS Subpart J.

The project is considered to be ministerial under the District's CEQA regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emissions factors and therefore is not discretionary as defined by CEQA. (Permit Handbook Chapter 2.4)

The project is over 1000 feet from the nearest school and therefore not subject to the public notification requirements of Reg. 2-1-412.

**Best Available Control Technology:** In accordance with Regulation 2, Rule 2, Section 301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NO<sub>x</sub>, CO,

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

SO<sub>2</sub> or PM<sub>10</sub>. Emissions from S-913 do not trigger BACT. Although BACT is not triggered for POC fugitives, Tesoro has indicated in their permit application that all new fugitive components will comply with BACT requirements.

**Valves** – The valves will be equipped with graphite packing or District approved equivalent technology. These new components will be included in Tesoro’s quarterly inspection and maintenance program in compliance with BAAQMD Regulation 8, Rule 18, with a leak criteria of 100 ppmv expressed as methane. This meets BAAQMD BACT guidelines for POCs.

**Flanges/Connectors** -- The flanges/connectors will use graphite or equivalent designed flange gaskets to reduce POC fugitive emissions. These new flanges/connectors will be included in Tesoro’s quarterly inspection and maintenance program in compliance with BAAQMD Regulation 8, Rule 18, with a leak criteria of 100 ppmv expressed as methane. This meets BAAQMD BACT guidelines for POCs.

**Pressure Relief Valves** -- Tesoro will vent emergency pressure relief valves to the refinery fuel gas system or an abatement device with a recovery and destruction efficiency greater than 98%. This meets BAAQMD BACT guidelines for POCs.

**Offsets:** Offsets are required because Tesoro emits more than 35 tpy of POC emissions. Regulation 2-2-302 requires that offsets for POC be provided at a ratio of 1.15 to 1.0. The required offsets are:

$$\text{POC offsets} = 17.46 \text{ lb/yr} (1.15) = 20.08 \text{ lb/yr} = 0.010 \text{ tpy}$$

Tesoro has supplied Banking Certificate #940 to provide the required offsets.

Banking Certificate #	POC Banking Credits
940	34.217 tpy

$$\text{Balance of Banking Certificate \#940} = 34.217 - 0.010 = 34.207 \text{ tpy}$$

### **NSPS**

Because 100 psig fuel gas, which is made up of process gases, is burned at S-913, the owner/operator is subject to NSPS Subpart J. The owner/operator meets the requirements in 60.104(a)(1) since the hydrogen sulfide in the fuel gas is monitored. Total sulfur is also monitored in the 100 psig fuel gas system.

### **PSD and NESHAPS**

PSD and NESHAPS do not apply.

### **PERMIT CONDITIONS**

Application #13047 (November, 2005): Installation of low NOx burners, change fuel gas supply from 40 psig to 100 psig fuel gas.

**S-913 No. 2 Feed Prep Heater (F13), 59 MMBtu/hr fired on Refinery Fuel Gas and Natural Gas**

#### Fugitive Components

1) Not more than 30 days after the start-up of the S-913 low NOx burners on 100 psig fuel gas, the owner/operator shall provide the District’s Engineering Division with a final count of fugitive components installed. The owner/operator has been permitted for an increase in the following fugitive components:

4 valves in gas service  
1 PRV in gas service  
8 connectors/flanges

(basis: cumulative increase, offsets)

2) If there is an increase in the total fugitive component emissions, the plant's cumulative emissions for the project shall be adjusted to reflect the difference between emissions based on predicted versus actual component counts. The owner/operator shall provide to the District all additional required offsets at an offset ratio of 1.15:1 no later than 14 days after submittal of the final POC fugitive count. If the actual component count is less than the predicted, the total will be adjusted accordingly and all emission offsets applied by the owner/operator in excess of the actual total fugitive emissions will be credited back to the owner/operator.

(basis: offsets)

3) The owner/operator shall install valves, in light hydrocarbon service, that are of District approved BACT compliant technology (bellows valves, diaphragm valves, live loaded valves, or the equivalent) such that fugitive organic emissions shall not exceed 100 ppm.

(basis: BACT, Regulation 8-18, offsets)

4) The owner/operator shall install flanges and connectors, in light hydrocarbon service, that are of District approved BACT compliant technology (graphitic gaskets or the equivalent) such that fugitive organic emissions shall not exceed 100 ppm.

(basis: BACT, Regulation 8-18, offsets)

5) The owner/operator shall ensure that each pressure relief valve installed in hydrocarbon service is vented back to the process, the fuel gas recovery system, a furnace, or a flare with a capture and destruction efficiency of at least 98% by weight.

(basis: BACT, Regulation 8-28, offsets)

6) In accordance with the provisions of Regulation 8-18, the owner/operator shall integrate all new fugitive equipment in organic service installed into the facility fugitive equipment monitoring and repair program.

(basis: BACT, Regulation 8-18, offsets)

7) Once each day, while 100 pound fuel gas is fired at S-913, except for 36 calendar days per rolling consecutive 12-month period, and except for each calendar day when no fuel is fired at S-913, and except for each calendar day that natural gas is fired exclusively at S-913, the owner/operator shall sample the fuel gas to be fired at S-913 directly upstream of the burner fuel gas feed line to S-913. The owner/operator shall ensure that the sample is subjected to laboratory analysis to determine the total sulfur content of the sample in ppmvd units. The owner/operator shall ensure that the laboratory analysis method employed is a method that is approved by the District.

(basis: cumulative increase, offsets, Regulation 2-1-403)

8) Each calendar day, the owner/operator shall maintain records, in a District approved log, for

- a) Each fuel fired at S-913
- b) Each calendar day that no fuel is fired at S-913
- c) Not more than 14 days after the date that a sample of fuel gas is taken pursuant to part 1 of these conditions, the results of each analysis disclosing the total sulfur content of the Fuel Gas sample, in units of ppmvd, along with the date the sample was taken, the District approved laboratory method used, and the laboratory completing the sample analysis.
- d) The annual average of the daily fuel gas sample total sulfur analysis results.

All records shall be retained for a period of at least five years from the date of entry. This log shall be kept on site and made available to District staff upon request.

(basis: cumulative increase, offsets, recordkeeping, Regulation 2-1-403)



Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

9) Within 30 days of startup of S-913, the owner/operator shall perform source tests to establish the NOx box for the heater (permit condition 18372). All source testing shall be done in accordance with the District's Manual of Procedures. The facility shall receive approval from the District's Source Test Manager for installation of test ports and source testing procedures. The results shall be delivered to the District no later than 45 days from the date of the source test.

(basis: Regulation 9-10-301, Regulation 9-10-502)

10) In order to generate Interchangeable Emission Reduction Credits (IERC's) at S-913, the owner/operator shall:

- a) Use an emission factor of 0.033 lb/MMBtu for S-913 in the calculation of the refinery-wide emission rate from units affected by Regulation 9-10-301
- b) Generate IERC's based on the difference between NOx emissions of 0.033 lb/MMBTU and the actual emission factor obtained by source tests from generation of the NOx box (expected to be 0.024 lb/MMBtu by the owner/operator)
- c) Keep records of the firing rate and oxygen content of S-913 to ensure operation within the established NOx box.

(basis: Regulation 9-10-301, Regulation 9-10-502, Regulation 2-9)

#### **RECOMMENDATION**

Issue an Authority to Construct to Tesoro Refining and Marketing Company for modification of the following source:

**S-913 No. 2 Feed Prep Heater (F13), 59 MMBtu/hr fired on Refinery Fuel Gas and Natural Gas;**  
*modification to add low NOx burners: Callidus Technologies Inc. LE-CSG Low NOx burners or the equivalent*

#### **EXEMPTIONS**

none

By: \_\_\_\_\_

Pamela J. Leong  
Air Quality Engineer II  
November 8, 2005

**ENGINEERING EVALUATION**  
Tesoro Refining and Marketing Company  
PLANT NO. 14628  
APPLICATION NO. 13076

**BACKGROUND**

The Tesoro Refining and Marketing Company (Tesoro) is applying for an Authority to Construct to modify the following equipment:

**S-904 No. 6 Boiler, 775 MMBtu/hr: *installation of 12 natural gas pilots with a combined maximum firing rate of 54 MMBtu/hr;***

***MAXIMUM firing rate of burners and pilots limited to 775 MMBtu/hr***

Tesoro plans to install natural gas pilots at S-904 Boiler. Tesoro will replace the existing “fire eyes” that detect the presence of a flame at the burners. The fire eyes only detect whether a flame is present. If a flame at one of the current burners is out, a torch is inserted into a port in the boiler to reignite the burner. The new natural gas pilots will have a continuous feed or flow of natural gas to prevent the flame from extinguishing, or if it does go out, it can be quickly reignited.

Each pilot will have a maximum firing rate of 4.5 MMBtu/hr. There will be twelve new pilots with a combined maximum firing rate of 54 MMBtu/hr. As per Tesoro’s Engineering group, the normal firing rate for the pilots will be approximately 27 MMBtu/hr.

S-904 is currently permitted to burn natural gas, refinery fuel gas, and coker flue gas in emergencies, when S-903 CO Boiler has a failure. The natural gas that will feed the new pilots will be counted as part of the total amount of gas when calculating the firing rate of the boiler. The maximum firing rate of the boiler is 775 MMBtu/hr and will remain conditionally permitted not to exceed 775 MMBtu/hr. The natural gas lines (proposed for the pilots and existing to the boiler) have dedicated fuel flow meters. The refinery fuel gas flow meter measures both the refinery fuel gas and natural gas from the existing line. See attached diagram in Appendix A. The majority of the time, the existing natural gas line is not utilized since Tesoro prefers to use refinery fuel gas instead of incurring costs for natural gas. S-904 only burns coker flue gas in emergencies when the S-903 CO Boiler is down. When burning coker fuel gas, S-904 is subject to permit condition 18372, part 26. The coker fuel gas line does not have a fuel meter.

Condition 18372, part 26:

The No. 6 Boiler (S904) serves as the emergency backup to No. 5 Boiler (S903). During this unusual mode of operation, the No. 6 Boiler is subject to the limits specified in Regulation 9-10-304 for CO Boilers and is considered “out of service” since it acting as the No. 5 Boiler. The historic average, described in Regulation 9-10-301.2 for No. 6 Boiler, will be used for compliance with the 0.033 lb/MMBTU refinery-wide average standard while No. 6 Boiler is operated in CO Boiler mode. (basis: cumulative increase)

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

Tesoro is currently permitted not to exceed a firing rate of 775 MMBtu/hr. With the addition of the new pilots, Tesoro will continue to be conditionally permitted not to exceed a firing rate of 775 MMBtu/hr from the new natural gas for the pilots, the existing natural gas supply, and the refinery fuel gas. A new natural gas supply line to the new pilots will also be built. Fugitive emissions from the valves and connectors are primarily methane from natural gas. Methane is not an organic compound as per Regulation 2-1-207 nor is it on the District list of regulated non-precursor organic compounds in Regulation 2-1-207. As a result of this project, emissions will not change.

## EMISSIONS SUMMARY

### **Annual Emissions:**

As described above, there will be no increase in emissions.

### ***Plant Cumulative Increase:***

There will be no increase in emissions and the cumulative increase for this application is ZERO for all pollutants.

### **Toxic Risk Screening:**

Toxic emissions will not increase as a result of this application. Therefore, a risk screening analysis is not required.

## STATEMENT OF COMPLIANCE

The owner/operator of S-904 No. 6 Boiler with new natural gas pilots shall comply with Reg. 6 (Particulate Matter and Visible Emissions Standards) and Reg. 9-1-301 (Inorganic Gaseous Pollutants: Sulfur Dioxide for Limitations on Ground Level Concentrations). The owner/operator is expected to comply with Regulation 6 since the unit is fueled with natural gas or refinery fuel gas. Thus for any period aggregating more than three minutes in any hour, there should be no visible emission as dark or darker than No. 1 on the Ringlemann Chart (Regulation 6-301) and no visible emission to exceed 20% opacity (Regulation 6-302). The owner/operator is subject to Regulation 9 Rule 10: Nitrogen Oxides and Carbon Monoxide from Boilers, Steam Generators, and Process Heaters in Petroleum Refineries. The owner/operator is subject to the facility wide emission limit for NO<sub>x</sub> of 0.033 lb NO<sub>x</sub> per million Btu of heat input based on an operating-day average as per Regulation 9-10-301. The owner/operator is also subject to the emission limit for CO of 400 ppmvd at 3% O<sub>2</sub> based on an operating-day average as per Regulation 9-10-305. The owner/operator is subject to the record keeping requirements of Regulation 9-10-504 and the reporting requirements of Regulation 9-10-505.

### Fugitive Emissions

Tesoro is subject to Regulation 8 Rule 18: Organic Compounds: Equipment Leaks. Tesoro has indicated in the permit application that all new fugitive components will comply with BACT requirements. BACT requirements are more stringent than Regulation 8 Rule 18 and compliance with Regulation 8 Rule 18 is expected. Tesoro shall also comply with the leak criteria, repair requirements, and monitoring requirements of Regulation 8 Rule 18.

For fugitive organic emissions from process valves, the BACT emission limit is 100 ppm expressed as methane, measured at 1 centimeter or less from the component surface. BACT also requires that the valves be included in a District approved maintenance and quarterly inspection program.

For fugitive organic emissions from connectors and flanges, the BACT emission limit is 100 ppm expressed as methane, measured at 1 centimeter or less from the component surface. BACT also requires that the connectors and flanges be included in a District approved maintenance and quarterly inspection program.

For fugitive organic emissions from pump and compressor seals, the BACT 2 emission limit is 500 ppm expressed as methane measured at 1 centimeter or less from the component surface. The BACT 1 limit is 100 ppm as methane measured at 1 centimeter from the component surface. Because BACT is not triggered by fugitive emissions, the BACT 2 limit of 500 ppm plus inclusion of the components in the maintenance and quarterly inspection program will be considered BACT.

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

The project is considered to be ministerial under the District's CEQA regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emissions factors and therefore is not discretionary as defined by CEQA. (Permit Handbook Chapter 2.4)

The project is over 1000 feet from the nearest school and therefore not subject to the public notification requirements of Reg. 2-1-412.

**Best Available Control Technology:** In accordance with Regulation 2, Rule 2, Section 301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NO<sub>x</sub>, CO, SO<sub>2</sub> or PM<sub>10</sub>. Emissions will not increase as a result of this application.

Tesoro has stated in their application that the new fugitive components will comply with BACT requirements.

**Valves** – The valves will be equipped with graphite packing or District approved equivalent technology. These new components will be included in Tesoro's quarterly inspection and maintenance program in compliance with BAAQMD Regulation 8, Rule 18, with a leak criteria of 100 ppmv expressed as methane measured at 1 centimeter (cm) or less.

**Pump and Compressor Seals** -- The pump and compressor seals will be equipped with double mechanical seals with barrier fluid or District approved equivalent technology. The pumps will be included in Tesoro's quarterly inspection and maintenance program in compliance with BAAQMD Regulation 8, Rule 18, with a leak criteria of 500 ppmv expressed as methane measured at 1 centimeter (cm) or less.

**Flanges/Connectors** -- The flanges/connectors will use graphite or equivalent designed flange gaskets to reduce POC fugitive emissions. These new flanges/connectors will be included in Tesoro's quarterly inspection and maintenance program in compliance with BAAQMD Regulation 8, Rule 18, with a leak criteria of 100 ppmv expressed as methane measured at 1 centimeter (cm) or less.

**Offsets:** There is no emission increase with this application and offsets do not apply.

**PSD, NSPS, and NESHAPS:**

PSD, NSPS, and NESHAPS do not apply.

**PERMIT CONDITIONS**

Application 13076 (October 18, 2005): Addition of natural gas pilots.

**S-904 No. 6 Boiler, 775 MMBtu/hr: *installation of 12 natural gas pilots with a combined maximum firing rate of 54 MMBtu/hr;***

***MAXIMUM firing rate of burners and pilots limited to 775 MMBtu/hr***

1. The owner/operator shall equip the natural gas line to the pilots with a dedicated fuel flow meter. (cumulative increase)
2. The owner/operator shall ensure that S-904 Boiler is not fired above its maximum firing rate of 775 MMBtu/hr (HHV) at any time. The total amount of fuel burned at S-904 at the natural gas pilots and the burners shall not exceed 775 MMBtu/hr. (cumulative increase)

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

3. Hourly records of the type and amount of fuel burned at Boiler S-904 shall be maintained in a District approved log for at least 5 years and made available to District staff upon request. (cumulative increase, recordkeeping)

S-904 is also subject to other conditions that limit the firing rate and require recordkeeping of the type and amount of fuel burned. These conditions are found in Appendix B. None of these conditions require modification as a result of this application.

**RECOMMENDATION**

Issue an Authority to Construct to Tesoro Refining and Marketing Company for modification of the following source:

**S-904 No. 6 Boiler, 775 MMBtu/hr: *installation of 12 natural gas pilots with a combined maximum firing rate of 54 MMBtu/hr;***

***MAXIMUM firing rate of burners and pilots limited to 775 MMBtu/hr***

**EXEMPTIONS**

none

By: \_\_\_\_\_

Pamela J. Leong  
Air Quality Engineer II  
October 18, 2005

Appendix B  
Permit Conditions for S-904

Condition 16685 parts 1 and 2 subject the owner/operator of S-904 to a firing rate limit of 775 MMBtu/hr and to recordkeeping of each fuel fired at the boiler.

**Condition # 16685**

AVON REFINERY

CONDITION ADDED 09/02/99

Condition #1:

Permittee/Owner/Operator shall ensure that each combustion source listed below does not exceed its indicated maximum firing rate (higher heating value), expressed in the units of million BTU per day (MMBTU/day). These firing rates are sustainable maximum firing rates. The sustainable hourly firing rates, used for billing purposes, are established by dividing the maximum daily firing rates by 24 hours.

<b>District Source Number (#)</b>	<b>Firing Rate Used for Fees (MMBTU/hr)</b>	<b>Firing Rate Enforceable Limit (MMBTU/day)</b>	<b>District/ Permittee Source Description</b>
S-903	740	17760	#5 Boilerhouse
S-904	775	20352	#6 Boilerhouse
S-908	220	5280	#8 Furnace NO. 3 Crude
S-909	145	3480	#9 Furnace #1 Feed Prep.
S-912	135	3240	#12 Furnace -#1 Feed Prep. Heater
S-913	59	1416	#13 Furnace -#2 Feed Prep. Heater
S-915	20	480	#15Furnace -Plat former Intermediate Heater
S-916	55	1320	#16 Furnace -#1 HDS Heater
S-917	18	432	#17 Furnace -#1 HDS Prefractionator Reboiler
S-919	65	1560	#19Furnace -#2 HDS Depentanizer Reboiler
S-920	63	1512	#20 Furnace -#2 HDS Charge Heater
S-921	63	1512	#21 Furnace -#2 HDS Charge Heater
S-922	130	3120	#22 Furnace -#5 Gas Debutanizer Reboiler
S-924	16	384	#24 Furnace-Coker Anti-Cooking Steam Superheater
S-926	145	3480	#26 Furnace -#2 Reformer Splitter Reboiler
S-927	280	6720	#27 Furnace -#2 Reformer Heater AND Reheating
S-928	20	480	#28 Furnace -HDN Reactor A Heater
S-929	20	480	#29 Furnace -HDN ReactorB Heater
S-930	20	480	#30 Furnace -HDN Reactor C Heater
S-931	20	480	#31 Furnace -Hydrocracker Reactor 1 Heater
S-932	20	480	#32 Furnace -Hydrocracker Reactor 2 Heater
S-933	20	480	#33 Furnace -Hydrocracker Reactor 3 Heater
S-934	152	3648	#34 Furnace -Hydrocracker Stabilizer Reboiler
S-935	152	3648	#35 Furnace -Hydrocracker Splitter Reboiler
S-937	743	17832	#37 Furnace -Hydrogen Plant
S-950	440	10560	#50 Furnace - Crude Heater @ 50 Unit
S-951	30	720	#51 Furnace-#2 Reformer Auxiliary Reheat
S-971	300	7200	#53 Furnace -#3 Reformer UOP Furnace
S-972	45	1080	#54 Furnace -#3 Reformer Debutanizer Reboiler
S-973	55	1320	#55 Furnace-No 3 HDS Recycle Gas Heater
S-974	110	2640	#56 Furnace-No 3 HDS Fractionator Feed Heater

(basis: cumulative increase, Regulation 2-1-403)

Condition #2:

In a District approved log (or logs), in units of therms or MMBtu, Permittee/Owner/Operator shall record the amount of each fuel fired at each of S-904, S-908, S-909, S-912, S-913, S-915, S-916, S-917, S-919, S-920, S-921, S-922, S-924, S-926, S-927, S-928, S-929, S-930, S-931, S-932, S-933, S-934, S-935, S-937, S-950, S-951, S-971, S-972, S-973, and S-974, based on each fuel's HHV, for each month and each rolling 12 consecutive month period. Permittee/Owner/Operator shall ensure that the log or logs are retained on site for not less than 5 years from date of last entry and that each log is made available to the District staff upon request.

(basis: cumulative increase, Regulation 2-1-403)

Condition 17322 part 1 also has a limit for the maximum firing rate of S-904. Part 3 requires that each fuel line to S-904 be equipped with a dedicated fuel flow meter. Part 7 requires hourly monitoring of the type and amount of fuels burned at S-904. The rest of the conditions require abatement of S-904 with an SCR and associated emissions monitoring as seen below.

**Condition # 17322**

APPLICATION 19418; TOSCO AVON REFINERY; PLANT NO. 13

Conditions for Industrial Boiler S-904 (No. 6 Boiler):

1. Permittee/Owner/Operator shall ensure that Boiler S-904 is not fired above its maximum firing rate of 775 MMBTU/hr (HHV) heat input at any time.  
(basis: cumulative increase, offsets, toxics)
  - 1a. S-904, boiler # 6 shall burn only gaseous fuels. (basis: cumulative increase)
2. Permittee/Owner/Operator shall ensure that Boiler S-904 is retrofitted with and abated by A-904, Selective Catalytic Reduction (SCR) system, for the Refinery to achieve compliance with the facility-wide NO<sub>x</sub> limit of Regulation 9-10-301, 0.033 lb NO<sub>x</sub>/MMBTU, and source specific CO limit of Regulation 9-10-305, 400 ppmvd @ 3% O<sub>2</sub>, in accordance with the District-approved control plan submitted under Regulation 9-10-401.  
(basis: Regulation 9-10-302, Regulation 9-10-305, Regulation 9-10-401)
3. Permittee/Owner/Operator shall ensure that Boiler S-904 is equipped with a dedicated District approved fuel flow meter in each fuel line in accordance with Regulation 9-10-502.2. Permittee/Owner/Operator shall ensure that each flow meter is in operation prior to the performance of the initial source test described in Condition No. 6, and that each flow meter is maintained in good working order.  
(basis: Regulation 9-10.502.2)
4. Permittee/Owner/Operator shall ensure that Boiler S-904 is equipped with District-approved, in-stack continuous emission monitoring systems (CEMS) for nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), and oxygen (O<sub>2</sub>) prior to July 1, 2000. The CEMS shall be maintained in good working order in accordance with the District Manual of Procedures, Volume V.  
(basis: Regulation 9-10-302, Regulation 9-10-305)
  - 4a. Effective June 1, 2004, Permittee/Owner/Operator shall install a continuous opacity monitor to ensure that the emission is not greater than 20% opacity for a period or periods aggregating more than three minutes in any hour when the boiler is burning coker flue gas. (basis: Regulation 6-302)
5. Permittee/Owner/Operator shall ensure that ammonia stack emissions from Boiler S-904 resulting from the operation of A-904 SCR system shall not exceed 20 ppmv, dry @ 3% O<sub>2</sub>. (basis: toxics)
6. Permittee/Owner/Operator shall ensure that after modification of S-904, an initial source test for NO<sub>x</sub> and CO shall be performed in accordance with Regulation 9-10-501, for ammonia, in accordance with the District Manual of Procedures. In addition to the requirements in this

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

- regulation, Permittee/Owner/Operator shall ensure that the following procedures are followed:
- A. Permittee/Owner/Operator shall submit a source test protocol to the Manager of the District's Source Test Section at least seven (7) days prior to the test, for District approval and to provide District staff the option of observing the testing.
  - B. Permittee/Owner/Operator shall ensure that source test conditions are representative of the normal operating ranges and conditions of the boiler.
  - C. Permittee/Owner/Operator shall ensure that within 45 days of test completion, a comprehensive report of the test results shall be submitted to the District's Director of Enforcement.
  - D. Permittee/Owner/Operator shall ensure that the ammonia source test shall be repeated on a semi-annual basis. (basis: Regulation 9-10-501, toxics)
7. Hourly records of the type and amount of fuel burned at Boiler S-904, the continuous emission monitoring (CEMS) measurements for NO<sub>x</sub>, CO, and O<sub>2</sub>, and source test data for NO<sub>x</sub>, CO, O<sub>2</sub>, and ammonia shall be maintained in a District-approved log for at least 5 years and made available to District staff upon request. (basis: toxics, offsets, cumulative increase)
8. Boiler S-904 shall continue to be subject to the Refinery Cap Permit No. 27769, Condition ID No. 4357. (basis: offsets, bubble)

Condition 18326 part 26 specifies how S-904 is to be treated when used as the emergency backup boiler for S-903 CO Boiler.

