Bay Area Air Quality Management District

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Final
Permit Evaluation
and
Statement of Basis
for
MAJOR FACILITY REVIEW PERMIT
Reopening – Revision 2

for

Tesoro Refining and Marketing Company
Facility B2758 & B2759

Facility Addresses:

Avon Refinery	Amorco Terminal
150 Solano Way	1750 Marina Vista Way
Martinez, CA 94553	Martinez, CA 94553

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April 15, 2005

Application: 12431

Site Engineer: Pamela Leong
Application Engineer: Pamela Leong

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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 District issued a reopened permit that amended flare and Regulation 9-10 requirements, corrected errors, and incorporated some new sources and permit conditions on December 16, 2004.

On October 8, 2004, EPA sent a letter containing two objections to the permit and various comments. The letter is attached in Appendix C. The permit was revised to address the objection issues in a reopening of the permit that was proposed on February 1, 2005. The revised permit was issued on April 12, 2005**.**

This reopening addresses the permit deficiencies identified comments in the October 8 letter (note that EPA commented on five refineries in this letter. Not all comments concern this facility.) Changes in applicable requirements authorized in several Authorities to Construct are also being incorporated in this action. In addition, some issues raised in the refinery's appeal to the 12/16/04 permit and some refinery comments will be addressed.

All changes to the permit will be clearly shown in "strikeout/underline" format. When the permit is finalized, the "strikeout/underline" format 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 applicability determinations previously made by the District. 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.

Permit Application #	Pollutant Increase (tons/yr)				
	NOx	CO	POC	SO2	PM
2298	0	0	0.011	0	0
4389	0	0	0	0	0
4400	0	0	0	0	0
6201 addendum	0	0	0	0	0
6673	0	0	0	0	0
6674	0	0	1.849 onsite credit 1.161	0	0
8002	0	0	4.671 onsite credit 1.108	0	0
9129	0	0	7.950	0	0
9208	0	0	0	0	0
9259	0	0	0.356	0	0
9260	0	0	0.178	0	0
9733	0	0	0	0	0
9788	0	0	0.032	0	0
10880	0	0	0	0	0
10476	0	0	0	0	0
10659	0	0	0	0	0
10668	0	0	1.357	0	0
12404	0	0	0	0	0
Total	**0**	**0**	**14.135**	**0**	**0**

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 16.256 tons/yr POC offsets were provided as follows.

Banking Certificate Number	Offsets Provided (tons/yr)		
	NOx	PM10	POC
797	N/A	N/A	0.013
834	N/A	N/A	0.791
902	N/A	N/A	3.859
916	N/A	N/A	0.238
827	N/A	N/A	1.045
839	N/A	N/A	0.319
893	N/A	N/A	6.809
902	N/A	N/A	0.970
928	N/A	N/A	0.271
916	N/A	N/A	0.138
916	N/A	N/A	0.205
932	N/A	N/A	0.037
834	N/A	N/A	1.086

936	N/A	N/A	0.475
Total	N/A	N/A	16.256

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

Condition I.B.12 will be added to clarify that the permit holder is responsible for compliance with all conditions of the permit, regardless whether it acts through employees, agents, contractors, or subcontractors.

II. Equipment

The following tanks were demolished in 2004 and will be removed from Table II – A Permitted Sources: S21 Tank A-21, S619 Tank A-619, and S643 Tank A-643.

References to S21 will be removed from Table II – B Abatement Devices

The following tanks were demolished in 2004 and will be removed from Table II – D Tank Sources Exempt From Permitting: S22 Tank A-22, S59 Tank A-59, S139 Tank A-139, S214 Tank A-214, S248 Tank A-248, S345 Tank A-345, S391 Tank A-391, and S527 Tank A-527.

S612 permit conditions will be modified to explicitly allow ethanol to be stored (see application 12404 in the appendix). Table II reflects this change.

S622 Tank A-622 has been in service since 1951 and is a grandfathered source. The tank contents are currently incorrectly described. The tank has always contained a mixture of diesel and kerosene, not distillate oil and gasoline. See engineering evaluation #10476 in the appendix.

S659 and S660 grandfathered limits have been changed to firm limits. S659 and S660 were modified in application 6673 (see appendix). Modifications to S659 and S660 are described in Section IV below for Table IV – J S659 and S660 Coke Storage abated by A-9 Coker Precipitator.

S871 Tank A-871 is a new external floating roof tank that holds crude and low sulfur vacuum gas oil. The engineering evaluation 9129 is in the appendix.

S1469, S1471, S1472, S1474, S1477, and S1486 are all loss of exemption diesel engines that will be added to Table II-A. See engineering evaluation 4389 in the appendix.

S1475 and S1476 are Portable Emergency Standby Diesel Engines that will be added to Table II-A. The loss of exemption engines are permitted in NSR application 4389, which is in the

appendix.

S1496 Tank A-876 is a new fixed roof storage tank for the handling of heavy reformate with pentanes and straight run heavy naphtha. The tank is abated by A-14 Vapor Recovery. The engineering evaluation is 8002 amended by 9728 and 10659. S1496 has also been added to Table II – B Abatement Devices for A-14.

S1499, S1500, S1501, S1502, and S1503 are all loss of exemption diesel engines that will be added to Table II-A. See engineering evaluation 9733 in the appendix.

S1473 is a new pressurized storage tank for ethyl mercaptan odorant. S1473 is abated by A-14 Vapor Recovery System. Engineering evaluation 2298 is in the appendix.

S1485 is a new Internal Floating Roof Tank used to hold Gasoline Blending Components. The engineering evaluation 6674 is in the appendix.

S1489, S1490, and S1491 are new fixed volume portable tanks that store a mixture of slop oil and water. Carbon canisters A1001 and A1002 abate all the tanks. Each carbon canister holds 200 pounds of activated carbon. S1489 and S1490 were permitted in application 9259. S1491 was permitted in application 9260. Both applications are in the appendix. A1001 and A1002 will be added to Table II – B Abatement Devices.

Tesoro is modernizing its loading rack facilities at their bulk plant. S1025 Bulk Plant Bottom Loading Facilities has been given a Firm Limit (Condition #21849, part 9). S1504 is a new Bulk Plant Unloading Rack. S1504 will unload ethyl alcohol from tank trucks to an existing ethanol tank. See engineering evaluation 10668 in the appendix for the Loading Rack Modernization Project.

S1025 Bulk Plant Loading Facilities will be abated by the A14 Vapor Recovery System and process heaters. S1025 will be added to A14 in Table II – B Abatement Devices.

S532-Oil Water Separator; Tank T-532 is vented to the A14 Vapor Recovery System and has been added to A14 in Table II – B Abatement Devices.

Table II C Permitted Sources for Plant #12759 Amorco Wharf
S56 is a loss of exemption engine and S57 is a new emergency engine. Both engines are used to power firewater pumps at the Amorco wharf. The NSR permit application 4400 for these engines is found in the appendix.

In Table II- D Tank Sources Exempt From Permitting, a column was added to add the citation or reason for the exemption.

S467 is a new tank that is exempt from permitting and will be added to Table II – D. S467 is a cone roof tank that is abated by A-14 Vapor Recovery System to prevent potential odors. S467 was permitted in application 9208, which is in the appendix.

S872 and S873 are two new exempt tanks. The engineering evaluation 9129 is in the appendix. S872 Tank A-872 holds low sulfur vacuum gas oil and is exempt per Regulation 2-1-123.3.3 and

2-1-123.3.10. S873 Tank A-873 holds fuel oil and is exempt per Regulation 2-1-123.3.3 and 2-1-123.3.10.

III. Generally Applicable Requirements

This section of the permit lists requirements that generally apply to all sources at a facility including insignificant sources and portable equipment that may not require a District permit. If a generally applicable requirement applies specifically to a source that is permitted or significant, the standard will also appear in Section IV and the monitoring for that requirement will appear in Sections IV and VII of the permit. Parts of this section apply to all facilities (e.g., particulate, architectural coating, odorous substance, and sandblasting standards). In addition, standards that apply to insignificant or unpermitted sources at a facility (e.g., refrigeration units that use more than 50 pounds of an ozone-depleting compound) are placed in this section.

No change will be made to this section.

IV. Source-Specific Applicable Requirements

This section 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.

Changes to this Section IV are primarily routine and include the updating of text to the current standard and updating the applicable requirements tables to reflect the current versions of the cited regulations. However, in some cases applicable requirements will be added or removed at the request of Tesoro where there were errors or omissions in the initial permit. A discussion of these "non-routine" changes follows.

Applicability of NSPS Subpart J to thermal oxidizers

The District is proposing to revise the permit to indicate the applicability of NSPS Subpart J at certain thermal oxidizers. NSPS Subpart J requirements will be added to Table IV – Xb for A39 API Thermal Oxidizer and to Table IV – Xd for A1402 Scot Tail Gas Unit/Incinerator**.** Table VII – Sb A39 API Thermal Oxidizer and Table VII – Sd A1402 Scot Tail Gas Unit/Incinerator contain monitoring for Subpart J.

Today's proposal is responsive to EPA's comments relative to the Bay Area refinery permits that a thermal oxidizer located at refinery is a "fuel gas combustion device" within the meaning of § 60.101(g) and therefore subject to Subpart J, provided other applicability criteria are met. EPA's comments are based on the definition of "fuel gas" found at§ 60.101(d) as "any gas which is generated at a petroleum refinery and which is combusted." EPA made this comment on earlier versions of the refinery Title V permits, but did not include the issue in its list of reopening issues either on October 8, 2004, or March 15, 2005. One purpose of this proposal is to determine whether EPA still holds to this view. The following discussion presents the District's understanding of the arguments favoring applicability, and also notes countervailing arguments that have been put forth by the refineries.

NSPS Subpart J applies to a "fuel gas combustion device … which commences construction or modification after June 11, 1973." (40 CFR § 60.100(b).) Any device subject to Subpart J shall not "[b}urn … any fuel gas that contains hydrogen sulfide (H2S) in excess of 230 mg/dscm." (40 CFR § 105(a)(1).) Subpart J defines fuel gas as "any gas which is generated at a petroleum refinery and which is combusted." (40 CFR 61.101(d)).)

The question that has arisen at some Bay Area refineries is whether a thermal oxidizer at a waste water treatment unit or a gas loading rack is a "fuel gas combustion device." It has been argued that although these abatement devices are combusting gas generated at a refinery, the gases are typically not sufficiently rich in hydrocarbons to support combustion and so are not "fuel gas," both in the common sense of that term and the intended meaning of that term as used in NSPS J. Secondly, it has been argued that only gases generated at "petroleum refinery processing units" should be considered as "fuel gas," and that this would preclude applicability to wastewater treatment systems and gas loading racks. Finally, it has been argued that certain gases combusted at thermal oxidizers are not subject to the hydrogen sulfide standard of NSPS J because they are not compatible with amine treatment.

The District views these arguments as being for the most part analytically distinct. Accordingly, they are addressed in order below.

Does "Fuel Gas" Refer Only to Gases That Can Support Combustion?

As noted above, NSPS J defines "fuel gas" as "any gas which is generated at a petroleum refinery and which is combusted." Aside from the exemption of specific gas streams, the scope of this definition appears comprehensive. A textual argument might be made that the reference to "gas" in the phrase "gas which is generated," should be read as synonymous with "fuel gas." In other words, that "fuel gas" should be afforded its common-sense meaning as gas capable of supporting combustion, rather than the broader literal meaning given to it by the section 101(d) definition. This interpretation runs counter to the common practice for reading definitions, i.e., by importing meaning from the defined phrase into the definition itself.

"Fuel gas" was defined in the initial promulgation of NSPS J. In the proposed rule, "fuel gas" meant, in relevant part, "process gas and/or natural gas or any other gaseous mixture which will support combustion." 38 FR 15408 (June 11, 1973). In the final rule, "fuel gas" was defined as "any gas which is generated by a petroleum refinery process unit and which is combusted." 39 FR 9315 (March 8, 1974). Thus the phrase "gaseous mixture which will support combustion" was replaced by the phrase "[gas] which is combusted." This raises the question whether any change in meaning from proposal to final was intended.

The preamble to the final rule discusses a different change regarding fuel gas combustion (exemption of process upset gases), noting that it "do[es] not represent any change in the Agency's original intent." *Id.*, at 9310. From the fact that changes to the "fuel gas" definition are not mentioned, it might be inferred that no changes in meaning were intended (i.e., since discussion was devoted to changes that did not alter intent, one would presume any changes that did would have merited discussion). However, the comparison of proposed to final rule combined with the supposition that no change in intent occurred merely begs the question of which version better represents EPA's true intent.

The stronger presumption, however, is that a change in rule language intends a change in meaning. The change in language clearly has a broadening effect: a gas that, standing alone, will not support combustion will nevertheless combust if introduced into a sufficiently robust environment. EPA could quite reasonably have decided that basing applicability of a standard on the capacity of a gas stream to support combustion places too much weight on a variable facet of operations. In this plausible scenario, the final rule language could be viewed as simply a more accurate statement of EPA's original intent.

Other federal standards contain definitions of "fuel gas" that clearly limit the phrase to gases that can support combustion. See, e.g., NSPS VV, SOCMI HON. However, these are distinct standards established for purposes other than control of SO2 emissions. Inferences drawn from comparing definitions of "fuel gas" are ambiguous at best. These more specific definitions would seem to cut against, rather than support, arguments made by the refineries. That EPA can, when it chooses, define "fuel gas" to exclude gases not supporting combustion could lead one to infer that the literal meaning of section 60.101(d) is also the intended meaning.

Is "Fuel Gas" Limited to Gas Generated at Petroleum Processing Units?

As initially promulgated, "fuel gas" was defined as "gas generated at a petroleum refinery process unit." In the 1973 proposed rule, this phrase appeared in the definition of "process gas" but not in the definition of "fuel gas." It was added into the definition of "fuel gas" in the final

rule, without explanation. A "refinery process unit" is, and has been, defined in section 101(f) as "any segment of a petroleum refinery in which a specific processing operation is conducted."

There is little if anything to illuminate the intended meaning of "process," which in this provision is used to define itself. There is arguably a common usage that refers only to operations that act upon petroleum and transform it towards some end product. Background documents for the 1974 rule explain that "[r]efinery processes, such as distillation and fluid catalytic cracking, produce substantial quantities of 'process gas…." The same document states that "[f]uel gas is produced in a refinery from a wide variety of processes including: crude oil separation, catalytic cracking, hydrocracking, coking, and reforming." However, there is no indication in these background documents that the phrase "refinery process units" was intended to be so limited.

"Process" could also be used in a broader sense to include waste water treatment plants, hydrogen plants, and other ancillary process that do not involve petroleum. In any case, EPA subsequently amended the definition of fuel gas to refer to any gas "generated at a refinery." Though no explanation was offered for the change, the plain language of the rule as revised would appear to foreclose whatever inferences could have been based on the earlier formulation. It might be argued that interpreting "process" to include any refinery operation deprives the definition of purpose. However, this broader interpretation of "process" does distinguish gas generated onsite from gas imported to the refinery (e.g., pipeline natural gas). Subsequent revision to the standard clarifying the exemption of pipeline gas is consistent with the idea that the reference to "refinery process unit" in the initial definition of "fuel gas" was intended to serve this same purpose.

Does "Fuel Gas" Refer Only to Gas Streams Subject to Amine Treatment?

There are clear indications in the regulatory history of NSPS J that the intent of the rule was to apply only to gases subject to amine treatment. Background documents to the initial proposal discuss amine treatment as the cost effective available control. In 1979, the rule was revised to answer two specific questions: were Thermofor catalytic cracking units treated the same as fluid catalytic cracking units under the regulation (answer: yes); and were auxiliary fuels burned along with gases generated by exempt units subject to the standards (answer: yes). The preamble to this direct-final rulemaking states that the hydrogen sulfide standard of NSPS J is "based on amine treating of refinery fuel gas." 44 FR 13481 (March 12, 1979). The definition of "fuel gas" was accordingly changed to exclude gases generated at catalytic cracking units, because these gases are chemically unsuitable for amine treatment.

This raises the question of whether other gas streams not susceptible to amine treatment should be considered exempt from the hydrogen sulfide standard or NSPS J. The idea finds considerable support in the original background documents and the 1979 preamble discussion. The 1979 preamble notes that "amine treating can be used, and in most major refineries normally is used, to remove hydrogen sulfide from . . . refinery fuel gas streams." *Id.* There is thus an inference that the intent of the standard was to apply only to fuels found in refinery fuel gas systems, or capable of being collected and used in fuel gas systems, because these systems are typically coextensive with the gas streams that are processed by an amine treater at a refinery.

However, there is no reference is in the text of the rule itself to amine treatment compatibility as a criterion of applicability. Under the terms of the rule, gas generated at refinery is either "fuel gas," and therefore subject, or not. Rather than create an explicit exemption based on amine treatment compatibility, EPA chose to specifically exclude those gas streams it knew to require different treatment. The argument for limiting applicability based on amine treatment compatibility therefore finds no foothold in the text of the rule. Presumably, other sources could be expected to comply with the standard using a different control technique (e.g., caustic scrubbing); or normally produce gases of sufficiently low sulfur content as to be inherently compliant.

Proposal to Incorporate NSPS Subpart J

This discussion begins by noting that the arguments that have been raised against applying the hydrogen sulfide standard of NSPS J to thermal oxidizers are analytically distinct. Though mostly true, it may be that certain arguments shade into others. For instance, the argument that only gases compatible with amine treatment were intended to be subject to the standard, which in turn tends to implicate only gases commonly in the fuel gas system, lends some further weight to the textual argument that "fuel gas," as defined in section 101(d), should be accorded its common sense, as opposed to its literal meaning. Further weight is added by a seeming emphasis, evidenced throughout the regulatory history, on gases generated at units that process petroleum as the subject of controls, which units in turn tend to be the primary source of fuel gas used to support combustion at refinery heaters and boilers.

However, the potential for tying together these different strands of evidence has never been taken up by EPA. EPA has established a consistent record of interpreting NSPS J to apply broadly and according to its literal terms. See, e.g., December 2, 1999, letter from J. Rasnic, EPA, to P. Guillemette, Koch Refining Co.. The District assumes that EPA's longstanding interpretation would receive substantial deference from a reviewing court. Incremental changes to regulatory language over time, though sometimes unexplained, have tended to support these broader readings. The District speculates that the broader interpretation finds its policy justification in the desire to close potential loopholes -- that is, to remove any incentive to route treatable gas streams away from treatment. Though this may not be consistent with how some understand the original intent of the rule, it is nevertheless a legitimate and rational regulatory goal that finds ample support in the plain language of the rule. The District notes that, to its knowledge, EPA has never analyzed the technical feasibility, benefits, and costs of alternative controls and their application to gas streams not compatible with amine treatment. As a result, the practical consequences of application of NSPS J to the thermal oxidizers in question are not clear.