**Condition # 18372**

- 26.) The No. 6 Boiler (S904) serves as the emergency backup to No. 5 Boiler (S903). During this unusual mode of operation, the No. 6 Boiler is subject to the limits specified in Regulation 9-10-304 for CO Boilers and is considered "out of service" since it acting as the No. 5 Boiler. The historic average, described in Regulation 9-10-301.2 for No. 6 Boiler, will be used for compliance with the 0.033 lb/MMBTU refinery-wide average standard while No. 6 Boiler is operated in CO Boiler mode. (basis: cumulative increase)

Condition 19528 part 1 is a Title V condition.

**Condition # 19528**

- 1) Permittee/Owner/Operator shall ensure that the none of the firm limits in Table II-A or Table II-C is exceeded. Firm limits and grandfathered limits are the two kinds of limits possible in Table II-A and Table II-C. Each exceedance of a firm limit set forth in Table II A or Table II C is a violation of condition #19528, part 1. The throughput limits in Table II-A and Table II-C that are identified as grandfathered limits are based upon District records at the time of the MFR permit issuance. Permittee/Owner/Operator shall report each exceedance of each, any, and all the limits in Table II-A and Table II-C following the procedures in Section I.F of the facilities' Title V permit. For grandfathered limits, this reporting requirement is intended to facilitate a determination of whether a modification has occurred as defined in Regulation 2-1-234.3. The throughput limits for grandfathered sources are for reporting purposes only. Exceedance of a grandfathered limit does not establish a presumption that a modification has occurred, nor does compliance with the limit establish a presumption that a modification has not occurred. (basis: Regulation 2-1-234.3, Regulation 2-1-403, Regulation 2-6-503)

Condition 22150 requires monitoring for particulates from S-904.

Condition #22150

1. The owner/operator of A-8 Coker CO Boiler Precipitator, A-11 No. 6 Boiler Plant Precipitator, and A-30 FCCU Electrostatic Precipitator shall conduct continuous monitoring of ESP operating parameters for reasonable assurance of compliance with Regulations 6-310 and 6-311. The owner/operator shall commence continuous monitoring and recording of the operating parameters no later than the ESP



- monitoring commencement date required under 40 CFR Part 63, subpart UUU. (Basis: Regulation 2-6-503)
2. The owner/operator shall conduct an initial compliance demonstration to establish a correlation between selected parameters and particulate mass emission by the deadline set forth in 40 CFR Part 63, subpart UUU. The owner/operator shall submit the results to the District for its approval. (Basis: Regulation 2-6-503)
  3. The owner/operator shall establish a range of compliance of the parametric value based on the results of an initial compliance demonstration. (Basis: Regulation 2-6-503)
  4. Each time the measured parametric value exceeds the established range of compliance (pursuant to the initial compliance demonstration), the owner/operator shall conduct a source test to determine compliance with Regulations 6-310 and 6-311. The owner/operator shall conduct the source test within 45 days of detection of the exceedence. (Basis: Regulation 2-6-503)
  5. Exceedences of parametric compliance range are deviations and shall be reported as deviations in all Title V reports. (Basis: Regulation 2-6-503)

**ENGINEERING EVALUATION**  
 Tesoro Refining and Marketing Company  
PLANT NO. 14628  
 APPLICATION NO. 13228

**BACKGROUND**

The Tesoro Refining and Marketing Company (Tesoro) is applying for an Authority to Construct and/or Permit to Operate the following equipment:

**S-1506 External Floating Roof Tank; Tank A-893, Capacity: 132,000 BBL, Storing: Gasoline and Gasoline Blending Stock**

**S-1507 External Floating Roof Tank; Tank A-894, Capacity: 132,000 BBL, Storing: Gasoline and Gasoline Blending Stock**

S-1506 and S-1507 will replace the following tanks, which will be demolished.

S-280 Internal Floating Roof Tank; Tank A-280, Capacity: 3,360K gallons, Storing: Gasoline

S-311 Internal Floating Roof Tank; Tank A-311, Capacity: 3,318K gallons, Storing: Gasoline, Naphtha

S-1506 and S-1507 will be built in approximately the same locations as S-280 and S-311 (offset by fifteen feet). S-280 and S-311 are grandfathered sources and do not have permitted throughput limits nor true vapor pressure (or RVP) limits for materials stored. Emission reduction credits resulting from the shutdown of S-280 and S-311 will be used to partially offset emission increases associated with permitting S-1506 and S-1507. Tesoro completed this application on October 12, 2005. The calculation of emission reduction credits for the shutdown of S-280 and S-311 will be based on the 36 consecutive month period ending on September 30, 2005.

The new tanks, S-1506 and S-1507, will store gasoline and gasoline blending stock. The tanks will be equipped with mechanical shoe primary seals, “zero-gap” secondary seals, and controlled fittings.

**EMISSIONS SUMMARY**

**Annual Emissions:**

Emissions from New Tanks, S-1506 and S-1507:

Emissions were calculated by Tesoro using the EPA AP-42 Tanks 4.0 computer program. Tesoro specified Martinez, California for the meteorological data. To verify the results supplied by Tesoro, Tanks 4.0 was used with meteorological data for Stockton, California. The Tanks 4.0 program used by the District does not have Martinez, California, but Stockton’s meteorological data that is similar to that of Martinez, California. The tank specifications, throughput limits, and POC emissions are tabulated below. The Tanks 4.0 results are attached to the engineering evaluation report. For the most conservative emissions estimate, assume the tanks contain 100% gasoline.

Source Number	Capacity (Gallons)	Throughput (Gallons)	Diameter (feet)	Total POC Emissions
S-1506 Tank A-893	5,544,000	462,000,000	140 ft	8,384.42 lb/yr = 4.192 tpy
S-1507 Tank A-843	5,544,000	462,000,000	140 ft	8,384.42 lb/yr = 4.192 tpy
<b>TOTAL</b>				<b>16,768.84 lb/yr = 8.384 tpy</b>

Emissions from Tanks to be Demolished, S-280 and S-311:

Emissions were calculated using EPA Tanks 4.0 computer program. Tesoro has disclosed the material and monthly throughput of each S-280 and S-311 for the 36 consecutive month period ending on September 30, 2005. This data was entered along with the tank characteristics to obtain the monthly emissions from S-280 and S-311. The Tanks 4.0 results are attached to the engineering evaluation report. The emissions data and throughput data are shown in the tables in Appendix A. The annual average throughput and emissions are summarized below.

S-280 Tank A-280:

Baseline Period	Throughput (gallons)	POC emissions (lb/yr)
10/1/02 to 9/30/03	56,337,666	11,214.51
10/1/03 to 9/30/04	61,325,964	4,192.2
10/1/04 to 9/30/05	2,023,980	890.01
AVERAGE	39,895,870	5,432.25

S-311 Tank A-311:

Baseline Period	Throughput (gallons)	POC emissions (lb/yr)
10/1/02 to 9/30/03	151,657,464	9,292.44
10/1/03 to 9/30/04	98,701,554	4200.58
10/1/04 to 9/30/05	13,868,946	1293.50
AVERAGE	88,075,988	4,928.84

Contemporaneous emission reductions from S-280 and S-311 = Total average emissions from S-280 and S-311 during the baseline period = 5,432.25 lb/yr + 4,928.84 lb/yr = 10,361.09 lb/yr = 5.1805 tpy

The contemporaneous emission reductions from the demolition of S-280 and S-311 do not need to be adjusted for District rules and regulations, RACT, or permit conditions,

Total POC Emission increase from S-1506 and S-1507 = (POC emissions from S-1506 and S-1507) – contemporaneous emission reductions from the shutdown of S-280 and S-311 = 16,768.84 lb/yr – 10,361.09 lb/yr = 6,407.75 lb/yr = 3.204 tpy

**Maximum Daily Emissions:**

Daily Maximum POC Emissions from S-1506 = (8,384.42 lb/yr)(yr/365 days) = 22.97 lb/day  
 Daily Maximum POC Emissions from S-1507 = (8,384.42 lb/yr)(yr/365 days) = 22.97 lb/day

**Toxic Risk Screening:**

For a conservative estimate of toxic air contaminants, the tank contents of S-1506 and S-1507 are assumed to be 100% gasoline. Annual emissions of benzene of 270 lb/yr (136 lb/yr per tank) exceed the District trigger level of 6.4 lb/yr and a risk screening is required.

Toxic Emissions per Tank:

	<u>Emission (lb/hr)</u>	<u>Emission (lb/yr)</u>	<u>Trigger level (lb/hr)</u>	<u>Trigger level (lb/yr)</u>
Benzene	0.0059	135	2.9	6.4
Toluene	0.0167	380	82.0	12000
Xylenes	0.0019	43	49.0	27000
Ethylbenzene	n/a	10	n/a	77000
n-Hexane	n/a	247	n/a	270000
Naphthalene	n/a	neglig.	n/a	5.3

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

In the past two years, Tesoro has also applied for permits for the following organic storage tanks:

1) S-871 Tank A-871 (AN 9129, 4/04):	9.7 lb/yr benzene
2) S-1489, S-1490, S-1491 (AN 9259 and 9260, 3/04)	53.37 lb/yr benzene
3) S-1496 Tank A-876 (AN 9728, 5/04)	88.6 lb/yr benzene
4) S-1506 Tank A-893 (current application)	135 lb/yr benzene
<u>S-1507 Tank A-894 (current application)</u>	<u>135 lb/yr benzene</u>
TOTAL BENZENE EMISSIONS	421.67 lb/yr

As per the District's Risk Management Policy, a risk screening analysis has been completed for the cumulative impacts from all related projects.

The cancer risk from S-1506 is 0.07 chances in a million for the closest nearby resident and 0.2 chances in a million for an off-site worker. The cancer risk from S-1507 is 0.07 in a million for the closest nearby resident and 1.0 in a million for an off-site worker. The chronic hazard from each S-1506 and S-1507 for both the nearest resident and off-site worker are well below 1.0. The cumulative impacts from the installation of S-1506 and S-1507 and all related projects results in a maximum increased cancer risk of 0.2 in a million for the nearest resident and 1.2 in a million for the nearest off-site worker. The cumulative chronic hazard from S-1506, S-1507, and all related projects is well below 1.0 for the nearest resident and off-site worker. In accordance with the District's Regulation 2-5, these risk levels are considered acceptable. (In the application folders, see memo from Toxics Group, October 25, 2005.)

## STATEMENT OF COMPLIANCE

The owner/operator of S-1506 Tank A-893 and S-1507 Tank A-894 External Floating Roof Tanks is subject to Regulation 8-5-301 Storage Tank Control Requirements. For tanks greater than 150 m<sup>3</sup> (39,626 gallons) with organic contents with a true vapor pressure between 1.5 to 11 psia, an "internal floating roof, external floating roof, or approved emission control system" is required. The owner/operator of S-1506 and S-1507 is subject to Regulation 8-5-304 Requirements for External Floating Roofs, Regulation 8-5-320 Tank Fitting Requirements, and Regulations 8-5-321 and 8-5-322 Primary and Secondary Seal Requirements, respectively. Tesoro complies with Regulations 8-5-321 and 8-5-322 through the use of a mechanical shoe primary seal and a "zero-gap" secondary seal. The owner/operator is also subject to inspection (Regulation 8-5-401, 402, and 404) and recordkeeping (Regulation 8-5-501).

The project is considered to be ministerial under the District's CEQA regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emissions factors and therefore is not discretionary as defined by CEQA. (Permit Handbook Chapter 4.1)

The project is over 1000 feet from the nearest school and therefore not subject to the public notification requirements of Reg. 2-1-412.

**Best Available Control Technology:** In accordance with Regulation 2, Rule 2, Section 301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NO<sub>x</sub>, CO, SO<sub>2</sub> or PM<sub>10</sub>. Based on the emission calculations above, the owner/operator is subject to BACT for emissions of POC. Tesoro meets the BACT 2 requirements of an approved roof with liquid mounted primary seal and zero gap secondary seal and gasketed fittings that meet the design criteria of Regulation 8-5. BACT 1 requires vapor recovery with an overall efficiency of 98%.

The BACT 1 determination envisions the use of a vapor collection system and abatement device on an external floating roof tank. This arrangement is never used in practice because rim seal losses occur over the entire circumference of the roof and roof-fitting losses occur over the area of the roof. Collection and abatement over the entire tank with a diameter of 140 feet is not practical. A vapor collection system is compatible only with a vapor-tight fixed roof tank. BACT 1 should require the use of a fixed roof tank vented to an abatement device or a gas

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

collection system. This arrangement is currently required by Regulation 8-5 for high vapor pressure materials (greater than 11 psia) and is used for highly odorous materials.

To determine the emissions of a fixed roof tank with 98% abatement, Tanks 4.0 was run for a tank with the same external dimensions, contents, and throughput as proposed for each S-1506 and S-1507. The results are attached to the evaluation. Total unabated emissions are 2,892,296.22 lb/yr of POC per tank. Even with an abatement efficiency of 98%, the abated emissions of 57,845.92 lb/yr (28.923 tpy) of POC per tank would be higher than the emissions of 8,384.42 lb/yr (4.192 tpy) of POC from the proposed external floating roof tank. For S-1506 and S-1507, the BACT 2 design proposed by Tesoro results in lower emissions than the BACT 1 design and will satisfy BACT requirements.

A BACT 1 Cost Effectiveness Calculation was conducted (see Appendix B) to install a vapor recovery system with an overall POC abatement efficiency of 98%. The cost of abatement was determined to be \$143,400 per ton of POC, which is higher than the threshold of \$17,500 per ton of POC.

**Offsets:** Offsets are required for POC because Tesoro emits more than 35 tpy of POC emissions (Regulation 2-2-203). Contemporaneous emission reductions from the shutdown and demolition of S-280 and S-311 Internal Floating Roof Tanks will be used to partially offset the emission increases from the installation of S-1506 and S-1507. The contemporaneous emission reductions are calculated in the "Emissions Summary" above.

Contemporaneous emission reductions from S-280 and S-311 = 10,361.09 lb/yr = 5.1805 tpy

Emissions from installation of S-1506 and S-1507 = 16,768.84 lb/yr = 8.384 tpy

Total POC Emission increase from S-1506 and S-1507 = (POC emissions from S-1506 and S-1507) – contemporaneous emission reductions from the shutdown of S-280 and S-311  
= 16,768.84 lb/yr – 10,361.09 lb/yr = 6,407.75 lb/yr = 3.204 tpy

Regulation 2-2-302 requires that offsets be provided for the 3.204 tpy of POC emissions at a ratio of 1.15 to 1.0. The required offsets are:

$$\text{POC offsets} = 3.204 \text{ tpy} \times 1.15 = 3.685 \text{ tpy}$$

Tesoro has supplied the following Banking Certificate 940 to provide the required offsets.

Banking Certificate #	POC Banking Credits
940	34.217 tpy

Balance of Banking Certificate #940 = 34.217 – 0.010 (Application 13047) – 3.685 (Application 13228, current) = 30.522 tpy

### **Federal NESHAPS**

The owner/operator of S-1506 and S-1507 is subject to the requirements of the refinery MACT (40 CFR 63, Subpart CC). Section 63.640 (n) (1) of the MACT specifies that new tanks are subject only to the requirements of the NSPS for tanks.

### **Federal NSPS**

The owner/operator is subject to the requirements of NSPS Subpart Kb and the administrative requirements of Subpart A. A summary of the requirements may be found in Appendix C of this engineering evaluation.

PSD does not apply.

### **PERMIT CONDITIONS**

Application #13228 (November 2005)

**S-1506 External Floating Roof Tank; Tank A-893, Capacity: 132,000 BBL, Storing: Gasoline and Gasoline Blending Stock**

**S-1507 External Floating Roof Tank; Tank A-894, Capacity: 132,000 BBL, Storing: Gasoline and Gasoline Blending Stock**

- 1) The owner/operator shall not exceed a net throughput at each of tanks S-1506 and S-1507 of 11,000,000 barrels in any consecutive 12-month period.  
(basis: Cumulative Increase, Toxic Risk Screen, BACT)
- 2) Materials stored in S-1506 and S-1507 shall be limited to the following:
  - a. Gasoline or gasoline blending stock with a true vapor pressure less than 11 psia
  - b. A liquid other than those specified above may be stored in S-1506 and/or S-1507, provided that both of the following criteria are met:
    1. true vapor pressure must be less than 11 psia
    2. POC emissions, based on the maximum throughput in part 1, do not exceed 8,384.42 pounds per year per tank; and
    3. toxic emissions in lbs/year, based on the maximum throughput in part 1, do not exceed any risk screening trigger level in Regulation 2-5.  
(basis: Cumulative Increase, Toxic Risk Screen)

- 3) The owner/operator disclosed to the District that S-1506 and S1507 would each be equipped with the following fittings:

Access Hatch (1)  
Vacuum Breaker (2-10")  
Slotted Guide Pole/Sample Well (1 – for radar level apparatus)  
Roof Leg, Pontoon Area (21)  
Roof Leg, Center Area (33)  
Roof Drain, 90% closed (2)  
Slotted Guide Pole/Sample Well (1)

Within 30 days of loading any petroleum material into S-1506 and S-1507, the owner/operator shall notify the District's Permit Evaluation Section in writing of the type and quantity of all fittings. If the District determines that the fittings at S-1506 and S-1507 result in a POC emission rate in excess of the amount of POC emissions offset, then the owner/operator shall surrender District-approved emission reduction credits of the type and amount specified by the District. The emission reduction credits must be received by the District within 30 days after receipt of the District's written request for offsets. If the District's calculations of permitted emissions from S-1506 and S-1507 are less than the emissions offset by the owner/operator, then the District shall refund the amount of credits that are in excess of emissions.

(basis: Cumulative Increase, Toxic Risk Screen, Offsets)

- 4) To determine compliance with the above conditions, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions, including, but not necessarily limited to, the following information:
  - a. On a monthly basis, type and amount of liquids stored and true vapor pressure ranges of such liquids. These records shall be kept for at least 5 years.
  - b. For external floating roof tanks, the owner/operator who replaces all or part of a primary or secondary seal shall keep an accurate record of the length of seal replaced and the date(s) on which replacement occurred. These maintenance records shall be kept for at least 10 years.All records shall be recorded in a District-approved log and made available for inspection by District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable District Regulations.

(basis: Cumulative Increase, Regulation 1-441, Regulation 8-5-501)

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

S-280 and S-311 will be eliminated from permit condition 11896. The condition will also be updated to reflect that S-312 Tank A-312 was demolished in April 2003. Changes are in strikeout/underline format.

**Condition # 11896**

Application 13228 (November 2005): Demolition of Tanks S-280 and S-311. S-312 was demolished in April 2003.

- S280 Tank A-280
- S311 Tank A-311
- S312 Tank A-312
- S314 Tank A-314

PERMIT CONDITIONS FOR S-280, S-311, S-312, AND S-314,  
INTERNAL FLOATING ROOF STORAGE TANKS:

1. The owner/operator shall ensure that the floating roofs and primary and secondary seals installed on storage tanks S-280, S-311, S-312, and S-314, must meet the design specifications and seal gap requirements of District Regulation 8, Rule 5 for an internal floating roof tank with riveted shell and metallic shoe primary seal and secondary wiper seal. (basis: cumulative increase, Regulation 8-5)
  
2. To verify compliance with Condition Part #1 above, the owner/operator of S-280, S-311, S-312, and S-314 shall submit to the District within 30 days of installation or replacement of any primary or secondary seals, a written report of the seal condition including certification of actual gap measurements between the tank shell and seal surface. For each seal, the time interval between such certifications shall not exceed 10 years. (basis: cumulative increase, Regulation 8-5)

**RECOMMENDATION**

Issue an Authority to Construct to Tesoro Refining and Marketing Company for the following source:

- S-1506 *External Floating Roof Tank; Tank A-893, Capacity: 132,000 BBL, Storing: Gasoline and Gasoline Blending Stock*
  
- S-1507 *External Floating Roof Tank; Tank A-894, Capacity: 132,000 BBL, Storing: Gasoline and Gasoline Blending Stock*

**EXEMPTIONS**

None

By: \_\_\_\_\_  
Pamela J. Leong  
Air Quality Engineer II  
November 16, 2005

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

Appendix A  
Baseline Throughput and Emission Calculations  
for  
S-280 Tank A-280 and S-311 Tank A-311

See Application Folder for AN13228



Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

Appendix B  
BACT 1 Cost Effective Calculations

See Application Folder for AN13228

Appendix C  
Federal NSPS Subpart Kb and Subpart A

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
<b>NSPS Subpart Kb</b>	<b>Volatile Organic Liquid Storage Vessels REQUIREMENTS FOR EXTERNAL FLOATING ROOF TANKS</b>		
<b>40 CFR 60.112b(a)</b>	<b>EFR Rim Seals:</b> vapor-mounted primary seal: liquid-mounted primary seal: mechanical-shoe primary seal:	<b>40 CFR 60.112b(a)(2)(i)</b> <b>Not Allowed</b> <b>OK with rim-mounted secondary</b> <b>OK with rim-mounted secondary</b>	Y
	Must vapor-mounted rim seals be continuous on EFRs?	40 CFR 60.112b(a)(2)(i)(B) <b>YES</b>	Y
	Deck openings (wells) other than for vents, drains, or legs to have covers that are kept closed except for access?	40 CFR 60.112b(a)(2)(ii) <b>REQUIRED *</b>	Y
	EFR well covers to be gasketed?	40 CFR 60.112b(a)(2)(ii) <b>REQUIRED</b>	Y
	EFR vents to be gasketed?	40 CFR 60.112b(a)(2)(ii) <b>REQUIRED</b>	Y
	EFR deck openings other than for vents to project into liquid?	40 CFR 60.112b(a)(2)(ii) <b>REQUIRED</b>	Y
	EFR rim space vents to remain closed except when the pressure setting is exceeded?	40 CFR 60.112b(a)(2)(ii) <b>REQUIRED</b>	Y
	EFR auto. bleeder vent (vacuum breaker) to be closed except when the deck is landed?	40 CFR 60.112b(a)(2)(ii) <b>REQUIRED</b>	Y
	EFR emergency roof drains to have seals covering at least 90% of the opening?	40 CFR 60.112b(a)(2)(ii) <b>REQUIRED</b>	Y
	EFR guidepole wells to have a deck cover gasket and a pole wiper?	40 CFR 60.112b(a)(2)(ii) <b>guidepole requirements are specified in FR notices</b> 65 FR 2336 (01/14/00) 65 FR 19891(04/13/00)	Y
	EFRT unslotted guidepoles to have a gasketed cap at the top of the pole?	40 CFR 60.112b(a)(2)(ii) <b>Required per FR notices</b> 65 FR 2336 (01/14/00) 65 FR 19891(04/13/00)	Y
	EFRT slotted guidepoles to have either an internal float or a pole sleeve?	40 CFR 60.112b(a)(2)(ii) <b>Required per FR notices</b> 65 FR 2336 (01/14/00) 65 FR 19891(04/13/00)	Y
	<b>EFRT operating requirements:</b> When landing the floating roof on its support legs, is the tank to be emptied & either refilled or degassed AS SOON AS	40 CFR 60.112b(a)(2)(iii) <b>YES</b>	Y

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
	POSSIBLE?		
	Temporary exemption from operating requirements while the external floating roof is landed on its support legs? *	40 CFR 60.112b(a)(2)(iii) <b>EXEMPT</b>	Y
<b>40 CFR 60.113b(b)</b>	UNSAFE CONDITIONS: Delay of EFR seal gap measurements allowed for unsafe conditions?  If unable to make safe to measure, must the EFRT be emptied?	<b>40 CFR 60.113b(b)(1) not addressed *</b>  40 CFR 60.113b(b)(1) <b>not addressed *</b>	Y
	EXTENSIONS OF TIME: If EFRT is unsafe to inspect & cannot be emptied within 45 d?	40 CFR 60.113b(b)(1) <b>not addressed *</b>	Y
	<b>Notification of Inspections:</b> Are notifications of inspections to demonstrate initial compliance required, For EFR seal gap measurements:	40 CFR 60.113b(b)(1) & (5) <b>Required-Notifications &amp; reports per Ongoing Reports</b>	Y
	<b>Seal Gap Measurements:</b> FREQUENCY AFTER INITIAL COMPLIANCE, For the EFR Primary Seal:	40 CFR 60.113b(b)(1)(i) <b>every 5 years</b>	Y
	<b>Seal Gap Measurements:</b> For new EFRTs:	40 CFR 60.113b(b)(1)(i) & (ii) <b>measure gaps of both seals within 60 days after initial fill</b>	Y
	<b>Seal Gap Measurements:</b> FREQUENCY AFTER INITIAL COMPLIANCE, For the EFR Secondary Seal:	40 CFR 60.113b(b)(1)(ii) <b>annually</b>	Y
	<b>Seal Gap Measurements:</b> For EFRTs returned to affected service after 1 yr or more of exempt service:	40 CFR 60.113b(b)(1)(iii) <b>measure gaps of both seals within 60 days</b>	Y
	MEASUREMENT COND'S: Are EFR seal gap measurements to be made with the roof floating?	40 CFR 60.113b(b)(2)(i) <b>YES</b>	Y
	DETERMINATION OF EFR RIM-SEAL GAP AREAS: Presence of a gap determined by inserting a 1/8 in. probe?	40 CFR 60.113b(b)(2)(ii) <b>YES</b>	Y
	DETERMINATION OF EFR RIM-SEAL GAP AREAS: Use probes of various widths to determine the gap area?	40 CFR 60.113b(b)(2)(iii) <b>YES</b>	Y
	DETERMINATION OF EFR RIM-SEAL GAP AREAS: Sum the gap areas & divide by the diameter of the tank?	40 CFR 60.113b(b)(3) <b>YES</b>	Y
	EFRT REPAIRS:	40 CFR 60.113b(b)(4)	Y

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

<b>Applicable Requirement</b>	<b>Regulation Title or Description of Requirement</b>	<b>Federally Enforceable (Y/N)</b>	<b>Future Effective Date</b>
	Time allowed for repair of defects found during in-service inspections of EFRs:  If unable to repair, empty the EFRT & remove from service?	<b>Make repairs within 45 days</b>  40 CFR 60.113b(b)(4) <b>YES, within 45 days</b>	
	<b>EFR Primary Seal Gap Inspection Criteria:</b> maximum area:  maximum gap width:	<b>40 CFR 60.113b(b)(4)(i)</b> <b>10 in<sup>2</sup> per foot of vessel diameter</b>  <b>1.5 in.</b>	Y
	Shall there be no holes, tears, or openings in the EFR seals?	40 CFR 60.113b(b)(4)(i) & (ii) <b>YES</b>	Y
	Is the metallic shoe of an EFR mechanical-shoe seal required to have its bottom in the liquid and extend at least 24 in. above the liquid?	40 CFR 60.113b(b)(4)(i)(A) <b>YES</b>	Y
	<b>EFR Secondary Seal Gap Inspection Criteria:</b> maximum area:  maximum gap width:	40 CFR 60.113b(b)(4)(ii)(B) <b>1 in<sup>2</sup> per foot of vessel diameter</b>  <b>0.5 in.</b>	Y
	Are EFR rim seals allowed to be pulled back or temporarily removed during inspection?	40 CFR 60.113b(b)(4)(ii)(B) <b>not addressed *</b>	Y
	EXTENSIONS OF TIME: If EFRT defects cannot be repaired & the tank cannot be emptied within 45 days?	40 CFR 60.113b(b)(4)(iii) <b>1 extension of 30 days, if needed *</b>	Y
	<b>Periodic Reports:</b> EFR report to include a prior request for 30-day extension, w/ documentation of need?	40 CFR 60.113b(b)(4)(iii) <b>Required *</b>	Y
	<b>Periodic Reports:</b> Additional information to be included if an extension is utilized for an EFR:	40 CFR 60.113b(b)(4)(iii) <b>Document the reason for the extension *</b>	Y
	<b>Notification of Inspections:</b> Is 30-day notice required prior to EFR seal gap measurements?	40 CFR 60.113b(b)(5) <b>REQUIRED</b>	Y
	<b>EFR Internal Inspections:</b> up-close visual inspection of the floating roof, seals, & fittings:	40 CFR 60.113b(b)(6) <b>Each time the tank is emptied &amp; degassed</b>	Y
	<b>Notification of Inspections:</b> Are notifications of inspections to demonstrate initial compliance required, For EFR internal inspections:	40 CFR 60.113b(b)(6) <b>Internal inspection not required for initial compliance</b>	Y
	EFRT REPAIRS:	40 CFR 60.113b(b)(6)(i)	Y

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

<b>Applicable Requirement</b>	<b>Regulation Title or Description of Requirement</b>	<b>Federally Enforceable (Y/N)</b>	<b>Future Effective Date</b>
	Repair of defects if the tank is empty? <b>prior to refilling</b>		
	<b>Notification of Inspections:</b> Is 30-day notice required for internal inspections of EFRTs (i.e., prior to filling or refilling); but a 7-day verbal notice acceptable if the event is unplanned?	40 CFR 60.113b(b)(6)(ii) <b>REQUIRED</b> Y	
<b>40 CFR 60.115b</b>	<b>Recordkeeping for inspections:</b> Keep inspection reports as specified.	40 CFR 60.115b <b>Keep for 2 years</b> Y	
<b>40 CFR 60.115b(b)</b>	EFRT report to include:	40 CFR 60.115b(b)(1) <b>description of control equipment</b> Y	
	<b>Periodic Reports:</b> Report EFR seal gap inspections if there was no out-of-compliance?	40 CFR 60.115b(b)(2) <b>Required within 60 days of inspection *</b> Y	
	Records of EFR inspection reports:	40 CFR 60.115b(b)(3) <b>EFR seal gap measurements</b> Y	
	<b>Periodic Reports:</b> Report EFR seal gap inspections when there is out-of-compliance?	40 CFR 60.115b(b)(4) <b>Required within 30 days of inspection *</b> Y	
	<b>Periodic Reports:</b> Report of EFR inspection failures to include:	40 CFR 60.115b(b)(4) <b>date of inspection, identification of tank, description of failure, &amp; date of repair or emptying</b> Y	
<b>40 CFR 60.116b(a)</b>	<b>Applicability records:</b> Time period for keeping records of applicability determination, unless specified otherwise.	40 CFR 60.116b(a) <b>Keep for 2 years</b> Y	
<b>40 CFR 60.116b(b)</b>	<b>Applicability records:</b> Records of dimensions & capacity required for nonexempt tanks?	40 CFR 60.116b(b) <b>Required</b> <b>Keep record readily accessible for the life of the tank</b> Y	
<b>40 CFR 60.116b(c)</b>	<b>Applicability records:</b> Additional recordkeeping requirements for certain tanks.	40 CFR 60.116b(c) <b>identification &amp; TVP of the stored product, if capacity ≥ 20,000 gallons and TVP ≥ 2.2, OR capacity ≥ 40,000 gallons and TVP ≥ 0.51</b> <b>Keep record as long as the tank is in that service</b> Y	
<b>40 CFR 60.116b(e)</b>	<b>True vapor pressure (TVP) determination for applicability:</b>	40 CFR 60.116b(e) <b>Maximum TVP of the stored liquid, based on highest calendar month average storage temperature</b> Y	
<b>NSPS Subpart A</b>	<b>New Source Performance Standards GENERAL PROVISIONS</b>		

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

<b>Applicable Requirement</b>	<b>Regulation Title or Description of Requirement</b>	<b>Federally Enforceable (Y/N)</b>	<b>Future Effective Date</b>
<i>40 CFR 60.7(a)</i>	<b>Initial Notification:</b> Is initial notification of the source's existence required?	40 CFR 60.7(a)(1) <b>Notification within 30 days after begin construction</b>	Y
	Report (document) having initially achieved compliance?	40 CFR 60.7(a)(3) 60.115b(a)(1) & (b)(1) <b>Within 15 days after initial fill</b>	Y
	<b>Notification of Compliance Status report:</b>	40 CFR 60.7(a)(3) [cf. 60.115b(a)(1)&(b)(1)] <b>Notification within 15 days after startup</b>	Y
	<b>Initial Notification:</b> Is initial notification required if tank becomes affected only as a result of a modification?	40 CFR 60.7(a)(4) <b>Notification 60 days or as soon as practicable before the change</b>	Y
<i>40 CFR 60.7(f)</i>	<b>General recordkeeping requirements:</b> Time period for keeping records, unless specified otherwise.	40 CFR 60.7(f) <b>Keep all reports &amp; notifications for 2 years</b>	Y
	<b>General recordkeeping requirements:</b> Keep all reports and notification for the specified period of time.	40 CFR 60.7(f) <b>Required</b>	Y
<i>40 CFR 60.14(g)</i>	Achieve compliance for: <u>New</u> Tanks (or tanks that become affected as a result of a change or modification)?	40 CFR 60.14(g) <b>Up to 180 days after modifications (otherwise prior to fill)</b>	Y

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

**ENGINEERING EVALUATION**  
 Tesoro Refining and Marketing Company  
PLANT NO. 14629  
 APPLICATION NO. 13240

**BACKGROUND**

The Tesoro Refining and Marketing Company (Tesoro) is applying for a modification to the Permit to Operate the following equipment:

**S-1452 Hydrocarbon Recovery System which includes 47 oil/water wells, and associated pumps (39 Light Hydrocarbon Pumps and 8 Heavy Hydrocarbon Pumps (exempt)), valves and flanges**

Tesoro was previously permitted for the following:

**S-1452 Hydrocarbon Recovery System which includes 43 oil/water wells, and associated pumps (16 Light Hydrocarbon Pumps and 13 Heavy Hydrocarbon Pumps (exempt)), valves and flanges**

Tesoro originally applied to correct the Title V grandfathered limit of S-1452 from 1000 bbl/yr to 5,000,000 bbl/yr. The limit in the original Title V permit was incorrect. The BAAQMD database shows a throughput of 50,000 bbls/hr, 7 days/wk, 24 hrs/day or 436,800,000 bbls/yr. The limit of 5,000,000 bbl/yr is based on the rated average pump flow rates. Using the average pump rates, the total amount of oil/water to be pumped from the 39 light hydrocarbon pumps is 4,231,219.05 bbl/yr. An annual limit of 5,000,000 bbl/yr of oil/water is reasonable and will allow for only 18.17% to be pumped beyond the rated average pump rates.

In the original permit application for S-1452 (application 10544, July 1995), there were 16 light hydrocarbon pumps, 13 heavy hydrocarbon pumps (exempt), and 106 valves. The flanges and connectors around the valves were welded at that time and no fugitive organic emissions from the flanges and connectors were calculated. The S-1452 Hydrocarbon Recovery System currently has 39 light hydrocarbon pumps, 8 heavy hydrocarbon pumps (exempt), 128 valves and 2068 connectors. The connectors include quick-connects, flanges, and threaded connections.

**EMISSIONS SUMMARY**

**Annual Emissions:**

With the addition of 23 light hydrocarbon pumps, 22 valves, and 2068 connectors, fugitive emissions of POC will increase.

Fugitive Component Emissions

The fugitive component emission factors were developed by Tesoro based on screening value data collected throughout the Tesoro Refinery by their fugitive component contractors pursuant to US EPA Reference Method 21 (40 CFR 60, Appendix A). Tesoro developed the fugitive component toxic emission factors for the original CARB Phase 3 Clean Fuels Project (Application Number 2508). The fugitive component emission factors are based on refinery wide fugitive component screening data applied to the US EPA Correlation Equations. The District reviewed and approved the emissions factors developed for the original Phase 3 Clean Fuels Project.

Fugitive Component	Emission Factor (lb/day/source)	Net Change in component	Increase in POC emissions (lb/day)	Increase in POC emissions (lb/yr)
Valves in gas service	0.0015288	0	0	0

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

Valves in liquid service	0.0014736	22	0.0324	11.8330
Pumps	0.028872	23	0.6641	242.3804
Compressors	0.00804	0	0	0
PRV's in gas service	0.00972	0	0	0
PRV's in liquid service	0.006312	0	0	0
Connectors & flanges	0.004	2068	8.2720	3019.2800
<b>Total Emissions</b>			<b>8.9685</b>	<b>3273.50</b> <b>= 1.6368 tpy</b>

Increase in POC Emissions

POC Emission Increase from fugitive components 8.9685 lb/day = 3,273.50 lb/yr = 1.6368 tpy

Total POC Emissions

Valves = (128 valves)(0.0014736 lb/day/valve) = 0.1886 lb/day = 68.847 lb/yr

Pumps = (39 pumps)(0.028872 lb/day/pump) = 1.126 lb/day = 410.993 lb/yr

Connectors and flanges = (2068 connectors)(0.004 lb/day/connector) = 8.272 lb/day = 3,019.28 lb/yr

TOTAL = 0.1886 lb/day + 1.126 lb/day + 8.272 lb/day = 9.587 lb/day = 3499.10 lb/yr = 1.75 tpy

**Maximum Daily Emissions:**

Maximum daily POC emissions from the fugitive components are 9.587 lb/day.

**Toxic Risk Screening:**

Tesoro has submitted the toxic air contaminant concentrations in the free phase liquid hydrocarbon for each tract as listed below.

	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)
Tract 1	666	327	1090	3541	N.D.
Tract 2	1240	715	2457	7133	N.D.
Tract 3	2973	10523	6125	25675	1460

Total emissions of toxic air contaminants are based on total hydrocarbon emissions from each tract.

Total Hydrocarbon Emissions from fugitives = 3,019.28 lb/yr

Tract 1 Hydrocarbon Emissions from fugitives = 929.01 lb/yr

Tract 2 Hydrocarbon Emissions from fugitives = 1,238.68 lb/yr

Tract 3 Hydrocarbon Emissions from fugitives = 851.59 lb/yr

	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
Tract 1	0.619 lb/yr	0.304 lb/yr	1.012 lb/yr	3.290 lb/yr	N.D.
Tract 2	1.536 lb/yr	0.886 lb/yr	3.043 lb/yr	8.836 lb/yr	N.D.
Tract 3	2.532 lb/yr	8.961 lb/yr	5.216 lb/yr	21.865 lb/yr	1.243 lb/yr
Total	4.687 lb/yr 0.0054 lb/hr	10.151 lb/yr 0.0012 lb/hr	9.271 lb/yr	33.991 lb/yr 0.0039 lb/hr	1.243 lb/yr
Acute Trigger	2.9 lb/hr	82 lb/hr	NA	49 lb/hr	NA
Chronic Trigger	6.4 lb/yr	12,000 lb/yr	77,000 lb/yr	27,000 lb/yr	360 lb/yr



Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

A risk screen is not required for this application. There is no increase in the emission rate of any toxin beyond the District Trigger levels of Regulation 2-5.

### STATEMENT OF COMPLIANCE

The owner/operator of S-1452 Hydrocarbon Recovery System is subject to and will comply with the requirements of Regulation 8 Rule 18: Organic Compounds: Equipment Leaks. The owner/operator shall comply with the leak limitations of 8-18-302 for valves, 8-18-303 for pumps, and 8-18-304 for connections. Tesoro shall comply with the leak criteria, repair requirements, and monitoring requirements of Regulation 8 Rule 18.

The project is considered to be ministerial under the District's CEQA regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emissions factors and therefore is not discretionary as defined by CEQA. (Permit Handbook Chapter 3.4: Petroleum Refinery Fugitive Emissions)

The project is over 1000 feet from the nearest school and therefore not subject to the public notification requirements of Reg. 2-1-412.

**Best Available Control Technology:** In accordance with Regulation 2, Rule 2, Section 301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NOx, CO, SO<sub>2</sub> or PM<sub>10</sub>. Emissions from the fugitive components from S-1452 do not trigger BACT.

**Offsets:** Offsets are required because Tesoro emits more than 35 tpy of POC emissions. Regulation 2-2-302 requires that offsets for POC be provided at a ratio of 1.15 to 1.0. The required offsets are:

$$\text{POC offsets} = 3,273.50 \text{ lb/yr} (1.15) = 3,764.53 \text{ lb/yr} = 1.882 \text{ tpy}$$

Tesoro has supplied Banking Certificate #940 to provide the required offsets.

Banking Certificate #	POC Banking Credits
940	30.480 tpy

$$\text{Balance of Banking Certificate \#940} = 30.480 - 1.882 = 28.598 \text{ tpy}$$

### NSPS

The owner/operator is subject to Subpart GGG: Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries. District Regulation 8-18 leak limits are more stringent than Subpart GGG, therefore the owner/operator is in compliance with NSPS Subpart GGG.

### PSD and NESHAPS

PSD and NESHAPS do not apply.

### PERMIT CONDITIONS

The owner/operator is subject to permit condition 9875 for S-1452. The permit condition will be updated with the new throughput limit. Changes are in strikeout/underline format.

COND# 9875 -----

Application 13240 (January, 2006): Correct grandfathered throughput limit in the Title V permit. Make limit a hard limit and update the number of fugitive components.

S1452 Hydrocarbon Recovery System, which includes 47 oil/water wells, and associated pumps (39 Light Hydrocarbon Pumps and 8 Heavy Hydrocarbon Pumps (exempt)), valves and flanges

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

1. The owner/Operator shall implement an inspection and maintenance program for all pumps, valves and flanges in this project accordance with District Regulation 8-18.
  - a. All pumps, valves and flanges shall be subject to quarterly inspection and maintenance criteria
  - b. The leak limitation shall be 100 ppm (express as methane) for flanges, 100 ppm (expressed as methane) for process valves, and 500 ppm (expressed as methane) for pump seals, measured above background at 1 cm from the source.
  - c. With in 7 days of detection, all leaks shall be repaired or minimized in accordance with the above referenced Regulations. Any future revision to and/or future requirement of Regulation 8, Rules 18 shall supersede the above listed requirements only if the new Rule requirement is more stringent than the above criteria.  
(basis: cumulative increase, offsets, Regulation 8-18)
2. All new above ground pumps installed or replaced at S-1452 shall be, as a minimum, sealless diaphragm type.  
(basis: cumulative increase, offsets, BACT)
3. All new valves in light liquid hydrocarbon service installed or replaced at S-1452 shall be, as a minimum, either bellows or diaphragm type.  
(basis: cumulative increase, offsets, BACT)
4. All new valves in heavy liquid hydrocarbon service installed or replaced at S-1452 shall be, as a minimum, either graphite packing, live loaded, or quarter turn type.  
(basis: cumulative increase, offsets, BACT)
5. The owner/Operator shall apply for a modification to the permit if there is an increase in pumps, valves, and flanges at S-1452. The owner/Operator shall provide to the District any required offsets, at the offset ratio triggered at the time of issuance of the modification, for any adjusted cumulative which results in an increase in emissions.  
(basis: cumulative increase, offsets)
6. The owner/operator shall not exceed a throughput of oil/water at S-1452 Hydrocarbon Recovery System of 5,000,000 bbl/yr.  
(basis: cumulative increase, offsets)

#### **RECOMMENDATION**

Issue a Permit to Operate to Tesoro Refining and Marketing Company for the modification to the following source:

**S-1452 Hydrocarbon Recovery System which includes 47 oil/water wells, and associated pumps (39 Light Hydrocarbon Pumps and 8 Heavy Hydrocarbon Pumps (exempt)), valves and flanges**

#### **EXEMPTIONS**

none

By: \_\_\_\_\_

Pamela J. Leong  
Air Quality Engineer II  
January 9, 2006

**ENGINEERING EVALUATION**  
Tesoro Refining and Marketing Company

PLANT NO. 14628  
APPLICATION NO. 13401

**BACKGROUND**

Tesoro Refining and Marketing Company is applying for an alteration to the following existing source:

S-1009 Alkylation Unit: *Mitigation of Atmospheric Releases, 2-PRVs on the C-2 DIB column to be vented to the V-104 Flare Knockout Pot with gases vented to the Flare Header (S-854 East Air Flare, S-944 North Coker Flare, S-945 South Coker Flare, S-922 Emergency Flare, and S-1012 West Air Flare)*

On May 1, 2005, Tesoro had a second pressure relief event at the C-2 Deisobutanizer (DIB) of the S-1009 Alkylation Unit in five years. Due to the second 'release event' from a pressure relief device in organic compound service on the same source, Tesoro is required to install a vapor recovery or disposal system with at least 95% by weight organic compound control efficiency as per the requirements of Regulation 8-28-304.2. To meet the requirements of Regulation 8-28-304.2, Tesoro is installing the V-104 knockout drum and associated equipment.

**8-28-304 Repeat Release – Pressure Relief Devices at Petroleum Refineries:** After the next scheduled turnaround following July 1, 1998, any petroleum refinery source that has at least one reportable Release Event from a pressure relief device in organic compound service, including those in parallel service, in any consecutive five calendar year period shall meet the following conditions:

304.2 Within one year of the second Release Event from a pressure relief device in organic compound service on the same source, including those in parallel service, the facility shall vent all the pressure relief devices that vent the second Release Event, including those in parallel service, to a vapor recovery or disposal system with at least 95 percent by weight organic compounds control efficiency, and the control system shall be properly sized per manufacturer's recommendations to handle the material from all devices it is intended to serve.

Tesoro is replacing an existing flare knockout drum, V-61, with a new knockout drum, V-104. V-104 is a larger drum and is rated for higher pressure and temperature. Currently, only one line, an existing 16" hydrocarbon non-acid relief header, feeds the V-61 knockout drum (see Diagram 1). Vapors from V-61 are sent to the refinery relief (flare) headers and liquids are removed by P-162 Blowdown Liquid Pump to either the alkylate product rundown line or to V-8 or V-9 Effluent Wash Drums, which feed the C-2 Deisobutanizer. It is the two process safety valves on the C-2 Deisobutanizer, which had a second release event and must have controls installed as per Regulation 8-28-304.2.