The District proposes incorporation into the Title V permit of the NSPS J as applicable to certain thermal oxidizers, and solicits comment on this proposal. If today's proposal is finalized, the District will consider the appropriateness of imposing a schedule of compliance for units not in compliance. The District therefore also seeks comment regarding appropriate terms for a schedule of compliance.

MACT Subpart CC Applicability for Flares:
(response to EPA Letter October 8, 2004, Attachment 2)

Subpart CC applies to, among other things, miscellaneous process vents from petroleum refining process units (40 CFR 63.640(c)(1)). "Miscellaneous process vent" means a gas stream containing greater than 20 parts per million, by volume, organic HAP that is continuously or periodically discharged during normal operation of a petroleum refining process unit meeting the criteria specified in Sec. 63.640(a) (40 CFR 63.641). Miscellaneous process vents do not include gaseous streams routed to a fuel gas system nor do they include episodic or nonroutine releases (40 CFR 63.641).

Subpart CC also contains a more general exemption from testing, monitoring, recordkeeping, and reporting requirements for refinery fuel gas systems or emission points routed to refinery fuel gas systems (40 CFR 63.640(d)(5)).

Subpart CC defines "emission point" to mean an individual miscellaneous process vent, storage vessel, wastewater stream, or equipment leak associated with a petroleum refining process unit (40 CFR 63.641). "Fuel gas system" means the offsite and onsite piping and control system that gathers gaseous streams generated by refinery operations, may blend them with sources of gas, if available, and transports the blended gaseous fuel at suitable pressures for use as fuel in heaters, furnaces, boilers, incinerators, gas turbines, and other combustion devices located within or outside of the refinery (40 CFR 63.641). "Combustion device" means an individual unit of equipment such as a flare, incinerator, process heater, or boiler used for the combustion of organic hazardous air pollutant vapors (40 CFR 63.641).

The definition of "fuel gas system" clearly indicates that a system begins at the emission point. Once the gas is in the collection system, the fuel gas exemptions apply, even if the collected gases are subsequently routed to a flare. EPA, in its October 8, 2004 letter, disagreed with that interpretation. EPA's rationale appears to be that the fuel gas system begins at the fuel gas compressor (and presumably any piping leading directly to the compressor). However, EPA's interpretation renders the part of the definition of "fuel gas system" that includes gathering streams a nullity. Moreover, the definition indicates with equal clarity that a "fuel gas system" remains such even when the gas is routed to a combustion device, which, as noted above, is defined to include flares.

An alternative rationale exists in that gases vented to the flares in question are not within the definition of "miscellaneous process vents." At all of the affected refineries, process gas collected by the gas recovery system are routed to flares only under two circumstances: (1) situations in which, due to process upset or equipment malfunctions, the gas pressure in the flare header rises to a level that breaks the water seal leading to the flare; or (2) situations in which, during process startups, shutdowns, or process upsets, the quality of the gas falls to a level such that it cannot be introduced into the fuel gas system. Episodic or nonroutine releases such as those associated with startup, shutdown, malfunction, maintenance, depressuring [sic], and catalyst transfer operations are, by definition, not miscellaneous process vents, and are not subject to Subpart CC.

<u>40 CFR 61 Subpart FF Applicability</u>
(response to EPA Letter October 8, 2004, Attachment 2)

Tesoro complies with 40 CFR 61 Subpart FF by meeting the requirements of 61.342(e). Tesoro does not have any streams with a flow-weighted annual average water content of less than 10% as described in 61.342(e)(1). Tesoro manages and treats facility waste with a flow-weighted annual average water content of 10% or greater such that the benzene quantity is equal to or less than 6.0 Mg/yr as required in 61.342(e)(2)(i). For Tesoro, Table IV – A Facility B2758 contains the majority of requirements for Subpart FF, such as those for containers and individual drain systems.

The following fixed roof tanks with benzene waste, S134, S137, S513, S532 and S603, are vented to the vapor recovery system and POC emissions are destroyed in the process heaters. Gaseous streams from a waste management unit, such as these tanks, routed to a fuel gas system are exempt under Subpart FF and no testing, monitoring, recordkeeping, or reporting is required as per 40 CFR 61.340(d).

The only other sources subject to 40 CFR 61 Subpart FF are the following floating roof tanks: S428, S601, and S642. Floating roof tanks subject to 40 CFR 61 Subpart FF must comply with 61.351 Alternative standards for tanks. Subpart FF requirements will be added to the Section IV tables for these sources. Internal floating roofs must comply with the requirements in 40 CFR Subpart Kb 60.112b(a)(1) as per 61.351(a)(1). External floating roofs must comply with the requirements in 40 CFR Subpart Kb 60.11b(a)(2) as per 61.351(a)(2).

S601 is an internal floating roof tank and Table IV – CE contains the Subpart Kb requirement 60.112b(a)(1). Table VII – BR contains the applicable limits and monitoring requirements for Subpart Kb for S601.

S642 is an external floating roof tank and Table IV – BX contains the Subpart Kb requirement 60.112b(a)(2). Table VII – BM contains the applicable limits and monitoring requirements for Subpart Kb for S642.

S428 is an external floating roof tank. In Table IV – CP for S428, the applicable requirements for 'NESHAP for Petroleum Refineries: Requirements for Tanks also Subject to NSPS Kb' and 'NSPS Subpart Kb' were added so that Tesoro would be in compliance with 40 CFR 61 Subpart FF 60.351(a)(2). A Section VII table, (Table VII BMa) was created for S428, which contains the applicable limits and monitoring for S428.

<u>Regulation 8-2 and Hydrogen Plant Vents:</u>
(response to EPA Letter October 8, 2004, Attachment 2)

Tesoro's hydrogen plant has two CO2 vents. Tesoro controls emissions of volatile organics from the hydrogen plant CO2 vents by using reformulated catalyst to minimize the production of methanol. Tesoro has replaced its low temperature shift catalyst with low methanol producing catalyst. Tesoro has recently tested the vents, and demonstrated that the exhaust VOC concentration is less than 110 ppm, which complies with Regulation 8-2.

In the proposed permit, Regulation 8-2-301 will be added to Table IV-AI as an applicable requirement. A new permit condition (condition 22070) requiring annual compliance testing will be added to the permit, and included in Table VII –H.

Cooling Tower Monitoring:
(response to EPA Letter October 8, 2004, Attachment 2)

The District has determined that best modern practices for operation of refinery heat exchangers is frequent monitoring for potential heat exchanger leaks. The District has reviewed the current practice of Bay Area refineries, and has determined that daily visual inspection, plus water sampling and analysis for indicators of hydrocarbon leaks once per shift, is the best modern practice. A cooling tower that is maintained using best modern practices is exempt from Regulation 8-2. The facility has the burden of keeping records necessary to demonstrate that it qualifies for the exemption. . The District has determined that this facility is using best modern practice to monitor cooling tower water for indications of heat exchanger leaks. Regulation 8-2 will be removed from the source-specific applicable requirement table for the following sources in Table IV - R:
S846-No. 3 HDS Cooling Tower, S976-No. 5 Gas Plant Cooling Tower, S977-Crude Unit Cooling Tower, S978-Foul Water Stripper Cooling Tower, S979-No. 2 Feed Prep Cooling Tower, S980-Hydrocracker Cooling Tower, S981-No. 1 HDS Cooling Tower, S983-Alky and No. 2 Reformer Cooling Tower, S985-No. 1 Gas Plant Cooling Tower, S987-No. 50 Unit Cooling Tower, and S988-No. 3 Reformer Cooling Tower

At these cooling towers, Tesoro performs a daily visual inspection of the cooling tower water. Cooling water is sampled and analyzed on a continuous basis to measure conductivity and oxidation-reduction potential to monitor for heat exchanger leaks.

Slop Oil Vessels and Sludge Dewatering:
(response to EPA Letter October 8, 2004, Attachment 2)

Tesoro has one slop oil vessel at the refinery, S700 Tank A-700. S700 is a fixed roof tank that is vented to the A-14 Vapor Recovery System. Table IV – BF – Cluster 01b-1 has Regulation 8-8-305 and 8-8-305.2 as applicable requirements. Condition 21053 part 6 will be amended to require abatement of S700 as required to comply with 8-8-305.2. The applicable requirements of 40 CFR Part 60, Subpart QQQ will be added to Table IV- BF – Cluster 01b –1. Monitoring requirements for 40 CFR Part 60, Subpart QQQ will be added to Table VII – ZA –1.

An on-site contractor, Sierra Processing, is used for sludge dewatering operations at Tesoro. Regulations 8-8-304, 8-8-502, 8-8-602, and 8-8-603 will be added to Section IV, Table IV - A for “Facility #B2758”. Monitoring requirements will be added to Table VII – A for “Facility #B2758”. A new standard permit condition (Section I, B.12) will be added to the permit to clarify the facility’s responsibility to submit reports and certify contractor compliance with applicable requirements. See Section I Conditions above.

ESP Monitoring:
(response to EPA Letter October 8, 2004, Attachment 2)

The District has determined that the monitoring required for compliance with MACT UUU is an appropriate means of providing a reasonable assurance of compliance with Regulation 6. The District has added to the proposed permit a permit condition (#22150) requiring the operator to conduct an initial compliance demonstration that will establish a correlation between chosen parameters (voltage/current or opacity) and particulate emissions. The facilities are already required to continuously measure opacity at these stacks. The permit will be reviewed after the compliance demonstration to incorporate the results into federally enforceable permit conditions.