The two pressure safety valves (PSVs) on the C-2 Deisobutanizer (DIB) will be vented to the V-104 Flare Knockout Drum (see Diagram 2). On Diagram 2, the 10" line from the 2 PSVs on the C-2 DIB will be used as a tie in point for V-104. The line will be conditionally permitted to require a blind when the V-104 system is tied in. Because of the extra material that can be vented from the release of the C-2 DIB PSVs into the flare knockout drum, V-61 is being replaced by V-104. In addition, the current V-61 pump, P-162 Blowdown Liquid Pump, will be replaced with a larger pump. The pump will also be able to recirculate the liquid material in V-104 via a new recirculation line. Salts can build up in V-104. If V-104 is plugged with salts and there is a C-2 DIB PSV release, the material may back up into the flare system. To prevent this from occurring, Tesoro will add a line to be able to introduce alkylate 'wash' from the existing product rundown line to 'clean-out' V-104 and eliminate salts. The new P-162 may be used to recirculate the alkylate product to remove salts buildup (see Note 2 on Diagram 2). Because different types of material may be released from the PSVs on the C-2 DIB, additional pump-out connections will be added to V-104. The final destination of the liquid material will depend upon the material: butane-butylene (B-B), caustic, isobutene, alkylate, or any mix thereof (see Note 3 on Diagram 2). The acid cannot be pumped through the product lines without contaminating them. Therefore, these connectors (see Note 1 on the two connectors on Diagram 2) will be used to pump out acid for draining into a vacuum truck or portable tank. The acid will be taken to the acid plant for processing. Another pump-out line will allow product to go to Tanks 572 and 695 via the Deisobutanizer Isobutane vent line. The recycle line back to the V-8 and V-9 Effluent Wash Drum will be replaced with a larger

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

line to allow for potentially larger flows in event of a release. All other lines will also be replaced with larger lines to allow for larger flows in event of a release (see "boldface" lines and Note 4 on Diagram 2).

In an event of a release from the PSVs on the C-2 DIB, the released material will be sent to the V-104 Flare Knockout Drum. Overhead gases will be sent to the refinery flare headers. The final destination of any liquid vented depends upon its composition. If the vented liquids are acids, they will be pumped to a vacuum truck or portable tank for processing at the acid plant. If the vented liquids are B-B (butane-butylene), caustic, isobutene, alkylate, or any mix thereof, the liquid will be pumped to the appropriate tankage for further processing. Therefore, the material that was previously released to atmosphere from the PSVs, will be burned at the refinery flares or reprocessed in the refinery. Flares are expected to provide 98% organic destruction efficiency for the gaseous organic materials released. The liquid released will be reprocessed at the refinery and the recovery of these organic materials is expected to be well over 95%. Therefore the installation of the V-104 System should meet the requirements of Regulation 8-28-304.2 of a "vapor recovery or disposal system with at least 95 percent by weight organic compounds control efficiency, and the control system shall be properly sized per manufacturer's recommendations to handle the material from all devices it is intended to serve".

The installation of the V-104 System is an emission control measure and will reduce organic emissions to the atmosphere. There will be no increase in organic emissions for the alteration of the C-2 DIB, which a part of the S-1009 Alkylation Unit. These alterations require a permit from the District, in accordance with Reg. 2-1-302.

Source S-1009 is subject to the following existing permit condition that limits the crude throughput: condition #19528 Part 1. The permit condition limit will not change as a result of this application.

#### **EMISSIONS**

As described in the "Background" above, the installation of the V-104 System is an emission control measure that will reduce organic emissions to the atmosphere. There will be no increase in organic compound emissions.

#### **PLANT CUMULATIVE INCREASE**

The cumulative increase for this application is ZERO for all pollutants.

#### **TOXIC RISK SCREEN ANALYSIS**

Toxic emissions will not increase as a result of this application. Therefore, a risk screening analysis is not required.

### **STATEMENT OF COMPLIANCE**

The owner/operator of S-1009 Alkylation Unit will install the V-104 knockout pot and system to minimize atmospheric releases from the C-2 Deisobutanizer pressure safety valves (PSVs). Tesoro experienced a second relief event in five years and is therefore required to install a vapor recovery or disposal system with at least 95% by weight organic compound control efficiency as per the requirements of Regulation 8-28-304.2. Tesoro will pump captured liquid material back to the refinery for processing. All overhead gases will be vented to the flare header for the destruction of organic compounds. Due to reprocessing and destruction of all POC materials released from the PSVs, the recovery of the emissions of organic compounds from the release of the PSVs is expected to be well over 95%.

The project is considered to be ministerial under the District's CEQA regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emissions factors and therefore is not discretionary as defined by CEQA. (Permit Handbook Chapter 3.4)

The project is over 1000 feet from the nearest school and therefore not subject to the public notification requirements of Reg. 2-1-412.

BACT, PSD, NSPS, and NESHAPS do not apply.

OFFSETS are not triggered.

### **PERMIT CONDITIONS**

*The existing permit condition 19528, Part 1 that limits crude throughput will remain in effect.*

*New Condition for Application 13401:*

Application 13401 (December 2005)

**S-1009 Alkylation Unit: Mitigation of Atmospheric Releases, 2-PRVs on the C-2 DIB column to be vented to the V-104 Flare Knockout Pot with gases vented to the Flare Header (S-854 East Air Flare, S-944 North Coker Flare, S-945 South Coker Flare, S-922 Emergency Flare, and S-1012 West Air Flare)**

- 1) The two pressure relief valves on the C-2 DIB column of the S-1009 Alkylation unit shall be vented at all times to the V-104 Flare Knockout Pot with gases vented to the Flare Header (S-854 East Air Flare, S-944 North Coker Flare, S-945 South Coker Flare, S-922 Emergency Flare, and S-1012 West Air Flare). Vented liquid shall be sent for further processing or reprocessing at the refinery.

(basis: Regulation 8-28-304.2)

- 2) Immediately after the startup of the V-104 System, the 10" tie in line downstream of the two pressure safety valves on the C-2 DIB column shall be blinded.

(basis: Regulation 8-28-304.2)

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

**RECOMMENDATION**

Issue a Permit to Operate to Tesoro Refining and Marketing Company for the following source:

**S-1009 Alkylation Unit: *Mitigation of Atmospheric Releases, 2-PRVs on the C-2 DIB column to be vented to the V-104 Flare Knockout Pot with gases vented to the Flare Header (S-854 East Air Flare, S-944 North Coker Flare, S-945 South Coker Flare, S-922 Emergency Flare, and S-1012 West Air Flare)***

**EXEMPTIONS**

None.

By: \_\_\_\_\_

Pamela Leong  
Air Quality Engineer II

December 7, 2005

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

**ENGINEERING EVALUATION**  
Tesoro Refining and Marketing Company  
PLANT NO. 14628  
APPLICATION NO. 13493

**BACKGROUND**

The Tesoro Refining and Marketing Company (Tesoro) is applying to modify permit condition 21849 for the Authority to Construct for the Loading Rack Modernization Project, application 13493. Tesoro has requested a change to the condition for the following equipment:

**S-1025 Bulk Terminal Bottom Loading Facilities: Gasoline, Naphtha, Kerosene, Diesel, Fuel Oil, Ethanol abated by S-613 Vapor Recovery Tank and A-14 Vapor Recovery System (organic vapors from A-14 are burned at refinery furnaces S-908, S-909, S-912, S-913, and/or S-991)**

In application 10668, the Loading Rack Modernization project did not result in an increase in emissions from loading activities at S-1025. The S-1025 Loading Rack was previously permitted to allow transfer of material from 24 arms. Tosco originally permitted S-1025 in 1985. Tesoro has since purchased the Tosco facility in Martinez, California. In 1985, Tosco was required to install S-1025 Bulk Plant Bottom Loading Facilities to comply with newly mandated Regulation 8-33-303. Tesoro was required to replace the existing top loading racks (sources S-119, S-121, S-122, S-123, and S-124) with a bottom loading rack. Due to the mandated changes and the expected decrease in emissions from bottoms loading, no changes in emissions were associated with the installation of S-1025 (see Application 30138) and no permit conditions were imposed. The Authority to Construct was waived and Tosco was issued a Permit to Operate S-1025. The S-1025 loading rack had not been used since 1999 but the permit to operate had always been maintained.

As a part of the Loading Rack Modernization Project, Tesoro added two pumps and replaced three pumps. Although S-1025 was permitted to transfer material from 24 arms, only 12 had been used. Tesoro added 8 arms for a total of 20. The previous arms were subject to the emission limit of 0.08 pounds of POC per 1000 gallons of liquid transferred as per Regulation 8-33-301. Tesoro had stated that they would meet the BACT emission limit of 0.02 pounds of POC per 1000 gallons of liquid transferred. Tesoro also agreed to decrease the number of arms permitted from 24 to 20.

After the Authority to Construct was issued and the loading rack was built, the California Air Resources Board completed certification testing of the S-1025 Loading Rack. The District Source Test Manager, Source Test Engineer, Refinery Inspector, and the Permit Engineer witnessed and observed the certification testing by ARB. A copy of ARB certification test report is included in this application folder (#13493) and in the original application for the Loading Rack Modernization Project (#10668).

To abate the hydrocarbon vapors displaced during cargo tank loading, the vapors are mixed with fuel gas and processed by four refinery heaters. The most current source test results for the POC destruction efficiencies of the heaters were applied to the vapor processing system to obtain POC emissions from S-1025. The ARB measured 0.024 lb NMHC/1000 gallons of material loaded using the lowest individual heater efficiency of 99.4%. Applying the aggregate heater efficiency of 99.9% results in an emission factor of 0.004 lb NMHC/1000 gallon of material loaded. The ARB concluded that the system meets the 0.08 lb NMHC/1000 gallon limit in 40 CFR Part 63, Subpart R for Gasoline Distribution Facilities and thereby certified the S-1025 loading rack for operation.

Although Tesoro originally agreed to meet the BACT emission limit of 0.02 lb POC/1000 gallons of material loaded, the project did not actually trigger a BACT review. Emissions from the loading of cargo trucks after the modernization project will not increase beyond the grandfathered limits (see attached copy of the engineering evaluation for application 10668). The throughput limits were not increased at the loading rack and the number of permitted arms was decreased from 24 to 20. The previous loading rack was subject to the emission limit of 0.08 pounds of POC per 1000 gallons of liquid transferred as per Regulation 8-33-301. Tesoro would like to maintain

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

the RACT and Regulation 8-8-301 emission limit of 0.08 lb POC/1000 gallon of material loaded since the BACT limit of 0.02 lb POC/1000 gallons of material transferred was not triggered. With this application for a change in permit conditions, no physical or operational changes will be made at S-1025. The condition modification will allow for variability in source testing of POC's from the vapor processing system and from source testing of the heaters POC destruction efficiencies without causing Tesoro to go into noncompliance for exceeding the BACT limit, which was not required.

With the Loading Rack Modernization Project complete, throughput at S-1025 is permitted at the previously grandfathered limits. Emissions will not increase and therefore the project is not considered a "modification" but an alteration.

## **EMISSIONS SUMMARY**

### **Maximum Daily Emissions:**

With the change in permit condition limits described in the Background section above, there will be no increase in emissions from before and after the Loading Rack Modernization Project. The throughput limit is the same and will not be increased. Tesoro was previously subject to 0.08 pounds of POC per 1000 gallons of liquid transferred as per Regulation 8-33-301 and is currently seeking the same limit.

### **Plant Cumulative Increase**

The cumulative increase for this application is zero for all pollutants.

### **Toxic Risk Screening:**

The permit modification does not result in an increase in emissions. Toxic emissions will not increase as a result of this application. Therefore, a risk screening analysis is not required.

## **STATEMENT OF COMPLIANCE**

### S-1025 Bulk Plant Bottom Loading Facilities: Gasoline, Naphtha, Kerosene, Diesel, Fuel Oil, Ethanol

The owner/operator of S-1025 shall comply with Regulation 8, Rule 33: Gasoline Bulk Terminals and Gasoline Delivery Vehicles. S-1025 is abated by A-14 Vapor Recovery System. A-14 is one of two vapor recovery systems at Tesoro used to capture VOCs from various tanks, oil water separators, and loading or material transfer sources. Once captured at A-14, the vapors are compressed at the gas plant, where sulfur is removed. The gas is then burned at various combustion sources throughout the refinery. The vapors from the A-14 Vapor Recovery System are burned in Tesoro's process heaters. Process heaters are very efficient at burning hydrocarbons in the vapor stream. AP-42 Chapter 5.1 Petroleum Refining, states that "venting into blowdown systems or fuel gas systems, and incineration in furnaces or waste heat boilers....are generally greater than 99% efficient in the control of hydrocarbon emissions..". Tesoro has demonstrated a 99.9% POC destruction efficiency for the A-14 Vapor Recovery System and process heaters supported by source tests in Application #6201. The owner/operator shall meet the vapor recovery requirement of Regulation 8-33-301. Tesoro shall meet the emission limit of 0.08 lbs of POC per 1000 gallons of liquid transferred of Regulation 8-33-301. Because the hydrocarbon control efficiency of the A-14 Vapor Recovery System and process heaters is over 99.9%, the limit of 0.08 lbs of VOC per 1000 gallons of liquid loaded should be met.

The owner/operator shall comply with all other requirements of Regulation 8, Rule 33. Section 8-33-302 Vapor Recovery System requires CARB certification of the vapor recovery system. Section 8-33-303 requires that loading be accomplished by bottom fill. Section 8-33-304 requires delivery vehicles to 1) have and display valid State of California decals, as required by Section 41962 of the Health and Safety Code which attests to the vapor integrity of the tanks, 2) be equipped with and use a vapor recovery system, and 3) not purge gasoline vapor from the tank into the atmosphere. Section 8-33-305 Equipment Maintenance requires that the owner/operator ensure all operations are leak free and vapor tight. Section 8-33-307 Loading Practices requires the owner/operator to operate such that



Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

the vapor processing capacity is not exceeded. Section 8-33-308 Vapor Diaphragm Requirements require that the airspace above the bladder or diaphragm not exceed a concentration of 3,000 parts per million (as methane) and 15 pounds per day. Section 8-33-309 Vapor Recovery System Requirements – Loading Rack requires that the system be maintained and operated in a manner that prevents gauge pressure in the delivery tank from exceeding 18 inches of water column during product loading.

This permit application is categorically exempt from CEQA because the project has no potential for causing a significant adverse environmental impact and is categorically exempt from CEQA under Regulation 2-1-312.11.4. The project satisfies the “no net emission increase” provisions of District Regulation 2, Rule 2 for which there will be some increase in the emissions of any toxic air contaminant, but for which the District staff’s preliminary health risk screening analysis shows that a formal health risk assessment is not required, and for which there will be no other significant environmental effect. For the Loading Rack Modernization Project, an Appendix H, Environmental Information Form has been completed and certified by Tesoro.

The project is over 1000 feet from the nearest school and therefore not subject to the public notification requirements of Reg. 2-1-412.

### **Best Available Control Technology**

As stated in the Background and Emissions Section, there will be no increase in emissions and BACT does not apply.

### **Federal NSPS**

#### Original Installation of S-1025 Bulk Plant Bottom Loading Facilities (Application 30138)

A bulk gasoline terminal is subject to NSPS Subpart XX: Standards of Performance for Bulk Gasoline Terminals if “the construction or modification of which is commenced after December 17, 1980, is subject to the provisions of this subpart.” 40 CFR 60.500(b). The original top loading racks were constructed and installed prior to December 17, 1980 and the construction date alone did not trigger NSPS. In 1985, as per District Regulation 8-33-303, Tosco was required to implement the bottom loading rack, S-1025. Replacement of the top loading racks with S-1025 Bottom Loading Rack resulted in a decrease in emissions. Installation of S-1025 was not a “modification” as per 40 CFR 60.14(e)(5) since “the addition or use of any system or device whose primary function is the reduction of air pollutants, except when an emission control system is removed or is replaced by a system which the Administrator determines to be less environmentally beneficial”. In addition, the “physical change to the existing facility did not result in an increase in the emission rate to the atmosphere of any pollutant” and was not a “modification” as per 40 CFR 60.14(a). The owner/operator of S-1025 was not subject to NSPS since a “modification” did not occur.

The owner/operator is subject to NSPS Subpart XX if “an existing facility, upon reconstruction, becomes an affected facility, irrespective any change in emission rate” as per 40 CFR 60.15(a). Reconstruction is defined as the “replacement of components of an existing facility to such an extent that: 1) the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, AND 2) it is technologically and economically feasible to meet the applicable standards set forth in this part.” as per 40 CFR 60.15(b)(1) and (2). In 1985 during the original installation of S-1025, Tosco submitted a notarized declaration and calculation of the cost to show that the installation of S-1025 was not a “reconstruction” and NSPS was not applicable. Tosco submitted calculations that showed that the 50% cost threshold was not exceeded as per 40 CFR 60.506 and 40 CFR 60.15. The notarized declaration and calculations are in the appendix of application 10668, which is attached to this engineering application.

#### Consequences of Being Subject to NSPS Subpart XX

If the project did trigger NSPS Subpart XX, then the owner/operator would be required to: 1) equip the loading rack with a vapor recovery system, 2) keep emissions below 80 mg of total organic compounds per liter of gasoline loaded (0.6671 lb/1000 gallon loaded), 3) limit the loading of product into vapor-tight tank trucks by recording the identification number of each truck and periodically cross-checking with documentation of vapor tightness which must be obtained from each tank truck to be loaded, 4) assure that the terminal’s and tank truck’s vapor collection systems are compatible and are connected during loading, 5) design and operate vapor collection and liquid loading to prevent gauge pressure in the delivery tank from exceeding 450 mm of water (18 inches of water) during loading 6) conduct monthly sight, sound, or smell inspections during the loading of tank trucks for liquid or vapor leaks.

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

Leaks must be recorded and repaired with 15 days after detection. Test methods and procedures are also given to assure compliance with the requirements of NSPS Subpart XX.

District and California Air Resources Board (CARB) Regulations are equivalent or more stringent than NSPS Subpart XX. District Regulation 8-33-301 does not permit loading “in or out of a gasoline bulk terminal unless a CARB certified vapor recovery system is properly connected and used. Such systems shall not emit into the atmosphere more than 0.08 lbs of organic compounds per 1000 gallons of organic liquid loaded.” District Regulation 8-33-304.1 requires delivery tank trucks to have and display a valid State of California decal (Section 41962 of the Health and Safety Code), which attest to the vapor integrity of the tank. Regulation 8-33-304.2 requires the trucks to be equipped with and to use a vapor recovery system. Regulation 8-33-304.4 requires that a person shall not purge gasoline vapor from the tank of a delivery vehicle to the atmosphere. The owner/operator shall maintain all equipment to be leak free, vapor tight and in good working order (Regulation 8-33-305). Gasoline shall not be spilled, discarded in sewers, stored in open containers, or handled to allow evaporation to the atmosphere (Regulation 8-33-307). Loading operations shall not be operated in a manner such that the vapor processing capacity exceeded (Regulation 8-33-307). District Regulation 8-33-309 requires the owner/operator to maintain and operate the loading rack in a manner that prevents gauge pressure in the delivery tank from exceeding 18 inches of water column during product loading.

As described above, if Tesoro is subject to NSPS Subpart XX, except for record keeping, the major provisions of the federal regulations are already covered by the District and California Air Resources Board requirements. The District Source Test Section tests and measures emissions, leaks, vapor recovery gauge pressure, etc. at each loading rack in the jurisdiction of the BAAQMD twice a year. CARB also checks and certifies the loading racks.

#### Current Alteration of S-1025 Bulk Plant Bottom Loading Facilities

As discussed in the original installation of S-1025 above, the original loading rack was installed prior to December 17, 1980 and the construction date alone does not trigger NSPS as per 40 CFR 60.500(b). As discussed in the “Background” section, Tesoro will be conditionally limited not to exceed the annual grandfathered throughput of 18,615,000 barrels per year and the daily physical limit or throughput of 64,457 barrels per day. Emissions will not increase and the project is not a “modification” as defined by 40 CFR 60.14(a) and NSPS does not apply.

Tesoro would be subject to NSPS Subpart XX if the modification was considered “reconstruction” as per 40 CFR 60.15(a). Tesoro has supplied new cost calculations in the appendix of application 10668, which is attached to this engineering application. The project is estimated to cost \$3,359,000. The original cost to install the loading rack in 1985 was \$4,100,000. Using the CPI index, the cost to rebuild the entire loading rack in 2004 would be \$7,300,000. Modernization cost expenditures do not exceed 50% of the fixed capital cost to construct a new facility as per 40 CFR 60.15(b)(1). As per 40 CFR 60.506 and 40 CFR 60.15, NSPS does not apply since the project is not considered “reconstruction”.

Because the vapors from the S-1025 loading rack are burned at refinery process heaters, the owner/operator is subject to NSPS Subpart J – Standards of Performance for Petroleum Refineries. The owner/operator is subject to 60.104(a)(1) or 60.104(a)(2). Tesoro meets the requirements of 60.104(a)(1) of NSPS Subpart J. The hydrogen sulfide in the refinery fuel gas is monitored prior to being burned at the refinery process heaters. The hydrogen sulfide level shall not exceed 230 mg/dscm (0.10 gr/dscf) of 60.104(a)(1).

#### **NESHAPS and PSD**

NESHAPS and PSD do not apply.

#### **Offsets**

As stated in the Background and Emissions Section, there will be no increase in emissions and Offsets do not apply.

#### **PERMIT CONDITIONS**

Modifications are in strikeout/underline format. The nomenclature “Bulk Plant” is technically incorrect as per the definitions in Regulation 8-6-201, 8-6-204, and 8-33-202 and will be changed to “Bulk Terminal”. Additional

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

modifications consist of clarifications that were recommended by the Source Test Manager after inspecting the S-1025 Loading Rack and observing the S-1025 certification by ARB.

Application #10668 (October 29, 2004): Loading Rack Modernization Project

Application #13493 (October, 2005): Modification of emission limit from S-1025 to the RACT and Regulation 8-33-301 level of 0.08 lb POC per 1000 gallon of material loaded.

**S-613 Vapor Recovery Tank A-613; Fixed Roof Tank, Capacity 420K Gallons, Storing: Organic Liquid**

**S-696 Tank A-696; Internal Floating Roof Tank, Capacity 630K Gallons, Storing: Gasoline**

**S-1025 Bulk Plant Terminal Bottom Loading Facilities: Gasoline, Naphtha, Kerosene, Diesel, Fuel Oil, Ethanol**

**S-1504 Bulk Plant Terminal Unloading Rack: Ethyl Alcohol**

#### Fugitive Components

1) Not more than 30 days after the start-up of the Loading Rack Modernization Project (S-613, S-696, S-1025, and S-1504), the owner/operator shall provide the District's Engineering Division with a final count of fugitive components installed. The owner/operator has been permitted for an increase in the following fugitive components:

33 valves in gas service  
460 valves in liquid service  
4 pumps  
1 PRV in gas service  
10 PRVs in liquid service  
1630 connectors/flanges

(basis: Cumulative Increase, offsets, toxics risk screen)

2) If there is an increase in the total fugitive component emissions, the plant's cumulative emissions for the project shall be adjusted to reflect the difference between emissions based on predicted versus actual component counts. The owner/operator shall provide to the District all additional required offsets at an offset ratio of 1.15:1 no later than 14 days after submittal of the final POC fugitive count. If the actual component count is less than the predicted, the total will be adjusted accordingly and all emission offsets applied by the owner/operator in excess of the actual total fugitive emissions will be credited back to the owner/operator.

(basis: offsets)

3) The owner/operator shall install valves, in light hydrocarbon service, that are of District approved BACT compliant technology (bellows valves, diaphragm valves, live loaded valves, or the equivalent) such that fugitive organic emissions shall not exceed 100 ppm.

(basis: BACT, Regulation 8-18, toxics risk screen)

4) The owner/operator shall install flanges and connectors, in light hydrocarbon service, that are of District approved BACT compliant technology (graphitic gaskets or the equivalent) such that fugitive organic emissions shall not exceed 100 ppm.

(basis: BACT, Regulation 8-18, toxics risk screen)

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

5) The owner/operator shall install pump seals, in light hydrocarbon service, that are of District approved BACT compliant technology (double mechanical seals with barrier fluid or the equivalent) such that fugitive organic emissions shall not exceed 500 ppm.

(basis: BACT, Regulation 8-18, toxics risk screen)

6) The owner/operator shall ensure that each pressure relief valve installed in hydrocarbon service is vented back to the process, to the refinery fuel gas system, or to an abatement device with a capture and destruction efficiency of at least 98% by weight.

(basis: BACT, Regulation 8-28, toxics risk screen)

7) In accordance with the provisions of Regulation 8-18, the owner/operator shall integrate all new fugitive equipment in organic service installed as part of the Loading Rack Modernization Project into the facility fugitive equipment monitoring and repair program.

(basis: BACT, Regulation 8-18)

S-1025 Bulk Plant Bottom Loading Facilities: Gasoline, Naphtha, Kerosene, Diesel, Fuel Oil, Ethanol

8) The owner/operator of S-1025 shall apply for the proper certification from the California Air Resources Board (CARB) for the A-14 Vapor Recovery System prior to startup.

(basis: Regulation 8-33-301, 302)

9) The owner/operator of S-1025 Bulk Plant Loading Facilities shall not exceed the following throughputs.

64,457 barrels (2,707,194 gallons) per day

18,615,000 barrels (781,830,000 gallons) per any 12-month consecutive period

(basis: cumulative increase, offsets, toxic risk screen)

10) The owner/operator of S-1025 shall not transfer any material other than gasoline, naphtha, kerosene, diesel, fuel oil, or ethanol.

(basis: cumulative increase, offsets, toxic risk screen)

11) In an effort to ensure that the S-1025 Bulk Plant Unloading Rack does not exceed an emission factor greater than 0.020.08 lb POC per 1000 gallons of material loaded, the owner/operator shall:

- a) not operate S-1025 unless vented to S-613 Vapor Recovery Tank or A-14 Vapor Recovery System.
- b) install a sample line from each of the pressure-vacuum valves located at the loading racks, which is easily accessible by District personnel to determine any valve leakage.
- c) install and maintain a pressure switch at the knockout pot, V-61, located at the interface of the vapor outlet of the S-1025 Loading Rack and the inlet to the A-14 Vapor Recovery and S-613 Vapor Recovery Tank Systems. The pressure switch shall be set at 18 inches of water column as measured at the cargo tank/vapor coupler interface located the furthest from the knockout pot, V-61. If the pressure exceeds 18 inches, a high-pressure alarm will shutdown loading rack operations.
- d) conduct District approved source tests to determine POC destruction efficiency at the following sources every 5 years in the year prior to the Title V Permit Renewal (initial compliance has been demonstrated in a source test for AN 6201 by TIAX on October 28, 2003).

S-908 No. 8 Furnace @ No. 3 Crude Unit

S-909 No. 9 Furnace @ No. 1 Feed Prep.

S-912 No. 12 Furnace @ No. 1 Feed Prep.

S-913 No. 13 Furnace @ No. 2 Feed Prep.

S-991 FCCU Preheat Furnace

For each source, the owner/operator must measure the following:

- the fuel feed rate in pounds/hr
- the POC emission rate at the stack
- the flue gas flow rate in SCFM at the stack
- the oxygen content of the stack flue gas

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

- the stack temperature
- the destruction efficiency of POC as measured across the combustion device

The owner/operator shall submit individual copies of the results of the source tests (along with related calculations and process data) to the District's Engineering Division, Enforcement Division, and Source Test Division within 45 days of the source test.

(basis: Cumulative Increase, Toxic Risk Screen, Regulation 8-33-301, Regulation 1-238, BACT)

12) To determine compliance with the parts 8-11, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions, including, but not necessarily limited to, the following information:

- a. California Air Resources Board approval/certification of A-14.
- b. On a daily basis, type and amount/quantity of liquids transferred/product loaded.
- c. The throughput of material shall be added and recorded in the log for each month and for each rolling consecutive 12-month period.
- d. The time, date, duration, and reason for each instance that S-1025 is not abated by S-613 and A-14.

These records shall be kept on-site for at least 5 years. All records shall be recorded in a District-approved log and made available for inspection by District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable District Regulations.

(basis: Cumulative Increase, Toxic Risk Screen, Offsets, Regulation 1-441, Regulation 1-238)

#### S-1504 Bulk Plant Unloading Rack: Ethanol

13) The owner/operator of S-1504 Bulk Plant Unloading Rack shall not exceed the following throughput.

400,000 barrels per any 12-month consecutive period

(basis: cumulative increase, offsets, toxic risk screen)

14) The owner/operator of S-1504 shall not transfer any material other than ethanol.

(basis: cumulative increase, offsets, toxic risk screen)

15) To determine compliance with parts 13 and 14, the owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions, including, but not necessarily limited to, the following information:

- a. On a daily basis amount of ethanol transferred.
- b. The throughput of material shall be added and recorded in the log for each month and for each rolling consecutive 12-month period.

These records shall be kept on-site for at least 5 years. All records shall be recorded in a District-approved log and made available for inspection by District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable District Regulations.

(basis: Cumulative Increase, Toxic Risk Screen, Offsets, Regulation 1-441, Regulation 1-238, Regulation 8-6-501)

#### **RECOMMENDATION**

Issue a permit modification for the Authority to Construct to Tesoro Refining and Marketing Company for modification of the following source for the Loading Rack Modernization Project:

**S-1025 Bulk Terminal Bottom Loading Facilities: Gasoline, Naphtha, Kerosene, Diesel, Fuel Oil, Ethanol abated by S-613 Vapor Recovery Tank and A-14 Vapor Recovery System (organic vapors from V-14 are burned at refinery furnaces S-908, S-909, S-912, S-913, and/or S-991)**

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

**EXEMPTIONS**

none

By: \_\_\_\_\_

Pamela J. Leong  
Air Quality Engineer II  
October 24, 2005

**ENGINEERING EVALUATION**  
Tesoro Refining and Marketing Company  
PLANT NO. 14628  
APPLICATION NO. 13803

**BACKGROUND**

The Tesoro Refining and Marketing Company (Tesoro) is applying for a modification or clarification to the permit conditions for the Permit to Operate the following equipment:

**S-1106 Furnace FU72, No. 4 Hydrodesulfurization Reactor Feed Heater, Natural Gas Fired, Maximum Firing Rate (HHV): 30 MMBtu/hr abated by A-1106 Selective Catalytic Reduction System**

Tesoro was given the Authority to Construct S-1106 in application 2508 (May 2, 2002). S-1106 Furnace has been in operation since April of 2003. The owner/operator is subject to condition 19199 parts H0 through H15 for S-1106 Furnace. A startup provision was written into the condition, which allows the owner/operator to bypass A-1106 Selective Catalytic Reduction System or SCR. At startup the temperature of S-1106 and A-1106 need to increase above approximately 525F to inject ammonia. Part H9 allows the owner/operator to bypass A-1106 for 144 hours per 12-month consecutive period for startup. Part H9 requires the owner/operator to abate S-1106 by A-1106 *at all other times* that fuel is fired at S-1106.

- H9.) Permittee/Owner/Operator shall ensure that S-1106 is abated by A-1106 at all times that a fuel is fired at S-1106 except for not more than 144 hours during any rolling 12 consecutive month period. The 144 hours is for start-up of S-1106. At all times other than the 144 hours per 12 consecutive month period, while a fuel is fired at S-1106, S-1106 shall be abated by A-1106 and there shall be ammonia injection at A-1106.  
(basis: BACT)

Tesoro is requesting a modification to the permit condition that will allow the A-1106 SCR to be bypassed during shutdown as well as startup. During shutdown, ammonia is no longer injected at 525F. The S-1106 Furnace is fired for a short period after the ammonia is removed to steadily reduce the temperatures in the heater, rather than abruptly changing temperature and potentially thermally stressing the heater. Tesoro is requesting a shutdown provision similar to Regulation 9-10-218 which allows up to 9 hours for a shutdown. The owner/operator is already subject to the requirements of Regulation 9, Rule 10: Inorganic Gaseous Pollutants, Nitrogen Oxides and Carbon Monoxide from Boilers, Steam Generators, and Process Heaters in Petroleum Refineries. Regulation 9-10-301.1 provides for a method of determining compliance with the refinery-wide emission limit of 0.033 lb NO<sub>x</sub>/MMBtu of Regulation 9-10-301 with units in startup or shutdown. Regulation 9-10-218 defines a unit in startup and shutdown. Condition 19199 will be clarified to explicitly allow Tesoro to bypass the A-1106 SCR during shutdown.

**9-10-218 Start-up or Shutdown:** Start-up is that period of time, not to exceed twelve (12) hours unless specifically extended by a permit condition, during which a unit is brought up to its normal operating temperature from a cold start, initially at zero fuel flow, by following a prescribed series of separate steps or operations. Shutdown is that period of time, not to exceed nine (9) hours unless specifically extended by a permit condition, during which a unit is taken out of service from a normal operating mode to an inactive status following a prescribed series of separate steps or operations.

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

**9-10-301 Emission Limit For Facility, NO<sub>x</sub>:** Except as provided in Section 9-10-403, effective July 1, 1997, a person shall not exceed a refinery-wide emission rate from affected units, excluding CO boilers, of 0.033 pounds NO<sub>x</sub> per million BTU of heat input, based on an operating-day average. Affected units that are undergoing start-up or shutdown and affected units that are out of service are included in the refinery-wide emission rate as follows:

301.1 Units in Start-up or Shutdown: For the purposes of determining compliance with the emission limit of Section 9-10-301, the contribution of each affected unit that is in a start-up or shutdown period shall be calculated from the unit's NO<sub>x</sub> emission rate, as measured by the initial source test required by Section 9-10-501 or a more recent compliance source test, for that unit at the capacity during the source test.

## EMISSIONS SUMMARY

### Annual Emissions:

This application will clarify the conditions to explicitly allow the owner/operator to bypass the A-1106 SCR during shutdown. There will be no associated increase in emissions with this clarification.

### Plant Cumulative Increase:

There will be no increase in emissions and the cumulative increase for this application is ZERO for all pollutants.

### Toxic Risk Screening:

Toxic emissions will not increase as a result of this application. Therefore, a risk screening analysis is not required.

## STATEMENT OF COMPLIANCE

The owner/operator of S-1106 Furnace shall comply with Reg. 6 (Particulate Matter and Visible Emissions Standards) and Reg. 9-1-301 (Inorganic Gaseous Pollutants: Sulfur Dioxide for Limitations on Ground Level Concentrations). The owner/operator is expected to comply with Regulation 6 since the unit is fueled with natural gas. Thus for any period aggregating more than three minutes in any hour, there should be no visible emission as dark or darker than No. 1 on the Ringlemann Chart (Regulation 6-301) and no visible emission to exceed 20% opacity (Regulation 6-302). The owner/operator is subject to Regulation 9 Rule 10: Nitrogen Oxides and Carbon Monoxide from Boilers, Steam Generators, and Process Heaters in Petroleum Refineries. The owner/operator is subject to the facility wide emission limit for NO<sub>x</sub> of 0.033 lb NO<sub>x</sub> per million Btu of heat input based on an operating-day average as per Regulation 9-10-301. The owner/operator is also subject to the emission limit for CO of 400 ppmvd at 3% O<sub>2</sub> based on an operating-day average as per Regulation 9-10-305. The owner/operator is subject to the record keeping requirements of Regulation 9-10-504 and the reporting requirements of Regulation 9-10-505. The owner/operator is subject to 9-10-301.1 when units are in startup or shutdown. Startup and shutdown are defined in Regulation 9-10-218.

The project is considered to be ministerial under the District's CEQA regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emissions factors and therefore is not discretionary as defined by CEQA. (Permit Handbook Chapter 2.4)

The project is over 1000 feet from the nearest school and therefore not subject to the public notification requirements of Reg. 2-1-412.

**Best Available Control Technology:** In accordance with Regulation 2, Rule 2, Section 301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NO<sub>x</sub>, CO, SO<sub>2</sub> or PM<sub>10</sub>. Emissions will not increase as a result of this application.

**Offsets:** There is no emission increase with this application and offsets do not apply.



**PSD, NSPS, and NESHAPS:**

PSD, NSPS, and NESHAPS do not apply.

**PERMIT CONDITIONS**

The owner/operator is subject to permit condition 19199 parts H0 through H15 for S-1106. Only parts H0 through H15 will be shown. The rest of the condition is found in Appendix A. Changes are in strikeout/underline format.

**Condition # 19199**

Permit Application #2508

Permit Application 13803: Clarify conditions to allow owner/operator to bypass A-1106 SCR during shutdown of S-1106 (part H9).

S-1106 Furnace; FU72, No. 4 Hydrodesulfurization  
Reactor Feed Heater, Natural Gas Fired,  
Maximum Firing Rate (HHV): 30 MMBtu/hr  
abated by A-1106 Selective Catalytic  
Reduction System

- H0.) Permittee/Owner/Operator shall ensure that the maximum fuel firing rate at S-1106 does not exceed 30 MMBtu/hr averaged over each calendar day by dividing the fuel use rate during each day by 24. (basis: cumulative increase)
- H1.) Permittee/Owner/Operator shall ensure that no fuel other than natural gas is fired at S-1106. (basis: cumulative increase, toxics)
- H2.) Permittee/Owner/Operator shall ensure that S-1106 is not be operated unless it is equipped with a District approved fuel flow meter that measures the volume of fuel throughput to S-1106 in units of standard cubic feet. (basis: cumulative increase)
- H3.) Permittee/Owner/Operator shall ensure that the total fuel use at S-1106 does not exceed 225.257 million standard cubic feet of natural gas during any rolling 12 consecutive month period. (basis: cumulative increase, toxics, offsets)
- H4.) Permittee/Owner/Operator shall ensure that NO<sub>x</sub> emissions from S-1106 do not exceed 10 ppmv, dry, at 3% oxygen, based on a three hour average, after abatement at A-1106. (basis: BACT, cumulative increase, offsets)
- H5.) Permittee/Owner/Operator shall ensure that CO emissions from S-1106 do not exceed 50 ppmv, dry, at 3% oxygen, based on a three hour average. (basis: BACT, cumulative increase, offsets)
- H6.) Permittee/Owner/Operator shall ensure that POC emissions from S-1106 do not exceed 0.619 ton per rolling consecutive 12 month period (or the equivalent emission rate prorated to the time period during which emissions are measured/calculated). (basis: cumulative increase, offsets)
- H7.) Permittee/Owner/Operator shall ensure that PM-10 emissions from S-1106 do not exceed 0.856 ton per rolling consecutive 12 month period (or the equivalent emission rate prorated to the time period during which emissions are measured/calculated). (basis: cumulative increase, offsets)

- H8.) Permittee/Owner/Operator shall ensure that SO<sub>2</sub> emissions from S-1106 shall not exceed 0.068 ton per rolling consecutive 12 month period (or the equivalent emission rate prorated to the time period during which emissions are measured/calculated).  
(basis: cumulative increase, BACT, offsets)
- H9.) Permittee/Owner/Operator shall ensure that S-1106 is abated by A-1106 at all times that a fuel is fired at S-1106 except for not more than 144 hours during any rolling 12 consecutive month period and during shutdown as defined by Regulation 9-10-218. The 144 hours is for start-up of S-1106. At all times other than the 144 hours per 12 consecutive month period and during shutdown as defined by Regulation 9-10-218, while a fuel is fired at S-1106, S-1106 shall be abated by A-1106 and there shall be ammonia injection at A-1106.  
(basis: BACT)
- H10.) Permittee/Owner/Operator shall ensure that ammonia slip from A-1106 does not exceed 20 ppmv, dry, at 3% oxygen averaged over any 3 hour period. (basis: toxics)
- H11.) Notwithstanding any provision of District regulations allowing for the malfunction of or lack of operation of the CEM, Permittee/Owner/Operator shall not operate S-1106 without a District approved continuous emissions monitoring device that continuously measures and continuously records the concentration of nitrogen oxides, in ppmv units, in the combustion exhaust from S-1106 corrected to 3 ppmv oxygen, dry; and the device shall continuously measure and continuously record the oxygen concentration in the combustion exhaust from S-1106. (basis: cumulative increase, BACT, offsets)
- H12.) Once each calendar year Permittee/Owner/Operator shall ensure that a District approved source test is conducted that measures CO emissions from S-1106. The first CO source test for S-1106 shall be conducted within 60 days after the first date that fuel is first fired at S-1106. The District approved source test shall measure the emission rate of CO from S-1106 and the amount of oxygen in the S-1106 exhaust. Because of this condition S-1106 does not need a CEM for CO.

Permittee/Owner/Operator shall ensure that within 30 days of the date of completion of the (each) District approved source test, two identical copies of the results of the source test, each referencing permit application #2508, S-1106, and plant #14628 are received by the District and that one copy is addressed to the District's Source Test Manager, and that the other copy is addressed the District's Engineering Division. (basis: start-up, offsets, BACT, cumulative increase, toxics)

- H13.) Permittee/Owner/Operator shall ensure that a District approved source test is conducted that measures emissions from S-1106 and that the source test for S-1106 is conducted within 60 days after the first date that fuel is first fired at S-1106. The District approved source test shall measure the emission rate of NO<sub>x</sub>, CO, POC, SO<sub>2</sub>, ammonia, and PM-10 from S-1106 while it is operated at a fuel feed rate of 22857 SCF of natural gas per hour or more. For NO<sub>x</sub>, CO, and ammonia, the measurement shall be based on a three hour average. If the fuel firing rate of S-1106 during the testing is less than 22857 SCF natural gas per hour, then Permittee/Owner/Operator shall conduct a subsequent District approved source test at S-1106 every twelve months thereafter, until a District approved source test is completed while S-1106 is fired at 22857 SCF of natural gas per hour or more during the entire test period.

Permittee/Owner/Operator shall ensure that within 30 days of the date of completion of the (each) District approved source test, two identical copies of the results of the source test, each referencing permit application #2508, S-1106, and plant #14628 are received by the District and that one copy is addressed to the District's Source Test Manager, and that the other copy is addressed the District's Engineering Division.  
(basis: start-up, offsets, BACT, cumulative increase, toxics)

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

- H14.) In a District approved log, Permittee/Owner/Operator shall record, for S-1106, the amount of each fuel fired in units of standard cubic feet, the concentration of nitrogen oxides in the exhaust from S-1106 in ppmv corrected to 3% oxygen, the oxygen content in the combustion exhaust from S-1106, each time period during which S-1106 is operated without abatement by A-1106 and each time period during which S-1106 is operated without ammonia injection at A-1106. The District approved log shall be retained on site for at least 5 years from date of last entry and shall be made available to the District staff upon request. (basis: cumulative increase, offsets)
- H15.) If, based on District approved source test results, emissions from S-1106 exceed permitted and/or offset emission levels, Permittee/Owner/Operator shall provide additional District approved emission reduction credits to the District in the amount and of the type(s) determined by the District to be due, to offset the emissions that are in excess of permitted and/or offset emission levels. (basis: offsets)

#### **RECOMMENDATION**

Issue a condition change to Tesoro Refining and Marketing Company for the Permit to Operate the following source:

**S-1106 Furnace FU72, No. 4 Hydrodesulfurization Reactor Feed Heater, Natural Gas Fired, Maximum Firing Rate (HHV): 30 MMBtu/hr abated by A-1106 Selective Catalytic Reduction System**

#### **EXEMPTIONS**

none

By: \_\_\_\_\_  
Pamela J. Leong  
Air Quality Engineer II  
November 30, 2005

Appendix A

**Condition # 19199**

Permit Application #2508

Permit Application 13803: Clarify conditions to allow owner/operator to bypass A-1106 SCR during shutdown of S-1106 (part H9).

Logistical Improvements

- A1.) Not more than 30 days after the start-up of Logistical Improvements for which an Authority to Construct was issued pursuant to permit application #2508, Permittee/Owner/Operator shall ensure that the District's Engineering Division is in receipt of the actual fugitive component count, by named type and service, installed pursuant to Authority to Construct #2508 as part of the Logistical Improvements project. (basis: cumulative increase, offsets, toxics)
- A2.) If the actual fugitive component count, by named type and service, installed pursuant to Authority to Construct #2508 as part of the Logistical Improvements project results in an emission quantification larger than that amount already charged to the plant cumulative increase for the Logistical Improvements project fugitive emissions, the District will adjust the cumulative increase upward to reflect the larger emission quantification and Permittee/Owner/Operator shall promptly provide to the District, District approved emission offsets of the type and amount specified by the District to be due. (basis: offsets)
- A3.) Permittee/Owner/Operator shall ensure that each flange/connector installed is of a design that is District approved BACT compliant technology and that total organic compound emissions from each flange/connector do not exceed 100 ppm, subject to the leak repair provisions of Regulation 8, Rule 18. (basis: BACT, Reg. 8-18)
- A4.) Permittee/Owner/Operator shall ensure that each valve installed is of a design that is District approved BACT compliant technology. Total organic compound emissions from each valve shall not exceed 100 ppm, subject to the leak repair provisions of Regulation 8, Rule 18. (basis: BACT, Reg. 8-18)
- A5.) Permittee/Owner/Operator shall ensure that each pump installed is of a design that is District approved BACT compliant technology. Total organic compound emissions from each pump shall not exceed 100 ppm, subject to the leak repair provisions of Regulation 8, Rule 18. (basis: BACT, Reg. 8-18)
- A6.) Permittee/Owner/Operator shall ensure that each process sample system installed is a closed loop, continuous flow design and in no event shall there be any line purging to process drains. (basis: BACT, Reg. 8-18)
- A7.) Permittee/Owner/Operator shall ensure that each process drain installed is fitted and operated with a District approved "P" trap sealing system which prevents organic emissions from the process waste stream from escaping from the drain into the atmosphere. (basis: BACT)
- A8.) Permittee/Owner/Operator shall ensure that each pressure relief valve installed in hydrocarbon service is vented to the refinery fuel gas system or an abatement device with a capture/destruction efficiency of 98 wt% or more approved for this use in advance by the District. (basis: BACT, Reg. 8-28)

Two New Flare Gas Recovery  
Compressors Each with a Maximum  
Rated Capacity of 4 MMSCFD

- B1.) Not more than 30 days after the start-up of either of Two New Flare Gas Recovery Compressors for which an Authority to Construct was issued pursuant to permit application #2508, Permittee/Owner/Operator shall ensure that the District's Engineering Division is in receipt of the actual fugitive component count, by named type and service, installed pursuant to Authority to Construct #2508 as part of the Logistical Improvements project. (basis: cumulative increase, offsets, toxics)
- B2.) If the actual fugitive component count, by named type and service, installed pursuant to Authority to Construct #2508 as part of the Flare Gas Recovery Compressor project results in an emission quantification larger than that amount already charged to the plant cumulative increase for the Flare Gas Recovery Compressor project fugitive emissions, the District will adjust the cumulative increase upward to reflect the larger emission quantification and Permittee/Owner/ Operator shall promptly provide to the District, District approved emission offsets of the type and amount specified by the District to be due. (basis: offsets)
- B3.) Permittee/Owner/Operator shall ensure that each flange/connector installed is of a design that is District approved BACT compliant technology and that total organic compound emissions from each flange/connector do not exceed 100 ppm, subject to the leak repair provisions of Regulation 8, Rule 18. (basis: BACT, Reg. 8-18)
- B4.) Permittee/Owner/Operator shall ensure that each valve installed is of a design that is District approved BACT compliant technology. Total organic compound emissions from each valve shall not exceed 100 ppm, subject to the leak repair provisions of Regulation 8, Rule 18. (basis: BACT, Reg. 8-18)
- B5.) Permittee/Owner/Operator shall ensure that each pump installed is of a design that is District approved BACT compliant technology. Total organic compound emissions from each pump shall not exceed 100 ppm, subject to the leak repair provisions of Regulation 8, Rule 18. (basis: BACT, Reg. 8-18)
- B6.) Permittee/Owner/Operator shall ensure that each process sample system installed is a closed loop, continuous flow design and in no event shall there be any line purging to process drains. (basis: BACT, Reg. 8-18)
- B7.) Permittee/Owner/Operator shall ensure that each process drain installed is fitted and operated with a District approved "P" trap sealing system which prevents organic emissions from the process waste stream from escaping from the drain into the atmosphere. (basis: BACT)
- B8.) Permittee/Owner/Operator shall ensure that each pressure relief valve installed in hydrocarbon service is vented to the refinery fuel gas system or an abatement device with a capture/destruction efficiency of 98 wt% or more approved for this use in advance by the District. (basis: BACT, Reg. 8-28)

S-802 Fluid Catalytic Cracking Unit  
(No. 4 Gas Plant) FCCU Naphtha Splitter

- C1.) Not more than 30 days after the start-up of the FCCU Naphtha Splitter for which an Authority to Construct was issued pursuant to permit application #2508, Permittee/Owner/Operator shall ensure that the District's Engineering Division is in receipt of the actual fugitive component count, by named type and service, installed pursuant to Authority to Construct #2508 as part of the S-802 FCCU Naphtha Splitter project. (basis: cumulative increase, offsets, toxics)
- C2.) If the actual fugitive component count, by named type and service, installed pursuant to Authority to Construct #2508 as part of the S-802 FCCU Naphtha Splitter project results in an emission

quantification larger than that amount already charged to the plant cumulative increase for the Naphtha Splitter project fugitive emissions, the District will adjust the cumulative increase upward to reflect the larger emission quantification and Permittee/Owner/Operator shall promptly provide to the District, District approved emission offsets of the type and amount specified by the District to be due.