The permit condition#22150 has been added to the following applicable requirement tables.
Table IV – K S802–FCCU: Fluid Catalytic Cracker
Table IV – M S806–Coker: Fluid Coking
Table IV – Z S904-No. 6 Boiler
Table IV – Y S901- No. 7 Boiler
Table IV – AD S903- No. 5 Boiler

Compliance with Regulation 9-1-313.2

The District is proposing deletion of Title V permit conditions in the five Bay Area refinery permits related to monitoring for compliance with 9-1-313.2. 9-1-313 allows three options for compliance, but is complied with at all Bay Area refineries through section 313.2, which requires operation of a sulfur removal and recovery system that achieves 95% reduction of H2S from refinery fuel gas. Conditions were established in the 2003 issuance of these permits to periodically verify that a 95% reduction is being achieved. Though details vary amongst the five refineries, all permits require some form of compliance demonstration, generally involving inlet-outlet source testing. The refineries have consistently objected to these conditions, noting that source testing for H2S reduction is, on the one hand, costly and a significant safety risk, and on the other, unlikely to yield data useful to determining compliance. Having reconsidered the issue, the District is now proposing deletion of the conditions.

The monitoring in all five refinery permits was established pursuant to 2-6-409.2, which provides that, where the applicable requirement does not contain periodic monitoring or testing, “the permit shall contain periodic monitoring sufficient to yield reliable data from the relevant time periods that is representative of the source’s compliance with the permit.” This provision was established in 2-6 to satisfy EPA’s program approval criteria found in 40 CFR 70.6(a)(1)(iii), commonly known as the periodic monitoring requirement. The District has consistently applied a balancing test to determinations of periodic monitoring, considering, among other things, the likelihood of a violation during normal operation, variability in the operation and in the control device, the technical feasibility and probative value of the monitoring under consideration, and cost. Applying these factors to 9-1-313.2, the District now believes that compliance with 9-1-313.2 is sufficiently assured without the addition of Title V monitoring.

A periodic monitoring determination should take as its starting point the intent of the underlying requirement. While some District regulations impose a reduction efficiency with the intent that it be measured on an ongoing basis, other regulations use reduction efficiency to describe the requisite design of equipment to be installed. The latter are sometimes referred to as design standards.

Regarding 9-1-313.2, both the rule language and contemporaneous explanations of the rule suggest that the 95% reduction requirement was intended as a design standard. Furthermore, the target of 95% was aimed at ensuring that no significant fuel gas stream went untreated, rather than acting as a performance standard for treatment systems. 9-1-313 prohibits operation of a refinery of a certain size unless one of three conditions is met, one of which (§ 313.2) is that "*there is a* sulfur removal and recovery system that removes and recovers, on a refinery wide basis, 95% of H2S from refinery fuel gas" (emphasis added). This phrasing places primacy on the presence of a system capable of achieving a reduction, rather than achievement of the reduction. Moreover, another of the three possible methods of compliance with Section 313 (§ 313.3) allows (prior to a certain date) compliance merely by way of an enforceable commitment to construct such a system. This third compliance option reinforces the inference that the primary intent of Section 313 was to require operation of a sulfur recovery and removal system.

9-1-313 was adopted in 1990, at a time when all but one Bay Area gasoline-producing refinery were already operating SRU's. The remaining gasoline-producing refinery, Pacific Refining (which has since closed), was instead using a caustic scrubbing system, and had a history of causing odor problems in the community due, in part, to high H2S levels in fuel gas. The 1990 District staff reports evidence that the primary purpose of the rule was to require installation of an SRU at this facility. This also happens to be the purpose of the Section 313.3 compliance option. The staff reports do not evidence a concern with ensuring a certain level of performance at facilities with existing SRU's. Nor do the staff reports characterize Section 303 as being in any way intended to fulfill a requirement of the federal Clean Air Act. The 1990 staff reports indicate that Bay Area refineries with SRU's were known at the time to be reducing sulfur content in fuel gas to well below applicable regulatory standards.

In 1995 the District revised 9-1-313.2 to add a requirement that a refinery removing more than 16.5 tons of elemental sulfur per day must install a sulfur recovery plant or sulfuric acid plant. The content of the accompanying staff report suggests that, once again, this rulemaking was directed at one facility, Pacific Refining. The caustic scrubbing system in use at Pacific Refining had not resolved the odor problem at the refinery. The rule revision was intended to require Pacific Refining to install a sulfur plant. Most relevant to today's proposal, the staff report includes a statement that while a caustic scrubbing system can be expected to achieve a 95% H2S reduction, reduction at an SRU typically exceeds 99%.

The language of 9-1-313.2 and District staff reports are consistent with the view that the intent of the rule was to require Bay Area refineries to install and operate an SRU. Though there is an expressed assumption that reduction of better than 99% can be achieved by an SRU, there is no mention in the rule or in the staff reports of how a 95% reduction could be verified on an ongoing basis. This is consistent with the characterization of section 313.2 as a design standard that is satisfied by installation and operation of an adequately designed system.

The discussion that follows explains why periodic monitoring would not be appropriate even if the 95% reduction requirement of section 313.2 is characterized as a performance standard. Although the following discussion can stand alone as a justification for not imposing additional monitoring, it can also be viewed as overlapping with discerning the original intent of the rule. The technical considerations weighing against establishing monitoring through Title V today are synonymous with the policy reasons for why monitoring was not included in the rule as adopted in 1990, and why that rule is most accurately viewed as a design standard.

The District believes that monitoring to verify a 95% reduction is not appropriate. The monitoring would be costly and burdensome. To attempt measurement of inlet and outlet concentrations would require that samples be taken from multiple points simultaneously. The refineries have asserted this is not possible. The District acknowledges that doing so is at the least costly, complicated, and, to the District's knowledge, unprecedented. The task is made more difficult due to the risks of exposure to H2S during sampling, particularly at inlet concentrations. Safety precautions would require 2-3 personnel at each sample point, and additional precautions during sample transport and handling. Because the standard is expressed as a refinery-wide standard, samples would need to be taken simultaneously at each fuel gas treatment system in order to determine compliance.

A monitoring regime may be burdensome and yet still justifiable if, among other things, results are accurate and probative regarding compliance with the standard. This is not the case regarding the 95% reduction goal of section 313.2. The accuracy of inlet-outlet source testing would be hampered by the limits of available methods for analyzing H2S samples at these levels of dilution. Moreover, many of the other sulfur species present interfere with measurement of H2S, and as a result routine fluctuation in sulfide species will tend to confound calculations comparing inlet and outlet H2S concentrations. There is no recognized method for quantifying and taking this into account.

Moreover, the District believes the margin of compliance with the 95% reduction goal is likely very large. Of course, due to the considerations discussed above, this cannot be verified with significant accuracy. However, each refinery has regulatory and operational reasons for employing an SRU to maintain H2S concentrations at very low levels. NSPS Subpart J, for instance, requires that fuel gas contain no more than 230 ppm H2S. Concentrations at the Bay Area refineries are typically far below this level in all gas combusted as fuel. While the actual percentage of reduction would depend on the inlet concentrations, the low concentrations found post-SRU fuel gas yields a safe assumption that reductions well in excess of 95% are occurring.

In summary, 9-1-313 was adopted primarily to force installation of an SRU at a single refinery that no longer operates. Though not stated in the staff reports, the expression of a 95% reduction goal was likely inserted in the rule to ensure that any SRU installed would address fuel gas comprehensively, not merely in part. H2S reduction efficiency for an entire fuel gas system can be estimated but cannot be accurately measured. The District believes there is a high degree of certainty that when all fuel gas is processed in an SRU, an H2S reduction efficiency well above 95% will be achieved. However, monitoring for this result would entail high costs and safety risks for measurements insufficiently exact to be relied on as a measurement of compliance. Such monitoring is therefore not justified for a District regulation that has no historical and no direct functional relationship to a federal Clean Air Act requirement.

The District solicits comment on this proposal and on possible alternative approaches to verifying compliance with the 95% reduction goal of section 313.2. The District knows of no examples in which monitoring for such a standard has been successfully implemented in other jurisdictions. Finally, the District notes that it is considering revision of 9-1-313 that would shift the focus from reduction efficiency to a standard that is both more pertinent to air quality protection and more verifiable.

The condition requirements for monitoring for Regulation 9-1-313.2 have been removed from the following applicable requirement tables.
Table IV – K S802–FCCU: Fluid Catalytic Cracker
Table IV – AQ S1401-Claus Modified 3-Stage Sulfur Recovery Unit

Table IV-Ia S532-Oil Water Separator; Tank T-532
In Revision 1.0, S532 was added to the Title V permit (New Source Review (NSR)Application Number 6201). At the startup of S532, it was determined that the permit condition needed modification. Condition #20099 required monitoring of abatement heater firebox temperatures and oxygen content in order to demonstrate a 98% by weight destruction of POC. Tesoro is unable to measure the temperature in the fireboxes. Periodic source tests will be used to determine the POC destruction efficiency of the heaters. The changes will be incorporated into the permit condition. See the engineering evaluation for Application 6201 Addendum in the appendix. Table IV-Ia reflects the changes to the permit condition 20099.

Because S532 is now used as an oil water separator tank, it will be deleted from Table IV – BI Cluster 01b – Out-Of-Service.

Table IV – A Facility B2758
Additional detail to 40 CFR 61 Subpart FF requirements will be added.