(basis: offsets)

- C3.) Permittee/Owner/Operator shall ensure that each flange/connector installed is of a design that is District approved BACT compliant technology and that total organic compound emissions from each flange/connector do not exceed 100 ppm, subject to the leak repair provisions of Regulation 8, Rule 18. (basis: BACT, Reg. 8-18)
  - C4.) Permittee/Owner/Operator shall ensure that each valve installed is of a design that is District approved BACT compliant technology. Total organic compound emissions from each valve shall not exceed 100 ppm, subject to the leak repair provisions of Regulation 8, Rule 18. (basis: BACT, Reg. 8-18)
  - C5.) Permittee/Owner/Operator shall ensure that each pump installed is of a design that is District approved BACT compliant technology. Total organic compound emissions from each pump shall not exceed 100 ppm, subject to the leak repair provisions of Regulation 8, Rule 18. (basis: BACT, Reg. 8-18)
  - C6.) Permittee/Owner/Operator shall ensure that each process sample system installed is a closed loop, continuous flow design and in no event shall there be any line purging to process drains. (basis: BACT, Reg. 8-18)
  - C7.) Permittee/Owner/Operator shall ensure that each process drain installed is fitted and operated with a District approved "P" trap sealing system which prevents organic emissions from the process waste stream from escaping from the drain into the atmosphere. (basis: BACT)
  - C8.) Permittee/Owner/Operator shall ensure that each pressure relief valve installed in hydrocarbon service is vented to the refinery fuel gas system or an abatement device with a capture/destruction efficiency of 98 wt% or more approved for this use in advance by the District. (basis: BACT, Reg. 8-28)
- S-975 No. 4 Gas Plant Cooling Tower; Marley,  
13-24A, with 4 Pumps, Sum Total Maximum  
Capacity: 4,140,000 Gallons/Hr
- D1.) Permittee/Owner/Operator shall ensure that the total cooling tower water recirculation rate at S-975 does not exceed 4,140,000 gallons per hour or 69,000 gallons per minute. (basis: cumulative increase, offsets, BACT)
  - D2.) Within 60 days after the date that the change of conditions authorization letter is issued by the District for S-975 pursuant to application #2508, Permittee/Owner/Operator shall measure the maximum cooling tower water recirculation rate at S-975 using a District approved methodology. Permittee/Owner/Operator shall notify the District in writing of the date that the maximum cooling tower water recirculation flow rate measurement is to occur at least 10 days prior to the scheduled test date. Permittee/Owner/Operator shall provide the test data and the test results to the District's Engineering Division within 30 days after the date of the testing. (basis: cumulative increase, offsets, BACT)
  - D3.) The total dissolved solids content of the cooling tower water at S-975 shall not exceed 5000 milligrams per liter. (basis: cumulative increase, offsets)

- D4.) At least once each quarter, Permittee shall sample the cooling tower water at S-975 and subject the sample to a District approved laboratory analysis to determine its total dissolved solids content. (basis: cumulative increase, offsets)
- D5.) The POC content of the cooling tower water at S-975 shall not exceed 100 ppm gasoline range organics (EPA Method 8015) and 100 ppm diesel range organics (EPA Method 8015) as measured at the cooling water return line or at the basin or at any other location at S-975, as determined by the results of EPA laboratory method 8015. (basis: BACT)
- D5A.) deleted (basis: Startup conditions completed: The value XXXX ppm in condition #5 above shall be set by the District after the District has obtained and reviewed laboratory data generated pursuant to these conditions.  
(basis: start-up, BACT))
- D6.) Within 45 days after the date that the change of conditions authorization letter is issued by the District for S-975 pursuant to application #2508, Permittee/Owner/Operator shall sample the cooling tower water at S-975 at the cooling water return line twice each WEEK and at the basin once each MONTH. After twenty six (26) weeks of District approved sampling and sample analysis data, Permittee/Owner/Operator shall sample the cooling tower water at S-975 at the cooling water return line ONCE each WEEK and Permittee/Owner/Operator shall ensure that each sample is subjected to analysis by EPA laboratory method 8015. The results of the laboratory analysis shall disclose the organic content of the S-975 cooling tower water. Permittee/Owner/Operator shall ensure that the results of the each laboratory analysis along with the laboratory report of each analysis shall be available on site for inspection by District staff not later than two weeks (14 calendar days) after the date on which the sample was taken from S-975. (basis: BACT)
- D7.) Permittee/Owner/Operator shall ensure that there is a District approved sample point at the cooling tower water return line for S-975 where cooling tower water in route to S-975 can be sampled. (basis: BACT)
- D8.) In a District approved log, Permittee/Owner/Operator shall record each date and location from which each sample of cooling tower was taken and the purpose of the sample. Permittee/Owner/Operator shall record the results of the laboratory analyses conducted pursuant to the requirements of these conditions along with copies of the laboratory results that disclose the date of the sampling, the location from which the sample was taken, the organic content of the cooling tower water determined by the laboratory method, the total dissolved solids content of the sample, the date of the analysis and name and address of the laboratory that conducted the analysis. The District approved log shall be retained on site for at least 5 years from last entry and be made available to the District staff upon request. (basis: cumulative increase, offsets, BACT)
- S-982 No. 2 Hydrodesulfurization Unit; Cooling Tower; Capacity: 1,080,000 Gallons Per Hour
- E1.) Permittee/Owner/Operator shall ensure that the total cooling tower water recirculation rate at S-982 shall not exceed 1,080,000 gallons per hour or 18,000 gallons per minute. (basis: cumulative increase, offsets, BACT)
- E2.) Within 60 days after the date that the change of conditions authorization letter is issued by the District for S-982 pursuant to application #2508, Permittee/Owner/Operator shall measure the maximum cooling tower water recirculation rate at S-982 using a District approved methodology. Permittee/Owner/Operator shall notify the District in writing of the date that the maximum cooling tower water recirculation flow rate measurement is to occur at least 10 days prior to the

scheduled test date. Permittee/Owner/Operator shall provide the test data and the test results to the District's Engineering Division within 30 days after the date of the testing.  
(basis: cumulative increase, offsets, BACT)

- E3.) The total dissolved solids content of the cooling tower water at S-982 shall not exceed 5000 milligrams per liter. (basis: cumulative increase, offsets)
- E4.) At least once each quarter, Permittee shall sample the cooling tower water at S-982 and subject the sample to a District approved laboratory analysis to determine its total dissolved solids content. (basis: cumulative increase, offsets)
- E5.) The POC content of the cooling tower water at S-982 shall not exceed 100 ppm gasoline range organics (EPA Method 8015) and 100 ppm diesel range organics (EPA Method 8015) as measured at the cooling water return line or at the basin or at any other location at S-982, as determined by the results of EPA laboratory method 8015. (basis: BACT)
- E5A.) deleted (basis: Startup conditions completed: The value XXXX ppm in condition #5 above shall be set by the District after the District has obtained and reviewed laboratory data generated pursuant to these conditions. (basis: start-up, BACT))
- E6.) Within 45 days after the date that the change of conditions authorization letter is issued by the District for S-982 pursuant to application #2508, Permittee/Owner/ Operator shall sample the cooling tower water at S-982 at the cooling water return line twice each WEEK and at the basin once each MONTH. After twenty six (26) weeks of District approved sampling and sample analysis data, Permittee/Owner/ Operator shall sample the cooling tower water at S-982 at the cooling water return line ONCE each WEEK and Permittee/Owner/Operator shall ensure that each sample is subjected to analysis by EPA laboratory method 8015. The results of the laboratory analysis shall disclose the organic content of the S-982 cooling tower water. Permittee/Owner/Operator shall ensure that the results of the each laboratory analysis along with the laboratory report of each analysis shall be available on site for inspection by District staff not later than two weeks (14 calendar days) after the date on which the sample was taken from S-982. (basis: BACT)
- E7.) Permittee/Owner/Operator shall ensure that there is a District approved sample point at the cooling tower water return line for S-982 where cooling tower water in route to S-982 can be sampled. (basis: BACT)
- E8.) In a District approved log, Permittee/Owner/Operator shall record each date and location from which each sample of cooling tower was taken and the purpose of the sample. Permittee/Owner/Operator shall record the results of the laboratory analyses conducted pursuant to the requirements of these conditions along with copies of the laboratory results that disclose the date of the sampling, the location from which the sample was taken, the organic content of the cooling tower water determined by the laboratory method, the total dissolved solids content of the sample, the date of the analysis and name and address of the laboratory that conducted the analysis. The District approved log shall be retained on site for at least 5 years from last entry and be made available to the District staff upon request. (basis: cumulative increase, offsets, BACT)
- S-1100 Iso-Octene Unit, Maximum Production  
Capacity: 3000 BPD (1,095,000 BPY)
- F0.) Permittee/Owner/Operator shall ensure that the total daily iso-octene production at S-1100 does not exceed 3000 barrels during each calendar day.  
(basis: Regulation 2-2-419)
- F1.) Not more than 30 days after the start-up of the Iso-Octene Unit for which an Authority to Construct was issued pursuant to permit application #2508, Permittee/Owner/Operator shall



ensure that the District's Engineering Division is in receipt of the actual fugitive component count, by named type and service, installed pursuant to Authority to Construct #2508 as part of the S-1100 Iso-Octene Unit project. (basis: cumulative increase, offsets, toxics)

- F2.) If the actual fugitive component count, by named type and service, installed pursuant to Authority to Construct #2508 as part of the S-1100 Iso-Octene Unit project results in an emission quantification larger than that amount already charged to the plant cumulative increase for the Iso-Octene project fugitive emissions, the District will adjust the cumulative increase upward to reflect the larger emission quantification and Permittee/Owner/Operator shall promptly provide to the District, District approved emission offsets of the type and amount specified by the District to be due. (basis: offsets)
- F3.) Permittee/Owner/Operator shall ensure that each flange/connector installed is of a design that is District approved BACT compliant technology and that total organic compound emissions from each flange/connector do not exceed 100 ppm, subject to the leak repair provisions of Regulation 8, Rule 18. (basis: BACT, Reg. 8-18)
- F4.) Permittee/Owner/Operator shall ensure that each valve installed is of a design that is District approved BACT compliant technology. Total organic compound emissions from each valve shall not exceed 100 ppm, subject to the leak repair provisions of Regulation 8, Rule 18. (basis: BACT, Reg. 8-18)
- F5.) Permittee/Owner/Operator shall ensure that each pump installed is of a design that is District approved BACT compliant technology. Total organic compound emissions from each pump shall not exceed 100 ppm, subject to the leak repair provisions of Regulation 8, Rule 18. (basis: BACT, Reg. 8-18)
- F6.) Permittee/Owner/Operator shall ensure that each process sample system installed is a closed loop, continuous flow design and in no event shall there be any line purging to process drains. (basis: BACT, Reg. 8-18)
- F7.) Permittee/Owner/Operator shall ensure that each process drain installed is fitted and operated with a District approved "P" trap sealing system which prevents organic emissions from the process waste stream from escaping from the drain into the atmosphere. (basis: BACT)
- F8.) Permittee/Owner/Operator shall ensure that each pressure relief valve installed in hydrocarbon service is vented to the refinery fuel gas system or an abatement device with a capture/destruction efficiency of 98 wt% or more approved for this use in advance by the District. (basis: BACT, Reg. 8-28)
- F9.) In a District approved log, in units of barrels or gallons, Permittee/Owner/Operator shall record the amount of iso-octene produced at S-1100 each calendar day, each month, and for each rolling 12 consecutive month period. The District approved log shall be retained on site for at least 5 years from date of last entry and shall be made available to the District staff upon request. (basis: cumulative increase)
- S-1105 No. 4 Hydrodesulfurization Unit; Maximum Capacity: 40,080 BPD (14,629,200 BPY)
- G0.) Permittee/Owner/Operator shall ensure that the total throughput of hydrocarbon material/feed material to S-1105 does not exceed 40,080 barrels during each calendar day. (basis: Regulation 2-2-419)
- G1.) Not more than 30 days after the start-up of the FCCU Naphtha Splitter for which an Authority to Construct was issued pursuant to permit application #2508, Permittee/Owner/Operator shall

ensure that the District's Engineering Division is in receipt of the actual fugitive component count, by named type and service, installed pursuant to Authority to Construct #2508 as part of the S-1105 No. 4 Hydrodesulfurization Unit. (basis: cumulative increase, offsets, toxics)

- G2.) If the actual fugitive component count, by named type and service, installed pursuant to Authority to Construct #2508 as part of the S-1105 No. 4 Hydrodesulfurization Unit project results in an emission quantification larger than that amount already charged to the plant cumulative increase for the No. 4 Hydrodesulfurization fugitive emissions, the District will adjust the cumulative increase upward to reflect the larger emission quantification and Permittee/Owner/Operator shall promptly provide to the District, District approved emission offsets of the type and amount specified by the District to be due. (basis: offsets)
- G3.) Permittee/Owner/Operator shall ensure that each flange/connector installed is of a design that is District approved BACT compliant technology and that total organic compound emissions from each flange/connector do not exceed 100 ppm, subject to the leak repair provisions of Regulation 8, Rule 18.  
(basis: BACT, Reg. 8-18)
- G4.) Permittee/Owner/Operator shall ensure that each valve installed is of a design that is District approved BACT compliant technology. Total organic compound emissions from each valve shall not exceed 100 ppm, subject to the leak repair provisions of Regulation 8, Rule 18.  
(basis: BACT, Reg. 8-18)
- G5.) Permittee/Owner/Operator shall ensure that each pump installed is of a design that is District approved BACT compliant technology. Total organic compound emissions from each pump shall not exceed 100 ppm, subject to the leak repair provisions of Regulation 8, Rule 18.  
(basis: BACT, Reg. 8-18)
- G6.) Permittee/Owner/Operator shall ensure that each process sample system installed is a closed loop, continuous flow design and in no event shall there be any line purging to process drains. (basis: BACT, Reg. 8-18)
- G7.) Permittee/Owner/Operator shall ensure that each process drain installed is fitted and operated with a District approved "P" trap sealing system which prevents organic emissions from the process waste stream from escaping from the drain into the atmosphere. (basis: BACT)
- G8.) Permittee/Owner/Operator shall ensure that each pressure relief valve installed in hydrocarbon service is vented to the refinery fuel gas system or an abatement device with a capture/destruction efficiency of 98 wt% or more approved for this use in advance by the District. (basis: BACT, Reg. 8-28)
- G9.) In a District approved log, Permittee/Owner/Operator shall record the amount of feed material throughput to S-1105 each day, each month, and for each 12 consecutive month period. The District approved log shall be retained on site for at least 5 years from date of last entry and shall be made available to the District staff upon request.  
(basis: cumulative increase)
- S-1106 Furnace; FU72, No. 4 Hydrodesulfurization  
Reactor Feed Heater, Natural Gas Fired,  
Maximum Firing Rate (HHV): 30 MMBtu/hr  
abated by A-1106 Selective Catalytic  
Reduction System
- H0.) Permittee/Owner/Operator shall ensure that the maximum fuel firing rate at S-1106 does not exceed 30 MMBtu/hr averaged over each calendar day by dividing the fuel use rate during each day by 24. (basis: cumulative increase)

- H1.) Permittee/Owner/Operator shall ensure that no fuel other than natural gas is fired at S-1106. (basis: cumulative increase, toxics)
- H2.) Permittee/Owner/Operator shall ensure that S-1106 is not be operated unless it is equipped with a District approved fuel flow meter that measures the volume of fuel throughput to S-1106 in units of standard cubic feet. (basis: cumulative increase)
- H3.) Permittee/Owner/Operator shall ensure that the total fuel use at S-1106 does not exceed 225.257 million standard cubic feet of natural gas during any rolling 12 consecutive month period. (basis: cumulative increase, toxics, offsets)
- H4.) Permittee/Owner/Operator shall ensure that NO<sub>x</sub> emissions from S-1106 do not exceed 10 ppmv, dry, at 3% oxygen, based on a three hour average, after abatement at A-1106. (basis: BACT, cumulative increase, offsets)
- H5.) Permittee/Owner/Operator shall ensure that CO emissions from S-1106 do not exceed 50 ppmv, dry, at 3% oxygen, based on a three hour average. (basis: BACT, cumulative increase, offsets)
- H6.) Permittee/Owner/Operator shall ensure that POC emissions from S-1106 do not exceed 0.619 ton per rolling consecutive 12 month period (or the equivalent emission rate prorated to the time period during which emissions are measured/calculated). (basis: cumulative increase, offsets)
- H7.) Permittee/Owner/Operator shall ensure that PM-10 emissions from S-1106 do not exceed 0.856 ton per rolling consecutive 12 month period (or the equivalent emission rate prorated to the time period during which emissions are measured/calculated). (basis: cumulative increase, offsets)
- H8.) Permittee/Owner/Operator shall ensure that SO<sub>2</sub> emissions from S-1106 shall not exceed 0.068 ton per rolling consecutive 12 month period (or the equivalent emission rate prorated to the time period during which emissions are measured/calculated). (basis: cumulative increase, BACT, offsets)
- H9.) Permittee/Owner/Operator shall ensure that S-1106 is abated by A-1106 at all times that a fuel is fired at S-1106 except for not more than 144 hours during any rolling 12 consecutive month period and during shutdown as defined by Regulation 9-10-218. The 144 hours is for start-up of S-1106. At all times other than the 144 hours per 12 consecutive month period and during shutdown as defined by Regulation 9-10-218, while a fuel is fired at S-1106, S-1106 shall be abated by A-1106 and there shall be ammonia injection at A-1106. (basis: BACT)
- H10.) Permittee/Owner/Operator shall ensure that ammonia slip from A-1106 does not exceed 20 ppmv, dry, at 3% oxygen averaged over any 3 hour period. (basis: toxics)
- H11.) Notwithstanding any provision of District regulations allowing for the malfunction of or lack of operation of the CEM, Permittee/Owner/Operator shall not operate S-1106 without a District approved continuous emissions monitoring device that continuously measures and continuously records the concentration of nitrogen oxides, in ppmv units, in the combustion exhaust from S-1106 corrected to 3 ppmv oxygen, dry; and the device shall continuously measure and continuously record the oxygen concentration in the combustion exhaust from S-1106. (basis: cumulative increase, BACT, offsets)
- H12.) Once each calendar year Permittee/Owner/Operator shall ensure that a District approved source test is conducted that measures CO emissions from S-1106. The first CO source test for S-1106

shall be conducted within 60 days after the first date that fuel is first fired at S-1106. The District approved source test shall measure the emission rate of CO from S-1106 and the amount of oxygen in the S-1106 exhaust. Because of this condition S-1106 does not need a CEM for CO.

Permittee/Owner/Operator shall ensure that within 30 days of the date of completion of the (each) District approved source test, two identical copies of the results of the source test, each referencing permit application #2508, S-1106, and plant #14628 are received by the District and that one copy is addressed to the District's Source Test Manager, and that the other copy is addressed the District's Engineering Division. (basis: start-up, offsets, BACT, cumulative increase, toxics)

- H13.) Permittee/Owner/Operator shall ensure that a District approved source test is conducted that measures emissions from S-1106 and that the source test for S-1106 is conducted within 60 days after the first date that fuel is first fired at S-1106. The District approved source test shall measure the emission rate of NO<sub>x</sub>, CO, POC, SO<sub>2</sub>, ammonia, and PM-10 from S-1106 while it is operated at a fuel feed rate of 22857 SCF of natural gas per hour or more. For NO<sub>x</sub>, CO, and ammonia, the measurement shall be based on a three hour average. If the fuel firing rate of S-1106 during the testing is less than 22857 SCF natural gas per hour, then Permittee/Owner/Operator shall conduct a subsequent District approved source test at S-1106 every twelve months thereafter, until a District approved source test is completed while S-1106 is fired at 22857 SCF of natural gas per hour or more during the entire test period.

Permittee/Owner/Operator shall ensure that within 30 days of the date of completion of the (each) District approved source test, two identical copies of the results of the source test, each referencing permit application #2508, S-1106, and plant #14628 are received by the District and that one copy is addressed to the District's Source Test Manager, and that the other copy is addressed the District's Engineering Division. (basis: start-up, offsets, BACT, cumulative increase, toxics)

- H14.) In a District approved log, Permittee/Owner/Operator shall record, for S-1106, the amount of each fuel fired in units of standard cubic feet, the concentration of nitrogen oxides in the exhaust from S-1106 in ppmv corrected to 3% oxygen, the oxygen content in the combustion exhaust from S-1106, each time period during which S-1106 is operated without abatement by A-1106 and each time period during which S-1106 is operated without ammonia injection at A-1106. The District approved log shall be retained on site for at least 5 years from date of last entry and shall be made available to the District staff upon request. (basis: cumulative increase, offsets)
- H15.) If, based on District approved source test results, emissions from S-1106 exceed permitted and/or offset emission levels, Permittee/Owner/Operator shall provide additional District approved emission reduction credits to the District in the amount and of the type(s) determined by the District to be due, to offset the emissions that are in excess of permitted and/or offset emission levels. (basis: offsets)

**ENGINEERING EVALUATION**  
Tesoro Refining and Marketing Company  
PLANT NO. 14628  
APPLICATION NO. 14047

**BACKGROUND**

The Tesoro Refining and Marketing Company (Tesoro) is applying for a modification or clarification to the permit conditions for the Permit to Operate the following equipment:

**S-974 No. 3 HDS Fract Feed Heater (F56), Fired with Natural Gas or Refinery Fuel Gas, 110 MMBtu/hr abated by A-31 No. 3 HDS Selective Catalytic Reduction System**

The Operations Department at Tesoro's Golden Eagle Refinery has a goal to minimize flaring. During the No. 3 HDS Shutdown, a chemical called CATnap (Catalyst Passivation Chemical) will be used to help recover the hydrocarbon instead of purging the material to the flare. The CATnap does not contain any materials on the District list of Toxic Air Contaminants in Regulation 2-5. The boiling point of CATnap is between 460 to 920 F, which makes it exempt from permits as per Regulation 2-1-1232.

**2-1-123 Exemption, Liquid Storage and Loading Equipment:** The following equipment is exempt from the requirements of Sections 2-1-301 and 302, provided that the source does not require permitting pursuant to Section 2-1-319.

123.3 Containers, reservoirs, tanks or loading equipment used exclusively for:

3.2 Storage or loading of organic liquids or mixtures containing organic liquids; where the initial boiling point of the organics is greater than 302°F and exceeds the actual storage temperature by at least 180°F. This exemption does not apply to the storage or loading of asphalt or asphalt emulsion with a sulfur content equal to or greater than 0.5 wt%.

To use CATnap, the S-974 Heater needs to be operated at low flow conditions during shutdown. The owner/operator is subject to condition 8077 part A2A for the S-74 Heater. A startup provision was written into the condition, which allows the owner/operator to stop ammonia injection into A-31 Selective Catalytic Reduction System or SCR. At startup the temperature of S-974 and A-31 need to be increased above approximately 525F to inject ammonia. Part A2A allows the owner/operator to bypass A-31 for 144 hours per 12-month consecutive period for startup only.

Condition 8077:

A2A. For S-974, the total start-up period during which S-974 may be operated without ammonia injection at A-31, No. 3 HDS Selective Catalytic Reduction Unit, shall not exceed 72 hours per start-up. For S-974, the total start-up time shall not exceed 144 hours during any rolling 12 consecutive month period. During the start up period for S-974, NOx emissions from S-974 shall not exceed 146 pounds during any rolling 24 consecutive hour period. During the start up period for S-974, NOx emissions from S-973 and S-974 combined (when there is one combined emission point for S-973 and S-974) shall not exceed 146 pounds during any rolling 24 consecutive hour period. For S-974, sum total NOx emissions occurring during start up shall not exceed 876 pounds during any rolling 12 consecutive month period. NOx emissions from S-973 and S-974 combined (when there is one combined emission point for S-973 and S-974) shall not exceed 876 pounds during any rolling 12 consecutive month period.

(basis: cumulative increase, offsets)

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

Tesoro is requesting a modification to the permit condition that will allow the injection of ammonia into A-31 SCR to be stopped during shutdown as well as startup. During shutdown, ammonia is no longer injected at 525F. The S-974 Heater will be fired for a short period after the ammonia is removed to operate the heater at low flow conditions during shutdown. This will allow the use of the CATnap to recover hydrocarbon instead of purging the material to the flare. In addition, by steadily reducing the temperatures in the heater, rather than abruptly changing temperature the potential for thermally stressing the heater is reduced and/or eliminated. Tesoro is requesting a modification to the permit condition to allow the A-31 SCR to be operated without ammonia injection during shutdown as well as startup. This will allow them to operate the heater at low flow, recover the hydrocarbons in the vessels, and minimize flaring.

The owner/operator is already subject to the requirements of Regulation 9, Rule 10: Inorganic Gaseous Pollutants, Nitrogen Oxides and Carbon Monoxide from Boilers, Steam Generators, and Process Heaters in Petroleum Refineries. Regulation 9-10-301.1 provides for a method of determining compliance with the refinery-wide emission limit of 0.033 lb NOx/MMBtu of Regulation 9-10-301 with units in startup or shutdown. Regulation 9-10-218 defines a unit in startup and shutdown.

The emissions will not change from current permitted levels. The existing permit condition 8077 part A2A limits the amount of NOx to 146 lbs in a consecutive 24 hour period and to 876 lbs of NOx in a consecutive 12 month period. Tesoro will continue to comply with these mass emission limits of NOx.

## **EMISSIONS SUMMARY**

### **Annual Emissions:**

This application will clarify the conditions to explicitly allow the owner/operator to stop ammonia injection at the A-31 SCR during both startup and shutdown of S-974. There will be no associated increase in emissions with this clarification.

### **Plant Cumulative Increase:**

There will be no increase in emissions and the cumulative increase for this application is ZERO for all pollutants.

### **Toxic Risk Screening:**

Toxic emissions will not increase as a result of this application. Therefore, a risk screening analysis is not required.

## **STATEMENT OF COMPLIANCE**

The owner/operator of S-974 No. 3 HDS Fract Heater shall comply with Reg. 6 (Particulate Matter and Visible Emissions Standards) and Reg. 9-1-301 (Inorganic Gaseous Pollutants: Sulfur Dioxide for Limitations on Ground Level Concentrations). The owner/operator is expected to comply with Regulation 6 since the unit is fueled with natural gas or refinery fuel gas. Thus for any period aggregating more than three minutes in any hour, there should be no visible emission as dark or darker than No. 1 on the Ringlemann Chart (Regulation 6-301) and no visible emission to exceed 20% opacity (Regulation 6-302). The owner/operator is subject to Regulation 9 Rule 10: Nitrogen Oxides and Carbon Monoxide from Boilers, Steam Generators, and Process Heaters in Petroleum Refineries. The owner/operator is subject to the facility wide emission limit for NOx of 0.033 lb NOx per million Btu of heat input based on an operating-day average as per Regulation 9-10-301. The owner/operator is also subject to the emission limit for CO of 400 ppmvd at 3% O2 based on an operating-day average as per Regulation 9-10-305. The owner/operator is subject to the record keeping requirements of Regulation 9-10-504 and the reporting requirements of Regulation 9-10-505. The owner/operator is subject to 9-10-301.1 when units are in startup or shutdown. Startup and shutdown are defined in Regulation 9-10-218.

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

Because refinery fuel gas (process gas) is burned at S-974, the owner/operator is subject to NSPS Subpart J. The owner/operator meets the requirements in 60.104(a)(1) since the hydrogen sulfide in the fuel gas is monitored.

The project is considered to be ministerial under the District's CEQA regulation 2-1-311 and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard permit conditions and standard emissions factors and therefore is not discretionary as defined by CEQA. (Permit Handbook Chapter 2.4)

The project is over 1000 feet from the nearest school and therefore not subject to the public notification requirements of Reg. 2-1-412.

**Best Available Control Technology:** In accordance with Regulation 2, Rule 2, Section 301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NO<sub>x</sub>, CO, SO<sub>2</sub> or PM<sub>10</sub>. Emissions will not increase as a result of this application.

**Offsets:** There is no emission increase with this application and offsets do not apply.

#### **NSPS**

Because refinery fuel gas (process gas) is burned at S-974, the owner/operator is subject to NSPS Subpart J. The owner/operator meets the requirements in 60.104(a)(1) since the hydrogen sulfide in the fuel gas is monitored.

#### **PSD and NESHAPS**

PSD and NESHAPS do not apply.

#### **PERMIT CONDITIONS**

The owner/operator is subject to permit condition 8077 parts A2A and A2B for S-974. Only parts A2A and A2B will be shown. The rest of the condition is found in Appendix A. Changes are in strikeout/underline format.

#### **PERMIT NO. 3318: REFINERY MODERNIZATION PROJECT PERMIT CONDITIONS**

##### **NEW PERMIT CONDITIONS FOR PERMIT NO. 3318**

Permit Application 14047: Clarify conditions to allow owner/operator to shutdown ammonia injection to A-31 SCR during both startup and shutdown of S-974 (Part A2A).

A2A. For S-974, the total start-up or shutdown period during which S-974 may be operated without ammonia injection at A-31, No. 3 HDS Selective Catalytic Reduction Unit, shall not exceed 72 hours per start-up or shutdown. For S-974, the total combined start-up and shutdown time shall not exceed 144 hours during any rolling 12 consecutive month period. During the start up or shutdown period for S-974, NO<sub>x</sub> emissions from S-974 shall not exceed 146 pounds during any rolling 24 consecutive hour period. During the start up or shutdown period for S-974, NO<sub>x</sub> emissions from S-973 and S-974 combined (when there is one combined emission point for S-973 and S-974) shall not exceed 146 pounds during any rolling 24 consecutive hour period. For S-974, sum total NO<sub>x</sub> emissions occurring during start up and shutdown shall not exceed 876 pounds during any rolling 12 consecutive month period. NO<sub>x</sub> emissions from S-973 and S-974 combined (when there is one combined emission point for S-973 and S-974) shall not exceed 876 pounds during any rolling 12 consecutive month period. (basis: cumulative increase, offsets)

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

A2B. Permittee/Owner/Operator shall begin ammonia injection at A-31 as soon as the temperature of the exhaust at the inlet of A-31 reaches 530 degrees Fahrenheit.  
(basis: cumulative increase, offsets)

**RECOMMENDATION**

Issue a condition change to Tesoro Refining and Marketing Company for the Permit to Operate the following source:

**S-974 No. 3 HDS Fract Feed Heater (F56), Fired with Natural Gas or Refinery Fuel Gas, 110 MMBtu/hr abated by A-31 No. 3 HDS Selective Catalytic Reduction System**

**EXEMPTIONS**

none

By: \_\_\_\_\_  
Pamela J. Leong  
Air Quality Engineer II  
January 6, 2006



Appendix A

COND# 8077 -----

S57 Tank A-57  
S323 Tank A-323  
S848 FCCU Merox Unit  
S850 No. 3 HDS Unit  
S908 No. 3 Crude Heater (F8)  
S909 No. 1 Feed Prep Heater (F9)  
S912 No. 1 Feed Prep Heater (F12)  
S913 No. 2 Feed Prep Heater (F13)  
S916 No. 1 HDS Heater (F16)  
S917 No. 1 HDS Prefract Reboiler (F17)  
S919 No. 2 HDS Depent Reboiler (F19)  
S920 No. 2 HDS Charge Heater (F20)  
S921 No. 2 HDS Charge Heater (F21)  
S928 HDN Reactor A Heater (F28)  
S929 HDN Reactor B Heater (F29)  
S930 HDN Reactor C Heater (F30)  
S931 Hydrocracker Reactor 1 Heater (F31)  
S932 Hydrocracker Reactor 2 Heater (F32)  
S933 Hydrocracker Reactor 3 Heater (F33)  
S934 Hydrocracker Stabilizer Reboiler (F34)  
S935 Hydrocracker Splitter Reboiler (F35)  
S937 Hydrogen Plant Heater (F37)  
S938 HDN Prefractionator Heater (F38)  
S951 No. 2 Reformer Aux Reheater (F51)  
S952 Internal Combustion Engine  
S953 Internal Combustion Engine  
S954 Internal Combustion Engine  
S973 No. 3 HDS Recycle Gas Heater (F55)  
S974 No. 3 HDS Fract Feed Heater (F56)  
S991 FCCU Preheat Furnace H-57  
S1009 Alkylation Unit  
S1020 No. 3 UOP Reformer

PERMIT NO. 3318: REFINERY MODERNIZATION PROJECT PERMIT  
CONDITIONS

NEW PERMIT CONDITIONS FOR PERMIT NO. 3318

Permit Application 14047: Clarify conditions to allow owner/operator to shutdown ammonia injection to A-31 SCR during both startup and shutdown of S-974 (Part A2A).

A2A.For S-974, the total start-up or shutdown period during which S-974 may be operated without ammonia injection at A-31, No. 3 HDS Selective Catalytic Reduction Unit, shall not exceed 72 hours per start-up or shutdown. For S-974, the total combined start-up and shutdown time shall not exceed 144 hours during any rolling 12 consecutive month period. During the start up or shutdown period for S-974, NOx emissions from S-974 shall not exceed 146 pounds during any rolling 24 consecutive hour period. During the start up or shutdown period for S-974, NOx emissions from S-973 and S-974 combined (when there is one combined emission point for S-973 and S-974) shall not exceed 146 pounds during any rolling 24 consecutive hour period. For S-974, sum total NOx emissions occurring during start up and shutdown shall not exceed 876 pounds during any rolling

12 consecutive month period. NO<sub>x</sub> emissions from S-973 and S-974 combined (when there is one combined emission point for S-973 and S-974) shall not exceed 876 pounds during any rolling 12 consecutive month period.  
(basis: cumulative increase, offsets)

A2B. Permittee/Owner/Operator shall begin ammonia injection at A-31 as soon as the temperature of the exhaust at the inlet of A-31 reaches 530 degrees Fahrenheit.  
(basis: cumulative increase, offsets)

A8. Within 60 days of the installation of low NO<sub>x</sub> burners in Furnace S-908, Permittee/Owner/Operator shall conduct a District- approved source test for NO<sub>x</sub> and CO emissions on that furnace to determine compliance with Condition No. 6. After the installation of low NO<sub>x</sub> burners, NO<sub>x</sub> and CO source tests will be conducted annually on this furnace.  
(basis: cumulative increase, BACT)

A10. Permittee/Owner/Operator shall ensure that any new valves in volatile hydrocarbon service (i.e. handling material above 0.5 psia true vapor pressure) or ammonia service associated with this project shall be "low-emission" valves. For the purposes of this permit, "low-emission" valves are one of the following: 1) live loaded valves, 2) bellows valves, 3) diaphragm valves, or 4) other valve approved by the APCO, in writing.  
(basis: cumulative increase)

A11. Permittee/Owner/Operator shall provide the District with the exact number, by unit, of new valves, flanges, pumps, compressors, and relief valves in volatile hydrocarbon service (i.e. handling material above 0.5 psia vapor pressure) prior to the issuance of the permit to operate.  
(basis: cumulative increase)

A12. Any new pumps in volatile hydrocarbon service (i. e. handling material above 0.5 psia vapor pressure) or ammonia service associated with this project shall have double mechanical seals with a barrier fluid which either: 1) is at a higher pressure than the seal pressure, or 2) is vented to a closed system, or 3) shall install an equivalent sealing system approved by the APCO.  
(basis: cumulative increase, BACT, offsets)

A13. Permittee/Owner/Operator shall install at least one magnetically-driven pump or equivalent equipment approved by the APCO.  
(basis: cumulative increase, offsets, BACT)

A14. Permittee/Owner/Operator shall implement an inspection and maintenance program for all pumps, compressors, valves, and flanges associated with this project in

accordance with District Regulations 18, 25, and 28 with the following revisions:

- a. All accessible pumps, compressors, valves, and flanges shall be subject to quarterly inspection and maintenance criteria;
- b. The leak limitation shall be 1,000 ppm (expressed as methane) measured above background, 1 cm from the source;
- c. Within 7 days of detection, all leaks shall be repaired or minimized in accordance with the above referenced Regulations.

(basis: Regulation 8-18, Regulation 8-25, Regulation 8-28)

A16. For the purposes of these permit conditions, all source testing and monitoring requirements will be subject to the following general provisions:

- a. At least two weeks prior to testing, Permittee/Owner/Operator shall contact the District's Source Test Section, in writing, to provide notification of the testing procedure, date and time, and to obtain details on source testing requirements. Source test procedures are subject to approval of the APCO.
- b. Prior to commencement of construction, Permittee/Owner/Operator shall submit plans and specifications for the Continuous Emission Monitor (CEM) to the District's Source Test Section and obtain approval.
- c. Prior to commencement of construction, Permittee/Owner/Operator shall submit plans showing the details of sampling facilities to the District's Source Test Section and obtain approval.

(basis: MOP Volume IV)

A17. The mitigation measures in the Mitigation Monitoring Program for which the District is listed as the Responsible Entity are considered to be permit conditions for Permittee/Owner/Operator for the purposes of this Authority to Construct. These mitigation measures are specified in the Mitigated Negative Declaration adopted by the District on December 16, 1991.

(basis: cumulative increase, offsets)

MODIFIED PERMIT CONDITIONS FROM PERMIT NO. 22769 (THE NO. 3 HDS PERMIT) ADOPTED HERE FOR THIS PERMIT NO. 3318:

B1. Definitions.

- a. "Permitted annual emissions" shall mean the allowable emissions for a calendar year authorized by these conditions.
- b. "Total annual emissions" shall mean the actual emissions which occur in any calendar year.
- c. "Total monthly emissions" shall mean the actual emissions which occur in any calendar month.

- d. "Calendar day" (CD) of "calendar day basis" shall mean an average value determined by dividing the yearly total by 365.
- e. "Stream day" (SD) or "stream day basis" shall mean the total value occurring on any one 24-hour day, from midnight to midnight, and is the actual daily rate.
- f. "Calendar month" shall mean any month of the year measured from 12:01 A.M. on the first day of that month to midnight on the last day of that month.
- g. "Calendar year" or "year" shall mean the year measured from 12:01 A.M., January 1 to midnight, December 31.
- h. "permitted Monthly Maximum Emissions" shall mean the maximum allowable emissions for any calendar month authorized by these conditions.
- i. "Permitted Monthly Compensatory Emissions" shall mean the allowable emissions in a calendar month before compensatory emission reductions are required.
- j. "Startup" shall mean that period of time during which the piece of equipment in question is put into normal operation from an inactive status by following a prescribed series of separate steps or operations, not to exceed 8 hours.  
Permittee/Owner/Operator may develop and present specific alternate startup times for certain units. If approved by the APCO, these specific startup times will be used in place of the standard 8 hour time period for the given units.
- k. "Shutdown" shall mean that period of time during which the piece of equipment in question is taken out of service from a normal operating mode to an inactive status following a prescribed series of separate steps of operations, not to exceed 8 hours. Permittee/Owner/Operator may develop and present specific alternate shutdown times for certain units. If approved by the APCO, these specific shutdown times will be used in place of the standard 8 hour time period for the given units.
- l. "Light hydrocarbon service" shall mean the handling or service of liquid of gas-liquid streams with a true vapor pressure greater than 0.5 psia.  
(basis: definitions)

B2. Emissions. The specific emission points covered by the various limitations listed in A-D below are set forth in Table A of the Appendix to these Conditions.

A. Listed below are the permitted annual emission limits for the emission points covered by this permit. If the permitted annual emission limit for any pollutant is exceeded, the applicable provisions of Section 3A shall apply.

Particulates	443 tons/year
Hydrocarbons	296 tons/year *
Nox	3182 tons/year **

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

SO2 4580 tons/year  
CO 551 tons/year \*\*\*

\* To be reduced by 27.8 tons/yr as of July 1, 1991, in accordance with the requirements of Regulation 8, Rule 46 (Marine Lightering). To be reduced by 1.65 tons/yr upon startup of the No. 2 Hydrogen Plant.

\*\* To be reduced by 58.2 tons/yr upon startup of the No. 2 Hydrogen Plant.

\*\*\* To be increased by 22 tons/yr upon startup of the No. 2 Hydrogen Plant.

(basis: cumulative increase)

B. Listed below are the permitted monthly maximum emission limits for the emission points covered by this permit. If the permitted monthly maximum emission limit for any pollutant is exceeded, the applicable provisions of Section 3B shall apply.

Particulates 46 tons/month  
Hydrocarbons 77 tons/month  
NOx 346 tons/month \*  
SO2 684 tons/month  
CO 54.9 tons/month \*\*

\* To be reduced by 6.33 tons/mo upon startup of the No. 2 Hydrogen Plant.

\*\* To be increased by 2.2 tons/yr upon startup of the No. 2 Hydrogen Plant.

(basis: cumulative increase)

C. Listed below are the permitted monthly compensatory emission limits applicable to the emission points covered by this permit. If the permitted monthly compensatory emission limit for any pollutant is exceeded, the applicable provisions of Section 3C shall apply.

Particulates 42 tons/month  
CO 49.1 tons/month

(basis: cumulative increase, BACT, offsets)

D. If, at the end of any calendar month, the total emissions accumulated so far in that calendar year exceed the permitted annual emissions prorated to the number of months elapsed so far that year plus the amounts set forth below, the informational requirements of Section 3D shall apply.

Particulates 9 tons  
Hydrocarbons 35 tons  
NOx 69 tons  
SO2 258 tons  
CO 8.1 tons

(basis: cumulative increase, offsets)

E. The limits set forth in A & B above are legal limits which must not be exceeded. Accordingly, in the event that any such limit ever is exceeded, Permittee/Owner/Operator will be immediately subject

to the applicable sanctions in Section 3 below.  
(basis: cumulative increase, offsets)

B3. Emission Reductions. The following conditions will apply as appropriate, when any of the various permitted emission limits set forth in Section 2 above are exceeded.

A. If any of the permitted annual emission limits of B2 are exceeded, the following conditions shall apply:

- i. Permittee/Owner/Operator shall install and maintain on a permanent basis abatement equipment as specified in the Environmental Management Plan (or such other abatement measures approved by the Air Pollution Control Officer which will achieve equivalent emission reductions), to control emissions of the pollutant of concern so as to offset the excess at a ratio of 2:1 (i. e. for every ton per year by which the applicable limit is exceeded, the hardware to be installed or other measures to be taken shall achieve a permanent emission reduction of 2 tons per year). The limits in Condition 2A will be reduced accordingly;
  - ii. Permittee/Owner/Operator shall not process more than 108,000 barrels of crude oil per stream day or more than 97,000 barrels of crude oil per day averaged over any one calendar month until the emission reductions required under subsection A.i. are achieved; and
  - iii. the permitted annual emissions limit for the pollutant of concern shall be reduced by the amount by which said limit was exceeded on a prorated calendar monthly basis, until the emission reductions required under subsection A.i. above are achieved.
- (basis: cumulative increase, offsets, bubble)

B. If any of the permitted monthly maximum emission limits of 2B are exceeded, the following conditions shall apply:

- i. The excess shall be charged against the permitted annual limit in 2A above which is applicable to that pollutant by twice the amount by which the limit in 2B is exceeded; provided, however, that if such monthly excess occurs during December, then, to the extent that such excess cannot be charged as provided above without causing the annual limit to be exceeded, it will be charged once against the current calendar year and once against the following calendar year;
- ii. Permittee/Owner/Operator shall either (a) install and maintain on a permanent basis abatement equipment or take measures which will achieve equivalent emission reductions as

specified in the Environmental Management Plan to control emissions of the pollutant of concern so as to offset the excess at a ratio of 2:1 (i.e. for every ton per month by which the applicable limit is exceeded, the hardware to be installed or other measures to be taken shall achieve a permanent emission reduction of 2 tons per month); or (b) take such other abatement measures approved by the Air Pollution Control Officer which will prevent a recurrence of the type of incident which caused the excess; and iii. Permittee/Owner/Operator shall not process more than 108,000 barrels of crude oil per stream day or more than 97,000 barrels of crude oil per day averaged over any one calendar month until the emission reductions or other measures required under subsection B.ii. above are achieved. (basis: cumulative increase, offsets)

C. If any of the permitted monthly compensatory emission limits of 2C are exceeded, then the excess shall be charged against the permitted annual limit in 2A above which is applicable to that pollutant by twice the amount by which the limit in 2C is exceeded; provided, however, that if such monthly excess occurs during December, then, to the extent that such excess cannot be charged as provided above, it will be charged once against the current calendar year and once against the following calendar year. However, this provision shall only apply when the sanctions set forth in subsection B above are not triggered. (basis: cumulative increase, offsets)

D. If any of the limits of 2D are exceeded, Permittee/Owner/Operator shall submit to the District within 30 days of the end of that calendar month a revised Environmental Management Plan in accordance with Section 14 below, which shall indicate the steps to be taken to assure that the permitted annual emission limits in 2A will be met for that calendar year. (basis: cumulative increase, offsets)

E. Reductions of hydrocarbon may be used to offset increases NO<sub>x</sub> at a ratio of 1:1, provided that Permittee/Owner/Operator demonstrates to the satisfaction of the Air Pollution Control Officer that the increased NO<sub>x</sub> emissions will not cause or contribute to an excess of any ambient air quality standard for NO<sub>2</sub> at the point of maximum ground level impact, as defined in Section 2-2-206 of the District's Rules and Regulations. (basis: cumulative increase, offsets)

F. In the event that Permittee/Owner/Operator installs

abatement equipment to achieve 2:1 offsets on a permanent basis (or takes measures which will achieve equivalent permanent emission reductions) pursuant to subsection B. ii.(a) above, any such emission reductions will be credited towards emission reductions which may be required under subsection A.i. above for that same calendar year, provided the generation of offsets complies with applicable requirements of the SIP adopted version of Regulation 2, Rule 2.