Table IV – J S659- Coke Storage, S660- Coke Storage, abated by A-9 Coker Precipitator
In application 6673 (see appendix), S659 was modified to be abated by A-9 during transfer of coke to haul trucks. Previously, truck loading of coke at S-659 was unabated. In addition, a duct for the blower was installed at the discharge of the loading arm. Emissions of particulate were expected to decrease. Modifications to S660 allow for coke transfer from existing permitted sources, S838 and S836. These coke transfers are enclosed and occur in enclosed piping without generating fugitive particulate emissions to the atmosphere during transfers. The 6 inch diameter coker blower duct was replaced with an 8 inch diameter line to enable better capture of fugitive particulate. Condition #20682 was added to the table. The condition requires use of abatement during operations at S659 and S660, throughput limits, and recordkeeping.

Table IV – M S806–Coker: Fluid Coking
BAAQMD Regulation 6 (Particulate Matter and Visible Emissions) requirements have been added to the applicable requirement table for S806 Fluid Coker. The coker flue gases are abated by S903 CO Boiler and A-8 Electrostatic Precipitator.

Table IV – AA S920 Furnace No. 20
Table IV – AJ S1001-No. 50 Crude Unit
Table IV – AJ S1003-No. 2 HDS Unit
Tesoro has been given the authority to construct modifications to S920, S1001, and S1003 for the Ultra Low Sulfur Diesel Project. Modifications are needed to produce ultra low sulfur diesel to comply with CARB and EPA clean fuel requirements. Total amount of sulfur from diesel will decrease but throughput will not change. Emissions from the project are fugitive. Ultra low sulfur project condition 21751, is a startup condition that requires Tesoro to install fugitive components that comply with BACT requirements. Tesoro will be required to report the actual fugitive count to the District and must integrate the new fugitives into the facility fugitive equipment monitoring and repair program. Startup condition 21751 will be added to table IV for the sources. The condition will be removed administratively once startup is complete, Tesoro has demonstrated that the permit conditions have been met, and the District has issued the Permit to Operate of the modifications. See engineering evaluation for the Ultra Low Sulfur Diesel Project in the appendix (application 9788 amended by 10880).

Table IV – AA S916 No. 16 Furnace – No. 1 HDS Heater
Table IV – AF S917 No. 17 Furnace – No. 1 HDS Prefractionator Reboiler
In application 6820, Tesoro applied to burn 100# fuel gas in S916 and S917 instead of 40# fuel gas. In addition, Tesoro applied to burn natural gas in S917. The limits and requirements for monitoring are in condition 21186, which will be added to the Section IV tables. The engineering evaluation is in the appendix.

Table IV – BF Cluster 01b
S214, S248 and S391 were removed from the table because they were demolished in 2004.

Table IV – BI Cluster 01b Out of Service
S643, S22, S59, S139, S345, and S527 were removed from this table because the tanks were demolished in 2004.

Table IV – BJa Cluster 03 S1473 Pressurized Storage Tank abated by vapor recovery
S1473 is a new pressurized storage tank for ethyl mercaptan odorant. S1473 is abated by A-14 Vapor Recovery System. Engineering evaluation 2298 is in the appendix. Applicable requirements will be added to this table.

Table IV – CEa Cluster 24 S1485 Tank A-870
Tank S1485 is a new internal floating roof tank that holds gasoline-blending components (see application 6674). The applicable requirements will be added to Section IV.

Table IV – CG S318 – Tank A-318, S367 – Tank A-367, S1496 Tank A-876
S1496 Tank A-876 is a new fixed roof tank abated by A-14 Vapor Recovery System. The tank holds heavy reformate with pentanes and straight run heavy naphtha. The original application is 8002 and was amended by applications 9728 and 10659. All evaluations are in the appendix.

Table IV – CIa S1489 Fixed Volume Portable Tank #1, S1490 Fixed Volume Portable Tank #2, S1491 Fixed Volume Portable Tank #3

These are newly permitted tanks that can hold slop oil and water mixtures. The table will be created to list the applicable requirements. Applications 9259 and 9260 are in the appendix.

Table IV – CL S33 – Tank A-033, S638 – Tank A-638, S639 – Tank A-639, S640 – Tank A-640,
S664 – Tank A-664, S692 – Tank A-692, S708 – Tank A-708, S710 – Tank A-710, S711 – Tank A-711, S871 Tank A-871
S871 Tank A-871 is a new external floating roof tank that holds crude and low sulfur vacuum gas oil. Applicable requirements for S871 will be added to Table VII – CL. See application 9129 in the appendix.

Table IV – CP S428
S428 is an external floating roof tank. In Table IV – CP for S428, the applicable requirements for 'NESHAP for Petroleum Refineries: Requirements for Tanks also Subject to NSPS Kb' and 'NSPS Subpart Kb' were added so that Tesoro would be in compliance with 40 CFR 61 Subpart FF 60.351(a)(2). See "40 CFR 61 Subpart FF Applicability" above in this Section.

Table IV – CT Cluster 27 – Out-Of-Service S619 – Tank A-619
Table IV – CY Cluster 28 Out of Service S21 Tank A-021
These tables were removed because S21 and S619 were demolished in 2004.

Table IV – Db (Amorco Wharf) S56 On-Shore Firewater Pump Diesel Engine, S57 Off-Shore/Wharf Firewater Pump Diesel Engine
S56 is a loss of exemption engine and S57 is a new emergency engine. Both engines are used to power firewater pumps at the Amorco wharf. Table IV-Db will be created for these sources. The NSR permit application 4400 for these engines is found in the appendix.

Table IV – Dc S1499 No. 1 Pump Station Spare Diesel Pump, S1500 Chem Plant Air Compressor Diesel Engine, S1501 Chem Plant Lorain Crane Diesel Engine, S1502 High Pressure Water Blaster #1 Diesel Engine (200 HP), S1503 High Pressure Water Blaster #2 Diesel Engine (152 HP)
S1499, S1500, S1501, S1502, and S1503 are all loss of exemption diesel engines that have been permitted in application 9733, which is found in the appendix. Table IV-Dc contains the applicable requirements.

Table IV – Dd S1469 Emergency Standby Diesel Engine, S1471 Emergency Standby Diesel Engine, S1472 Emergency Standby Diesel Engine, S1474 Emergency Standby Diesel Engine, S1477 Emergency Standby Diesel Engine, S1486 Emergency Standby Diesel Engine, S1475 Portable Emergency Standby Diesel Engine, S1476 Portable Emergency Standby Diesel Engine
These engines were permitted in application 4389, which is found in the appendix. The applicable requirements for the loss of exemption engines will be put in the newly created table.

<u>Loading Rack Modernization Project</u>
Table IV – BF Cluster 01b S613 Tank A-613
Table IV – CQa S696 – Tank A-696
Table IV – AM S1025-Bulk Plant Truck/Rail
Table IV – AMa S1504 Bulk Plant Unloading Rack
The startup conditions, Condition 21849, parts 1 through 7, will be added to the applicable

requirements tables. The condition requires Tesoro to install fugitive components that comply with BACT requirements. Tesoro will be required to report the actual fugitive count to the District and must integrate the new fugitives into the facility fugitive equipment monitoring and repair program. The startup conditions will be removed administratively once startup is complete, Tesoro has demonstrated that the permit conditions have been met, and the District has issued the Permit to Operate of the modifications. See engineering evaluation for the Loading Rack Modernization Project in the appendix (application 10668).

For S1025, new conditions will be added that contain throughput and material limits, emission limits, monitoring, source testing, and recordkeeping. The condition requirements will be added to Table IV – AM.

Table IV – AMa will be created for S1504. S1504 is subject to Regulation 8-6 and has permit conditions that contain throughput and material limits as well as recordkeeping.

Table IV – CS S612 – Tank A-612
S612 permit conditions have been modified to explicitly allow the storage of ethanol (see application 12404 in the appendix. The change will be reflected in Table IV – CS.

V Schedule of Compliance

No change will be made to this section.

VI. Permit Conditions

As part of the Title V permit reopening, the District is proposing changes made to several permit conditions, these include: conditions regarding flares and Regulation 9-10 requirements, 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 are clearly shown in “strike-out/underline” format in the proposed permit. 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.

Condition 6740 has been modified to explicitly allow the storage of ethanol in tank S612. See application 12404 in the appendix.

Condition 9604 will be deleted. The condition was for a source, S780 Maintenance Coating Facility, which no longer exists.

Condition 18946
S1469, S1471, S1472, S1474, and S1477 are all loss of exemption diesel engines. For these sources, condition 18946 has been created in application 4389 (see appendix).

Condition 18947
S1486 and S1475 are portable emergency standby diesel engines that have been permitted in application 4389. Condition 18947 contains the requirements for portability, operation, and reporting and recordkeeping.

Condition 19197
S1473 is a new pressurized storage tank for ethyl mercaptan odorant. S1473 is abated by A-14 Vapor Recovery System. Engineering evaluation 2298 is in the appendix. Condition 19197 will be added to Section VI.

Condition 20099
As described in Section IV, in Revision 1.0, S532 was added to the Title V permit (New Source Review (NSR)Application Number 6201). At the startup of S532, it was determined that the permit condition needed modification. Condition #20099 required monitoring of abatement heater firebox temperatures and oxygen content in order to demonstrate a 98% by weight destruction of POC. Tesoro is unable to measure the temperature in the fireboxes. Periodic source tests will be used to determine the POC destruction efficiency of the heaters. The changes will be incorporated into the permit condition. See the engineering evaluation for Application 6201 Addendum in the appendix.

Condition 20520
S1485 is a new internal floating roof tank that holds gasoline-blending components (see application 6674). The gasoline blending components may be any of the following materials: heavy cracked naphtha, cat cracked heavy naphtha, heavy naphtha reformate, heavy catalytic reformed naphtha, medium reformate fractionator bottoms, stabilized reformate, FCC gasoline, and/or FCC Merox product.