(basis: cumulative increase, offsets)

B4. Monitoring. The following monitoring instruments listed shall be installed, calibrated, maintained and operated by Permittee/Owner/Operator:

A. An instrument to continuously monitor and record the H<sub>2</sub>S concentrations in fuel gas. being fed to the following new or modified units, which will be required to comply with the New Source Performance Standard for the burning of fuel gas (0.23 grams of H<sub>2</sub>S/dry standard m<sup>3</sup> on a 3-hour average basis):

- No. 3 HDS Recycle Gas Heater, S-973
- No. 3 HDS Fractionator Feed Heater, S-974
- FCCU Preheat Furnace, S-991
- Nos. 51, 53, and 54 Furnaces (S-951, S-1020, and S-1021, respectively)

(basis: NSPS)

B. An instrument to continuously monitor nitrogen oxide emissions and oxygen concentration in the flue gas from the following units:

- No. 3 HDS Recycle Gas Heater, S-973
- No. 3 HDS Fractionator Feed Heater, S-974
- FCCU Preheat Furnace, S-991
- No. 2 H<sub>2</sub> Plant Reforming Furnace, S-1031
- No. 2 H<sub>2</sub> Plant NH<sub>3</sub> Dissociation Furnace, S-1032
- No. 3 Crude Unit, No. 8 Furnace, S-908

(basis: cumulative increase, offsets)

C. An instrument to continuously or sequentially monitor stack oxygen concentrations on each of, and an instrument to monitor fuel usage by, the following units:

- #3 Crude Unit - Furnace #8, S-908,
- #1 Feed Prep. - Furnace #9, S-909,
- #4 Gas Plant - Furnace #10, S-910,
- #1 Feed Prep. - Furnace #12, S-912,
- #2 Feed Prep. - Furnace #13, S-913,
- #1 HDS - #16 Heater, S-916,
- #1 HDS - #17 Prefractionator Reboiler, S-917,
- #2 HDS - Depentanizer Reboiler, #19 Furnace, S-919,
- #2 HDS - #20 Charge Heater, S-920,
- #2 HDS - #21 Charge Heater, S-921,
- HDN Reactor - #28 Furnace, S-928,
- HDN Reactor - #29 Furnace, S-929,



Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

- HDN Reactor - #30 Furnace, S-930,
- Hydrocracker - #31 Furnace, S-931,
- Hydrocracker - #32 Furnace, S-932,
- Hydrocracker - #33 Furnace, S-933,
- Hydrocracker - #34 Furnace, S-934,
- Hydrocracker - #35 Furnace, S-935,
- Hydrogen Plant, Steam Reformer, #37 Furnace, S-937,
- HDN Prefractionator, #38 Furnace, S-938

(basis: cumulative increase, offsets)

To the extent that it is technologically feasible to do so, all of the required stack oxygen concentration monitors shall be equipped with oxygen analyzer controlled by feedback systems set at oxygen levels which will yield the minimum amount of nitrogen oxides while still achieving complete combustion. If such feedback systems are not feasible for any of these units, Permittee/Owner/Operator shall substitute alternative controls to be approved by the Air Pollution Control Officer, which will achieve the levels of NO<sub>x</sub> control equivalent to those specified in 7C below.

(basis: cumulative increase, offsets)

D. All other instruments listed on Table D of the Appendix to these Conditions, which are not specifically referred to in A-C above.

(basis: cumulative increase, offsets)

B5. Reporting and Record Keeping. The following conditions will document Permittee's/Owner's/Operator's emissions on a monthly basis, in addition to satisfying the requirements of Regulation 10- 1-402 of District regulations. These reporting requirements do not eliminate the need to comply with any other District reporting and record keeping requirements.

A. Permittee/Owner/Operator shall maintain a file containing all measurements, records, charts and other data which are required to be collected pursuant to the various provisions of this conditional permit, as well as all other data and calculations necessary to determine actual emissions from all emission points covered by this permit. This file, which may include, but not be limited to: the data collected from all in-stack monitoring instruments, the records on fuel input rates and relevant records of crude oil and other hydrocarbons processed. Estimates of emissions from all units covered by this permit which are included under the limits set forth in Section 2 above shall be calculated in accordance with Tables B & C of the Appendix to these Conditions. This material shall be kept available for District inspection for a period of at least 5 years following the date on which such measurements, records or data are made or recorded.

(basis: cumulative increase, offsets)

B. Permittee/Owner/Operator shall make a monthly report to the District, within 30 days after the end of each month, which shall specify the emissions from all operations covered by this permit during the previous month, and shall state in detail the basis therefor. The reporting format for such reports shall be structured so as to enable the Air Pollution Control Officer to readily determine compliance with the provisions of this Conditional Permit, and shall be subject to the approval of the APCO. Any computer programs utilized by Permittee/Owner/Operator to calculate emissions from any operations covered by this permit shall also be subject to the approval of the APCO.  
(basis: cumulative increase, offsets)

C. Permittee/Owner/Operator shall conduct monthly audits of all emission and fuel rate monitoring systems required under Section 4 above to insure that instrument accuracy is maintained. Permittee/Owner/Operator shall promptly repair all malfunctioning systems and replace any system that has a chronic problem. A record of the results of all such audits shall be maintained as part of the file required under A. above.  
(basis: cumulative increase, offsets)

B6. Process Unit Design.

A. The design feed rate to the Ammonia Recovery Plant shall be at least 75 tons/day.  
(basis: cumulative increase)

B. The following process unit design rates reflect the design and specifications outlined in the Permit application and were used to calculate allowable emissions from the modified Refinery:

UNIT	DESIGN PROCESS RATE
#3 HDS Unit, S-850	70,000 barrels/stream day
Merox Unit, S-848	55,000 barrels/stream day

(basis: cumulative increase, offsets)

These units shall be designed and built in accordance with the above specifications, and total annual emissions caused by these units shall not exceed the amount that would be produced if the unit were operated at no more than the above design process rates.  
(basis: cumulative increase, offsets)

C. The No. 3 HDS Unit (S-850) shall not process more than 70,000 barrels per stream day.  
(basis: cumulative increase, offsets)

D. The FCCU Merox Unit (S-848) shall not process more

than 55,000 barrels per stream day.  
(basis: cumulative increase, offsets)

#### B7. Combustion Controls.

A. Except during start-ups and shutdowns, the nitrogen oxides in the flue gases from the first three units listed in 4B above (S-973, 974, and 991) shall not exceed 40 ppm as NO<sub>2</sub> corrected to 3% oxygen averaged over any 8-hour period.  
(basis: cumulative increase, offsets, BACT)

B. The sum of the maximum firing rates of the first three units listed in 4B above (S-973, 974, and 991) shall not exceed 159 x 10<sup>6</sup> BTU/hr.  
(basis: cumulative increase, offsets)

C. For the furnaces listed in 4C above, Permittee/Owner/Operator shall demonstrate by source tests and calculations that, in the aggregate, NO<sub>x</sub> emissions do not exceed 160 lb. NO<sub>x</sub> per billion BTUs heat input when firing refinery fuel gas at, or as nearly as practicable to the maximum daily firing rates which occurred during the previous 6 months. Such demonstration shall be made at least 90 days prior to startup of the No. 3 HDS Unit and annually thereafter. If aggregate emissions from these units exceed 160 lb. NO<sub>x</sub> per billion BTU heat input, Permittee/Owner/Operator will install additional controls on other units at the Avon Refinery so as to achieve the same amount of control that would be obtained if all of the units listed in 4C did achieve, in the aggregate, an emission rate of 160 lb. NO<sub>x</sub>/billion BTU heat input.  
(basis: cumulative increase, offsets)

D. For the furnaces deleted from 4C above, namely sources 908, 917, 919, 934, 935, and 937, Permittee/Owner/Operator shall demonstrate by source test that NO<sub>x</sub> emissions do not exceed 60 ppmvd, at 3% oxygen, averaged over 8 hours, respectively, when firing refinery fuel gas at, or as nearly as practicable to the maximum daily firing rates which occurred during the previous 6 months. Such demonstration shall be made annually.  
(basis: cumulative increase, offsets)

#### B8. Hydrocarbon Controls.

A. All new compressor seals in hydrocarbon service associated with this project shall be vented to a closed gas system, except for two high purity hydrogen make-up compressors at the new No. 3 HDS Unit. The vapors from the seals on the three (3) existing compressors S-952, S-953, and S-954 shall be collected and vented directly to the compressor

inlets, or a closed gas system.  
(basis: cumulative increase, offsets, BACT)

B. All new pumps in light hydrocarbon service associated with this project shall be equipped with double mechanical seals, or Permittee/Owner/Operator shall retrofit other existing pumps with double mechanical seals so as to achieve the same amount of emission reductions that would be obtained by installing such seals on all of the new pumps referenced above.  
(basis: cumulative increase, offsets, BACT)

C. Hydrocarbon vapors associated with the two new 80,000-bbl cone roof tanks, S-1022 and S-1023 and two (2) existing tanks S-57 and S-323 shall be controlled by venting to the vapor recovery system, and tanks S- 57 and S-323 may only store or contain materials which have a vapor pressure of 1.5 psia or less. This condition is in place to assure that offsets provided as part of Application No. 27769 are permanent.  
(basis: cumulative increase, offsets, BACT)

D. In the event that No. 4 Gas Plant modifications are not constructed, Permittee/Owner/Operator shall retrofit eight (8) pumps in light hydrocarbon service with double mechanical seals or equivalent. In the event that the hydrogen recovery unit is not completed, Permittee/Owner/Operator shall receive a credit of three (3) lb per calendar day against the total fugitive hydrocarbon emissions as listed in Table E of the Appendix to this Conditional Permit.  
(basis: cumulative increase, offsets)

#### B9. Sulfur Recovery Facilities.

A. Within 48 months of the issuance of the Authority to Construct upon which this Conditional Permit is based, t The Clause unit at the sulfur Recovery facility shall be in final compliance with the substantive requirements of Section 9-1-305.4 of the District's Rules and Regulations, which will require such unit to achieve a sulfur removal efficiency that will result in emission of no more than 4 pounds of SO<sub>2</sub> per ton of sulfur processed. This limitation shall be achieved by means of the installation at the Clause unit of a new tail gas unit with a minimum capacity adequate to achieve this degree of control. In the event that the Authority to Construct upon which this Conditional Permit is based is challenged or appealed before the District's Hearing Board or before any court of competent jurisdiction, the deadline for final compliance set forth hereinabove will be extended until 48 months after the final judicial or quasi-

judicial resolution of any such challenge or appeal; but, in no such event shall such deadline be extended beyond January 1, 1989.

B. In emergency situations where the entire sulfur removal capability of the sulfur recovery facility is not operating, the refinery shall take immediate actions to assure that total SO<sub>2</sub> emissions from both the refinery and the sulfur recovery facility will not exceed 29 tons/stream day. These actions shall include, not need not be limited to, the following:

- i. Condense and store foul water stripper overhead.
- ii. Discontinue burning of coke at No. 6 Boiler.
- iii. Reduce Hydrocracker-HDN feed rate to 12,000 bbl/stream day.
- iv. Discontinue burning of fuel oil, except as required to maintain combustion stability and operating safety of the No. 5 and No. 6 Boilers.
- v. Reduce feed rate to the Coker and to the FCCU, and use all available de-sulfurized feed-stock as FCCU feed.
- vi. Shut off feed to No. 1, No. 2, and No. 3 HDS Units and "hot sweep" the reactors.
- vii. If any emission monitor for SO<sub>2</sub> is not operating properly, conduct a daily source test for the source in question. Such source tests shall consist of three continuous 30 minute measurements, taken at least 30 minutes apart, of the SO<sub>2</sub> concentration and stack gas flow rates. The average of these three measurements shall be used as the basis for establishing SO<sub>2</sub> emissions for purposes of calculation.
- viii. Calculate the emissions of SO<sub>2</sub> from all flares at the refinery, and report same to the District as part of the next monthly report required under 5B above.
- ix. Report this event to the BAAQMD by telephone as soon as possible with due regard to safety, and submit a written follow-up, detailing the specific measures taken by Permittee/Owner/Operator to control SO<sub>2</sub> emissions during the event, as part of the next monthly report required under 5B above. Measures other than those referred to in i.-vi. above, may be substituted for any of said measures, if Permittee/Owner/Operator can satisfy the Air Pollution Control Officer that total sulfur dioxide emissions from both the refinery and the sulfur recovery facilities will not exceed 29 tons/stream day.  
(basis: cumulative increase, offsets)

C. When the Sulfur Plant is shutdown and Acid Plant is operating, the refinery will immediately take the following actions to insure the H<sub>2</sub>S going to the sulfur recovery facility is within the capacity of

the Acid Plant under then-current operating conditions, and will not result in the emissions or more than 23 tons/stream of SO<sub>2</sub> from both the refinery and the sulfur recovery facility.

- i. Condense and store sufficient foul water stripper overhead, and/or
- ii. Reduce feed rate to the Hydrocracker-HDN, and/or
- iii. Reduce feed rate to the Coker, and/or
- iv. Reduce feed rate to the No. 1 HDS Unit, and/or
- v. Reduce feed rate to the No. 2 HDS Unit, and/or
- vi. Reduce feed rate to the No. 3 HDS Unit.
- vii. Calculate the emissions of SO<sub>2</sub> from all flares at the refinery, and report same to the District as part of the next monthly report required under 5B above.
- viii. Report this event to the BAAQMD by telephone, within one (1) working day, and submit a written follow-up, detailing the measures taken to control SO<sub>2</sub> emissions during the event, as part of the next monthly report required under 5B above.

Measures other than those referred to in i.-vi. above may be substituted for any of said measures, if Permittee/Owner/Operator can satisfy the Air Pollution Control Officer that total sulfur dioxide emissions from both the refinery and the sulfur recovery facilities will not exceed 23 tons/stream day.

(basis: cumulative increase, offsets)

#### B10.Access.

A. The APCO or his representatives and the U. S. Environmental Protection Agency shall have access to appropriate portions of the refinery and wharf, to conduct source tests or inspections in accordance with Section 1-440 of the District's Rules and Regulations, and the provisions of the Clean Air Act.

B. The APCO or his representatives and the U. S. Environmental Protection Agency shall have the right to inspect and audit all records which are required to be maintained by Section 5 above, and any other records in Permittee's/Owner's/Operator's possession which will disclose the nature of quantity of emissions from refinery and marine operations.

(basis: cumulative increase, offsets)

#### B11.Enforcement.

Violation by Permittee/Owner/Operator of any of the conditions set forth in this Conditional Permit shall subject Permittee/Owner/Operator to enforcement action under Chapter 4 of Part 4 of Division 26 of the California Health and Safety Code, and to enforcement action by the U. S. Environmental Protection Agency

pursuant to the Clean Air Act (42 U.S.C. 7401, et seq.)

As appropriate, each and every such violation shall be deemed to be a discrete and separate violation with respect to which the District will be entitled to take legal action.

(basis: cumulative increase, offsets)

#### B12.Miscellaneous.

A. No. 1 Isomerization Unit shall be dismantled within ninety (90) days after start-up of the No. 3 HDS Unit.

B. Tanks A-142 and A-319 shall be dismantled within ninety (90) days prior to start-up of the NO. 3 HDS Unit.

C. All equipment, facilities, and systems installed or used pursuant to, or to achieve compliance with the terms and conditions of, this Conditional Permit shall at all times be maintained in good working order and be operated with due regard for the goal of complying with the terms and conditions of this permit and with all applicable District regulations.

D. Nothing in these conditions shall be construed to allow the violation of any law or of any rule or regulation of the Bay Area Air Quality Management District, the State of California or the United States Environmental Protection Agency.

E. Any emission reductions which Permittee/Owner/Operator may be required to undertake in accordance with Section 3 above shall not be eligible to be credited as emission reductions against any subsequent projects for purposes of calculating "cumulative increases", nor shall they be eligible to be "banked" in accordance with the District's New Source Review Rule. However, any emission reductions which Permittee/Owner/Operator achieves in accordance with the Rules and Regulations of the District, above and beyond those reductions required pursuant to this Conditional Permit, may be so credited or "banked".

F. In the event of changes in District regulations which will require actual reductions in the amount of emissions from existing sources which would otherwise be allowed under the terms of this Conditional Permit, the annual limits set forth in Section 2 above shall be reduced by the APCO by an amount equivalent to what would be required under any such rule change.

G. The baseline emissions for purposes of the permit analysis of any proposed new or modified units,

which may in the future be proposed to be built by Permittee/Owner/Operator within the boundaries of the Avon Refinery, will be the limits set forth in Section 2A above, as may be amended to reflect subsequent revisions to District rules pursuant to Section 12F or subsequent deposits to or withdrawals from the District's emissions bank, rather than actual emissions after the baseline period of 1977-1979 (which was used as the basis for issuance of this permit), if doing so is allowed pursuant to the SIP adopted version Section 604.2 of Regulation 2, Rule 2.

H. In the course of constructing the project covered by this Conditional Permit, Permittee/Owner/Operator shall install no more valves, pumps, flanges, process drains and compressors for this project than are listed in Table E of the Appendix to this Permit, unless the emissions associated therewith are accompanied by intra-source emission reductions on a 1:1 basis. Permittee/Owner/Operator shall provide written confirmation of compliance with this condition within 90 days after the start-up of the new No. 3 HDS Unit.

I. Permittee/Owner/Operator shall apply for a permit when any tanks presently out of service or presently in exempt service are proposed to be placed in nonexempt service. The emissions from any such tanks shall be calculated and, if applicable, shall be subject to the requirements of G. above.

J. Instrument downtime (including, but not limited to, in-stack monitors and other instruments whose readings are used to calculate emissions) caused by malfunction, upset, breakdown, repair, maintenance or failure where such instrument downtime exceeds a continuous 24-hour period shall be handled as follows for purposes of calculating emissions: Emissions shall be determined by reference to the recorded value for that instrument from the last calendar day (or other relevant period) immediately preceding the day on which the instrument in question became inoperable, for which there was a valid reading, unless the Air Pollution Control Officer determines on the basis of other evidence (such as, but not limited to, the results of source tests conducted during the period in which the instrument is not operating, or changes in operating conditions of the unit in question) that some other value more reasonably reflects the actual emissions during the period in question.

K. Emissions in excess of applicable emission limitations resulting from breakdowns, malfunctions or other causes for which a variance, an interim



variance, or an emergency variance is granted by the Hearing Board, or for which the Air Pollution Control Officer grants relief in accordance with Section 1- 112 of the District's Rules and Regulations, may be excluded by the Hearing Board or Air Pollution Control Officer, as appropriate, from those emission totals which are counted towards compliance with the limits set forth in Section 2 above; provided, however, that this provision shall not excuse Permittee/Owner/Operator from the obligation to report to the District pursuant to 5B above the actual emissions from the emission points covered by this permit during the period covered by any such relief. This part (part K) of this condition is not federally enforceable.

L. If Permittee/Owner/Operator can demonstrate by modelling to the satisfaction of the Air Pollution Control Officer, consistent with the requirements of the SIP adopted version of Regulation 2, Rule 2 and applicable provisions of the federal Code of Regulations, that increased emissions of carbon monoxide from all emission points covered by this permit will not interfere with the attainment or maintenance of all applicable air quality standards for CO within the District, then the various limits for carbon monoxide set forth in Section 2 of this permit shall be adjusted accordingly.  
(basis: cumulative increase, offsets)

B13. Severability. The provisions of this Conditional Permit are intended to be severable, and, if any individual condition or provision hereof is held to be invalid by order of any court of competent jurisdiction, or for any other reason, the remainder of this Conditional Permit shall not be affected thereby.  
(basis: cumulative increase, offsets)

B14. Environmental Management Plan. Sixty days prior to start up of the No. 2 Hydrogen Plant (S-994) HDS Unit, an initial Environmental Management Plan (EMP) shall be submitted to the District for review by the Air Pollution Control Officer.  
(basis: cumulative increase, offsets)

This plan shall specify how Permittee/Owner/Operator will assure that the permitted annual and monthly maximum emission limits set forth in Sections 2A and 2B above will not be exceeded, and also shall describe feasible options for providing emissions reductions which would be required under Section 3 above, if any of the emissions limits of Sections 2A and 2B were exceeded. The options to be described shall include the installation of various types of abatement equipment which would achieve permanent offsets, and the adoption by Permittee/Owner/Operator of various operational limitations and other short-term control

measures which would limit emissions. Both long-term and short-term control options shall be discussed. The purpose of this plan is to provide assurance that Permittee/Owner/Operator is capable of taking all reasonable steps to assure that the various limits established by this Conditional Permit will be complied with, and to expedite any installation of abatement equipment if it is ever required.

The EMP shall be updated and resubmitted to the District for review by the APCO, whenever any of the limits set forth in Section 2D above are exceeded, or within 1 year after the most recent EMP submittal, whichever comes first. However, in the event that EMP submittal is triggered by an excess of any of the limits of Section 2D, that resubmittal shall also describe in detail the means by which Permittee/Owner/Operator will assure that the permitted annual emissions limit of Section 2A will not be exceeded for that calendar year, and shall describe in detail specific control techniques available, and the sources to which they would be most applicable, in the event that permanent offsets were needed.

To the extent that any EMP submittal contains confidential information, such information shall be afforded the protection provided by applicable laws, rules and regulations.

Once the APCO has reviewed an EMP submittal, the District staff's comments and recommendations on it shall be forwarded to Permittee/Owner/Operator as expeditiously as practicable. Within 30 days after its receipt of such comments and recommendations, Permittee/Owner/Operator shall either (1) revise the EMP to reflect such comments and recommendations; or (2) attach as an Appendix to the EMP all comments and recommendations which Permittee/Owner/Operator did not include in its EMP revision together with a detailed explanation as to why each comment and recommendation was not adopted or included in the EMP itself.  
(basis: cumulative increase, offsets)

**CHANGES TO PERMIT NO. 548 (THE HYDROCRACKER EXPANSION PROJECT):**

C1. The HDN/Hydrocracker (S1007, S1008) feed rate shall not exceed 35,000 barrels per calendar day, or 37,000 barrels per stream day. Permittee/Owner/Operator may submit a permit application to change or remove this condition.  
(basis: cumulative increase, offsets)

C2. In a District approved log, Permittee/Owner/Operator shall record the throughput of petroleum/VOC feed material to S-1007 in units of barrels per stream day.

Permit Evaluation and Statement of Basis: Site B5728 & B5729, Tesoro Refining and Marketing Company, Avon Refinery 150 Solano Way and 1750 Marina Vista Way, Martinez, CA 94553

**APPENDIX C – BAAQMD June 13, 2005, Letter Responding to EPA’s March 15, 2005, Order**