Condition 20573
Two firewater pump engines for the Amorco Wharf will be added to the Title V permit. S56 is a loss of exemption engine and S57 is a new emergency engine. Both engines are used to power firewater pumps at the Amorco wharf. The condition for the engines, condition 20573, will be added to Section VI. The NSR permit application 4400 for these engines is found in the appendix.

Condition 20682
S659- Coke Storage , S660- Coke Storage, abated by A-9 Coker Precipitator
See explanation of changes in Section IV, above. Engineering evaluation 6673 is in the appendix.. The condition requires use of abatement during operations at S659 and S660, throughput limits, and recordkeeping.

Condition 21053
Parts 1 and 5 of Condition 21053, which required monitoring for Regulation 9-1-313.2, have been deleted. See discussion of ‘Compliance with Regulation 9-1-313.2’ in Section IV above.

Condition 21393

S871 Tank A-871 is a new external floating roof tank that holds crude and low sulfur vacuum gas oil. Conditions for S871 will be added to Section VI. See application 9129 in the appendix.

Condition 21503, Part 6
Part 6 of this condition requires the abatement of several fixed roof tanks by the A-14 Vapor Recovery System. Emissions were to be collected in the vapor recovery system and burned in process heaters to provide a POC destruction efficiency of 95%. The condition required monitoring of the oxygen content and temperature in the heater fireboxes in order to demonstrate the 95% destruction efficiency. It has since been determined that Tesoro is unable to measure the temperature in the fireboxes. Tesoro does not have thermocouple or temperature measuring devices in the heater fireboxes. Tesoro is unable to measure the firebox temperatures at the process heaters. The heater temperatures are controlled by controlling the process fluid temperatures at desired the set points as opposed to keeping the firebox temperatures at a desired set point. 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 completed source testing at heaters S-908, S-909, S-912, and S-913 and has demonstrated a 99.9% POC destruction efficiency for the A-14 Vapor Recovery System and process heaters. Because of the absence of thermocouples in the heater fireboxes, and due to the establishment of high POC abatement efficiency of process heaters in the literature and by experience, the owner/operator will source test the POC destruction efficiency of the process heaters every five years, in the prior to the Title V renewal, in lieu of parametric monitoring (temperature in the fireboxes and oxygen content of the stack fuel gas).

Reference to S21 Tank A-021 was removed because S21 was demolished in 2004.

Condition 21100
Condition 21100 contains the requirements for new source S1496 Tank A-876, which stores heavy reformate with pentanes and straight run heavy naphtha. The tank is abated by the A-14 vapor recovery system. The original application is 8002 and was amended by applications9728 and 10659. All evaluations are in the appendix.

Condition 21186
In application 6820, Tesoro applied to burn 100# fuel gas in S916 and S917 instead of 40# fuel gas. In addition, Tesoro applied to burn natural gas in S917. The limits and requirements for monitoring are in condition 21186. The engineering evaluation is in the appendix.

Condition 21535
S1491 is a new fixed volume portable tank that is used to store slop oil and water. Application 9260 for S1491 is in the appendix.

Condition 21536
S1489 and S1490 are new fixed volume portable tanks that are used to store slop oil and water. Application 9259 for S1489 and S1490 is in the appendix.

Condition 21751

Tesoro has been given the authority to construct modifications to S920, S1001, and S1003 for the Ultra Low Sulfur Diesel Project. Modifications are needed to produce ultra low sulfur diesel to comply with CARB and EPA clean fuel requirements. Total amount of sulfur from diesel will decrease but throughput will not change. Emissions from the project are fugitive. Ultra low sulfur project condition 21751, is a startup condition that requires Tesoro to install fugitive components that comply with BACT requirements. Tesoro will be required to report the actual fugitive count to the District and must integrate the new fugitives into the facility fugitive equipment monitoring and repair program. Startup condition 21751 will be added to table IV for the sources. The condition will be removed administratively once startup is complete, Tesoro has demonstrated that the permit conditions have been met, and the District has issued the Permit to Operate of the modifications. See engineering evaluation for the Ultra Low Sulfur Diesel Project in the appendix (application 9788 amended by 10880).

Condition 21849
Condition 21849 contains the requirements for the Loading Rack Modernization Project.
See engineering evaluation 10668 in the appendix.

Condition 22150
Condition 22150 was added to establish a correlation between ESP monitoring parameters and particulate emissions. The owner/operator will be required to continuously monitor the ESP parameters used to establish the correlation. See 'ESP Monitoring' in Section IV above.

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 made 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 will be entered.

<u>ESP Monitoring</u>
(response to EPA Letter October 8, 2004, Attachment 2)

A correlation will be determined between ESP parameters and particulate emissions. See 'ESP Monitoring' in Section IV. The condition requiring the establishment of the correlation and monitoring and recordkeeping has been added to the following tables of applicable limits and compliance monitoring requirements.

Table VII – K S802- Fluid Catalytic Cracking Unit And Catalyst Regenerator
Table VII – M S806–Fluid Coker
Table VII – V S901-FCCU No. 7 Boilerhouse
Table VII – W S904-No. 6 Boilerhouse
Table VII – AB S903-Coker No. 5 Boilerhouse

Table VII - Ia
As described in Section IV and VI (Application 6201 Addendum in the appendix), the permit conditions have been changed for S532. Tesoro is unable to measure the heater firebox temperatures as parametric monitoring for POC destruction. The monitoring for firebox temperature and oxygen content will be deleted. Periodic source testing will be added to determine the POC destruction efficiency of the process heaters.

Because S532 is now used as an oil water separator tank, it will be deleted from Table VII – BC Cluster 01b – Out-Of-Service.

Table VII – J
S659-Tank A-659 Coke Storage Tank, Abated by A-9, Coker Precipitator
S660-Tank A-660 Coke Storage Tank, Abated by A-9, Coker Precipitator
See "Table IV – J" in Section IV for explanation of modifications made in application 6673 (see appendix). Recordkeeping of throughput at S659 and S660 was as added to Table VII.

Table VII – K S802- Fluid Catalytic Cracking Unit And Catalyst Regenerator
Table VII – AK S1401-Claus 3-Stage Sulfur Recovery Unit
Monitoring requirements for compliance with Regulation 9-1-313.2 have been deleted. See discussion of 'Compliance with Regulation 9-1-313.2' in Section IV above.

Table VII – M S806–Fluid Coker
Monitoring requirements have been added for Regulation 6-301 and 6-310.

Table VII – T S846-No. 3 HDS Cooling Tower, S976-No. 5 Gas Plant Cooling Tower, S977-Crude Unit Cooling Tower, S978-Foul Water Stripper Cooling Tower, S979-No. 2 Feed Prep Cooling Tower, S980-Hydrocracker Cooling Tower, S981-No. 1 HDS Cooling Tower, S983-Alky and No. 2 Reformer Cooling Tower, S985-No. 1 Gas Plant Cooling Tower, S987-No. 50 Unit Cooling Tower, S988-No. 3 Reformer Cooling Tower
The monitoring for Regulation 8-2 will be deleted. See Section IV Source Specific Applicable Requirements above.

Table VII – Y S916 No. 16 Furnace – No. 1 HDS Heater
Table V – AA S917 No. 17 Furnace – No. 1 HDS Prefractionator Reboiler
In application 6820, Tesoro applied to burn 100# fuel gas in S916 and S917 instead of 40# fuel gas. In addition, Tesoro applied to burn natural gas in S917. The limits and requirements for monitoring (condition 21186), will be added to the Section VII tables. The engineering evaluation is in the appendix.

Table VII – AZ Cluster 01b Tanks Subject only to Recordkeeping

S214, S248 and S391 were removed from the table because they were demolished in 2004.

Table VII – BC Cluster 01b Out of Service
S643, S22, S59, S139, S345, and S527 were removed from the table because they were demolished in 2004.

Table VII – BDa S1473 – Pressurized Storage Tank abated by vapor recovery
Cluster 03 Pressurized Tanks: Closed Vent Systems & Control Devices will be added to Section VII for S1473. S1473 is a new pressurized storage tank for ethyl mercaptan odorant. S1473 is abated by A-14 Vapor Recovery System. Engineering evaluation 2298 is in the appendix.

Table VII – BR S601
Table VII – BM S642
Table VII – BMa S428
In Section IV Source Specific Applicability Determination above, it was determined that the following floating roofs are subject to 40 CFR 61 Subpart FF: S426, S601, and S642. To meet Subpart FF requirements under 61.351(a), Tesoro must meet the requirements of 40 CFR 60.112b(a)(1) for internal floating roof tanks and 40 CFR 60.112b(a)(2) for external floating roofs. The requirements of 40 CFR 60.112b(a) could already be found in Table VII – BR for S601 and Table VII – BM for S642. Table VII – BMa was created for S428 limits and monitoring.

Table VII – Bra S1485 Tank A-870
Tank S1485 is a new internal floating roof tank that holds gasoline-blending components (see application 6674). The monitoring requirements will be added to Section VII.

Table VII – BS S318 – Tank A-318, S367 – Tank A-367, S1496 Tank A-876
New source, S1496, was added to Table VII - BS. The VOC destruction efficiency and throughput requirements were added to the table. The original application is 8002 and was amended by applications9728 and 10659. All evaluations are in the appendix.

Table VII – BS S318 – Tank A-318, S367 – Tank A-367, S1496 Tank A-876
Table VII – BT S-134 – Tank A-134, S137 – Tank A-137
Table VII – BU S513 – Tank A-513
Table VII – CB S323 – Tank A-323
Table VII – CC S317 – Tank A-317, S324 – Tank A-324, S431 – Tank A-431, S432 – Tank A-432, S457 – Tank A-457
Table VII – CD S46 – Tank A-046, S603 – Tank A-603
Condition #21053 required modification to monitoring requirements to determine if POC destruction efficiencies are being met. Monitoring requirements in the Section VII tables were updated to reflect that source tests are now required to demonstrate the required POC destruction efficiencies of the process heaters that burn gases from the A-14 Vapory Recovery System. Tesoro is unable to monitor the temperature or oxygen content of the firebox temperatures as described in the description of the change in Section VI above for Condition #21053.

Table VII – BUa S1489 Fixed Volume Portable Tank #1, S1490 Fixed Volume Portable Tank

#2, S1491 Fixed Volume Portable Tank #3
These are newly permitted tanks that can hold slop oil and water mixtures. The table will be created to list the applicable limits and monitoring requirements. Applications 9259 and 9260 are in the appendix.

Table VII – BX S33 – Tank A-033, S638 – Tank A-638, S639 – Tank A-639, S640 – Tank A-640, S664 – Tank A-664, S692 – Tank A-692, S708 – Tank A-708, S710 – Tank A-710, S711 – Tank A-711, S871 Tank A-871
S871 Tank A-871 is a new external floating roof tank that holds crude and low sulfur vacuum gas oil. Monitoring requirements will be added to Table VII – BX. See application 9129 in the appendix.

Table VII – BZ S612 – Tank A-612, S619 – Tank A-619
Reference to S619 was removed because the tank was demolished in 2004.

S612 permit conditions have been modified to explicitly allow the storage of ethanol in the tank. See application 12404 in the appendix. The change will be reflected in Table VII – BZ.

Table VII – CE S21Tank A-021 was removed because S21 was demolished in 2004.

Table VII – Dc S56 On-Shore Firewater Pump Diesel Engine, S57 Off-Shore/Wharf Firewater Pump Diesel Engine
S56 is a loss of exemption engine and S57 is a new emergency engine. Both engines are used to power firewater pumps at the Amorco wharf. Monitoring for these sources is found in Table VII-Dc. The NSR permit application 4400 for these engines is found in the appendix.

Table IV – Dd S1499 No. 1 Pump Station Spare Diesel Pump, S1500 Chem Plant Air Compressor Diesel Engine, S1501 Chem Plant Lorain Crane Diesel Engine, S1502 High Pressure Water Blaster #1 Diesel Engine (200 HP), S1503 High Pressure Water Blaster #2 Diesel Engine (152 HP)
S1499, S1500, S1501, S1502, and S1503 are all loss of exemption diesel engines that have been permitted in application 9733, which is found in the appendix. Monitoring for these sources is found in Table VII-Dd.

Table IV – De S1469 Emergency Standby Diesel Engine, S1471 Emergency Standby Diesel Engine, S1472 Emergency Standby Diesel Engine, S1474 Emergency Standby Diesel Engine, S1477 Emergency Standby Diesel Engine, S1486 Emergency Standby Diesel Engine, S1475 Portable Emergency Standby Diesel Engine, S1476 Portable Emergency Standby Diesel Engine
These engines were permitted in application 4389, which is found in the appendix. The monitoring for these the loss of exemption engines will be put in the newly created table.

Table VII – Df S1025 Bulk Plant Bottom Loading Facilities
Table VII – Dg S1504 Bulk Plant Unloading Rack
These tables will be created as part of the Loading Rack Modernization Project (application 10668 in the appendix). The applicable limits and compliance monitoring requirements will be

listed for S1025 and S1504.

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. Inspection procedures from Appendix A of the NSPS Title 40 Part 60 was moved from Table IV – U for flares to Table VIII.

IX. Permit Shield:

No change will be made to this section.

D. Alternate Operating Scenarios:

No change will be made to this section.

E. Compliance Status:

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. It is expected that the Hearing Board will rule on the District's petition by the time this proposed revision becomes final. If the Hearing Board grants the District's petition, the District will incorporate the terms of the conditional order for abatement into the permit as a schedule of compliance.

Aside from this issue with Coker flue gas, the facility is not currently in violation of any requirement. The District has updated its review of recent violations and has not found a pattern of violations that would warrant imposition of a compliance schedule.

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APPENDIX A

GLOSSARY

ACT
Federal Clean Air Act

APCO
Air Pollution Control Officer

API
American Petroleum Institute

ARB
Air Resources Board

BAAQMD
Bay Area Air Quality Management District

BACT
Best Available Control Technology

BARCT
Best Available Retrofit Control Technology

Basis
The underlying authority that allows the District to impose requirements.

C5
An Organic chemical compound with five carbon atoms

C6
An Organic chemical compound with six carbon atoms

CAA
The federal Clean Air Act

CAAQS
California Ambient Air Quality Standards

CAPCOA
California Air Pollution Control Officers Association

CEC
California Energy Commission

CEQA
California Environmental Quality Act

CEM
A "continuous emission monitor" is a monitoring device that provides a continuous direct measurement of some pollutant (e.g., NOx concentration) in an exhaust stream.

CFP

Clean Fuels Project

CFR
The Code of Federal Regulations. 40 CFR contains the implementing regulations for federal environmental statutes such as the Clean Air Act. Parts 50-99 of 40 CFR contain the requirements for air pollution programs.

CO
Carbon Monoxide

CO2
Carbon Dioxide

Cumulative Increase
The sum of permitted emissions from each new or modified source since a specified date pursuant to BAAQMD Rule 2-1-403, Permit Conditions (as amended by the District Board on 7/17/91) and SIP Rule 2-1-403, Permit Conditions (as approved by EPA on 6/23/95). Used to determine whether threshold-based requirements are triggered.

DAF
A "dissolved air flotation" unit is a process vessel where air bubbles injected at the bottom of the vessel are used to carry solids in the liquid into a froth on the liquid surface, where it is removed.

DWT
Dead Weight Ton

District
The Bay Area Air Quality Management District

DNF
Dissolved Nitrogen Flotation (See DAF)

dscf
Dry Standard Cubic Feet

dscm
Dry Standard Cubic Meter

E 6, E 9, E 12
Very large or very small number values are commonly expressed in a form called scientific notation, which consists of a decimal part multiplied by 10 raised to some power. For example, 4.53 E 6 equals (4.53) x (10^6) = (4.53) x (10 x 10 x 10 x 10 x 10 x 10) = 4,530,000. Scientific notation is used to express large or small numbers without writing out long strings of zeros.

EFRT
An "external floating roof tank" minimizes VOC emissions with a roof with floats on the surface of the liquid, thus preventing the formation of a VOC-rich vapor space above the liquid surface as the level in the tank drops. If such a vapor space were allowed to form, it would be expelled when the tank was re-filled. On an EFRT, the floating roof is not enclosed

by a second, fixed tank roof, and is thus described as an "external" roof.

EPA
The federal Environmental Protection Agency.

ETP
Effluent Treatment Plant

Excluded
Not subject to any District Regulations.

FCC
Fluid Catalytic Cracker

Federally Enforceable, FE
All limitations and conditions which are enforceable by the Administrator of the EPA including those requirements developed pursuant to 40 CFR Part 51, subpart I (NSR), Part 52.21 (PSD), Part 60 (NSPS), Part 61 (NESHAPs), Part 63 (HAP), and Part 72 (Permits Regulation, Acid Rain), and also including limitations and conditions contained in operating permits issued under an EPA-approved program that has been incorporated into the SIP.

FP
Filterable Particulate as measured by BAAQMD Method ST-15, Particulate.

FR
Federal Register

FRT
Floating Roof Tank (See EFRT and IFRT)

GDF
Gasoline Dispensing Facility

GLM
Ground Level Monitor

grains
1/7000 of a pound

Graphitic
Made of graphite.

HAP
Hazardous Air Pollutant. Any pollutant listed pursuant to Section 112(b) of the Act. Also refers to the program mandated by Title I, Section 112, of the Act and implemented by 40 CFR Part 63.

H2S
Hydrogen Sulfide

H2SO4

Sulfuric Acid

Hg
Mercury

HHV
Higher Heating Value. The quantity of heat evolved as determined by a calorimeter where the combustion products are cooled to 60F and all water vapor is condensed to liquid.

IFRT
An "internal floating roof tank" minimizes VOC emissions with a roof with floats on the surface of the liquid, thus preventing the formation of a VOC-rich vapor space above the liquid surface as the level in the tank drops. If such a vapor space were allowed to form, it would be expelled when the tank was re-filled. On an IFRT, the floating roof is enclosed by a second, fixed tank roof, and thus is described as an "internal" roof.

ISOM
Isomerization plant

LHV
Lower Heating Value. Similar to the higher heating value (see HHV) except that the water produced by the combustion is not condensed but retained as vapor at 60F.

Lighter
"Lightering" is a transfer operation during which liquid is pumped from an ocean-going tanker vessel to a smaller vessel such as a barge. Like any liquid transfer operation, lightering of organic liquids produces organic vapor emissions.

Long ton
2200 pounds

Major Facility
A facility with potential emissions of: (1) at least 100 tons per year of regulated air pollutants, (2) at least 10 tons per year of any single hazardous air pollutant, and/or (3) at least 25 tons per year of any combination of hazardous air pollutants, or such lesser quantity of hazardous air pollutants as determined by the EPA administrator.

MDEA
Methyl Diethanolamine

MFR
Major Facility Review. The District's term for the federal operating permit program mandated by Title V of the Act and implemented by District Regulation 2, Rule 6.

Mo Gas
Motor gasoline

MOP
The District's Manual of Procedures

MOSC

Mobil Oil Sludge Conversion (licensed technology)

MSDS
Material Safety Data Sheet

MTBE
methyl tertiary-butyl ether

NA
Not Applicable

NAAQS
National Ambient Air Quality Standards

NESHAPs
National Emission Standards for Hazardous Air Pollutants. See in 40 CFR Parts 61 and 63.

NMHC
Non-methane Hydrocarbons

NMOC
Non-methane Organic Compounds (Same as NMHC)

NOx
Oxides of nitrogen.

SNCR
Selective Non-Catalytic Reduction

NSPS
Standards of Performance for New Stationary Sources. Federal standards for emissions from new stationary sources. Mandated by Title I, Section 111 of the Act, and implemented by 40 CFR Part 60 and District Regulation 10.

NSR
New Source Review. A federal program for pre-construction review and permitting of new and modified sources of air pollutants for which the District is classified "non-attainment". Mandated by Title I of the Clean Air Act and implemented by 40 CFR Parts 51 and 52 as well as District Regulation 2, Rule 2. (Note: There are additional NSR requirements mandated by the California Clean Air Act.)

O2
The chemical name for naturally occurring oxygen gas.

Offset Requirement
A New Source Review requirement to provide federally enforceable emission offsets at a specified ratio for the emissions from a new or modified source and any pre-existing cumulative increase minus any onsite contemporaneous emission reduction credits. Applies to emissions of POC, NOx, PM10, and SO2.

Phase II Acid Rain Facility

A facility that generates electricity for sale through fossil-fuel combustion and is not exempted by 40 CFR 72 from Titles IV and V of the Clean Air Act.

POC
Precursor Organic Compounds

PM
Total Particulate Matter

PM10
Particulate matter with aerodynamic equivalent diameter of less than or equal to 10 microns

Process Unit
For the purpose of start-up and shutdown reporting, a unit is defined as found in 40 CFR Part 60 Subpart GGG, which states:

> *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.*

PSD
Prevention of Significant Deterioration. A federal program for permitting new and modified sources of air pollutants for which the District is classified "attainment" of the National Air Ambient Quality Standards. Mandated by Title I of the Act and implemented by both 40 CFR Part 52 and District Regulation 2, Rule 2.

Regulated Organic Liquid
"Regulated organic liquids" are those liquids which require permits, or which are subject to some regulation, when processed at a liquid-handling operation. For example, for refinery marine terminals, regulated organic liquids are defined as "organic liquids" in Regulation 8, Rule 44.

RFG
Refinery Fuel Gas

RMG
Refinery Make Gas

SCR
A "selective catalytic reduction" unit is an abatement device that reduces NOx concentrations in the exhaust stream of a combustion device. SCRs utilize a catalyst, which operates at a specific temperature range, and injected ammonia to promote the conversion of NOx compounds to nitrogen gas.

Shutdown
For reporting purposes only, a shutdown shall be defined as any of the following; there is no process feed to a unit, no furnace fires, or the boundary blinds are installed.

SIP

State Implementation Plan. State and District programs and regulations approved by EPA and developed in order to attain the National Air Ambient Quality Standards. Mandated by Title I of the Act.

Start-up
For reporting purposes only, a start-up shall be defined as any of the following; the removal of boundary blinds, first fire to a furnace, or the introduction of process feed to a unit. A start-up only occurs following a shutdown unless in involves a newly constructed process unit.

SO2
Sulfur dioxide

SO2 Bubble
An SO2 bubble is an overall cap on the SO2 emissions from a defined group of sources, or from an entire facility. SO2 bubbles are sometimes used at refineries because combustion sources are typically fired entirely or in part by "refinery fuel gas" (RFG), a waste gas product from refining operations. Thus, total SO2 emissions may be conveniently quantified by monitoring the total amount of RFG that is consumed, and the concentration of H2S and other sulfur compounds in the RFG.

SO3
Sulfur trioxide

THC
Total Hydrocarbons (NMHC + Methane)

therm
100,000 British Thermal Unit

Title V
Title V of the federal Clean Air Act. Requires a federally enforceable operating permit program for major and certain other facilities.

TOC
Total Organic Compounds (NMOC + Methane, Same as THC)

TPH
Total Petroleum Hydrocarbons

TRMP
Toxic Risk Management Plan

TRS
"Total reduced sulfur" is a measure of the amount of sulfur-containing compounds in a gas stream, typically a fuel gas stream, including, but not limited to, hydrogen sulfide. The TRS content of a fuel gas determines the concentration of SO2 that will be present in the combusted fuel gas, since sulfur compounds are converted to SO2 by the combustion process.

TSP

Total Suspended Particulate

TVP
True Vapor Pressure

VOC
Volatile Organic Compounds

Units of Measure:

bbl	=	barrel of liquid (42 gallons)
bhp	=	brake-horsepower
btu	=	British Thermal Unit
C	=	degrees Celsius
F	=	degrees Farenheight
f^3	=	cubic feet
g	=	grams
gal	=	gallon
gpm	=	gallons per minute
hp	=	horsepower
hr	=	hour
lb	=	pound
in	=	inches
max	=	maximum
m^2	=	square meter
min	=	minute
M	=	thousand
Mg	=	mega-gram, one thousand grams
µg	=	micro-gram, one millionth of a gram
MM	=	million
mm	=	millimeter
MMbtu	=	million btu
mm Hg	=	millimeters of Mercury (pressure)
MW	=	megawatts
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scfm	=	standard cubic feet per minute
yr	=	year

Symbols:

$<$	=	less than
$>$	=	greater than
$\leq$	=	less than or equal to
$\geq$	=	greater than or equal to

APPENDIX B

BAAQMD ENGINEERING EVALUATION REPORTS

TDC:tc\2298evl/ultramar/eval/f\04-27-02

ENGINEERING EVALUATION
ULTRAMAR, INC.
APPLICATION #2298 - PLANT #12758

BACKGROUND

Ultramar, Inc. submitted this permit application to obtain an Accelerated Permit to Operate for the following source:

S-1473 Pressurized Storage Tank; Storing: Ethyl Mercaptan Odorant, Capacity: 1000 gallons abated by A-14 Vapor Recovery System

Ethyl mercaptan is an additive added to liquefied petroleum gas to enable detection of leaks of LPG. Ethyl mercaptan is detectable by the human nose in concentrations at the part per billion level.

Bulk trucks will deliver ethyl mercaptan to S-1473 using a vapor balancing system. After the delivery, A-14, the vapor recovery system, will be used to evacuate the hoses. The A-14 system will duct the emissions to S-952, No. 1 Gas Plant where the recovered gasses will be incorporated into the refinery fuel gas system and burned at combustion sources with abatement efficiencies greater than 95 percent, by weight.

Ultramar intends to install one pressure relief valve at S-1473 and that valve is to vent to atmosphere. Section 112 of Regulation 8, Rule 28 *Episodic Releases from Pressure Relief Devices at Petroleum Refineries and Chemical Plants* exempts S-1473 from the requirements of Regulation 8, Rule 28.

S-1473 is a pressure tank and its emissions will be fugitive emissions from valves flanges and its pressure relief valve. The emission factors for fugitive devices are the same factors used in Ultramar's clean fuels permit application #2508. The emission factors were approved by the District and developed by Ultramar based on screening value data collected throughout the Ultramar refinery by its fugitive component contractors pursuant to US EPA Reference Method 21 (40 CFR 60, Appendix A).

S-1473 will replace an existing 230 gallon ethyl mercaptan tank that is exempt from permitting pursuant to Regulation 2, Rule 1, Section 123.1 because its capacity is less than 260 gallons. S-1473 is rated at 250 psig.

EMISSIONS CALCULATION

The existing system was exempt from permitting and there had been no charge to the Plant Cumulative Increase for the exempt operation. The new system will require a Permit to Operate and the emissions increase will be charged to the cumulative increase based on the following calculation:

	*Component Count (old)	Component Count (new)	Emission Factor POC (lb/day)	Emissions POC (lb/yr)
Compressors	0	0	0.00804	0
Pumps	0	0	0.0289	0
Pressure Relief Valves	1	1	0.00972	3.5478
Valves (Gas)	0	0	0.00153	0
Valves (Liquid)	17	12	0.00147	6.4386
Flanges	6	8	0.004	11.68
		POC Total Emissions (lb/yr)		21.7
		POC Total Emissions (ton/yr)		0.011

*For informational purposes only. Not used in emission calculation.

The existing tank and filling system were exempt from permitting. The new tank and filling system require permitting and all emissions from the new tank and filling system must be offset. There is no emission credit for the emissions that had occurred with the old system that was exempt from permitting.

PLANT CUMULATIVE INCREASE

POC: 0 ton/yr (current) + 0.011 ton/yr (proposed) = 0.011 ton/yr (new total)

TOXIC RISK SCREENING ANALYSIS

A risk screen is not required for the equipment evaluated in this permit application. There is no increase in the permitted emission rate of any hazardous air pollutant occurring pursuant to permit application #2298. Ethyl mercaptan is not listed in Table 2-1-316.

BACT

Pursuant to Regulation 2, Rule 2, BACT does not apply to the emission increase to be permitted pursuant to this application. The POC emission increase is less than 10 pounds per highest day.

OFFSETS

Pursuant to Regulation 2, Rule 2, offset requirements are triggered for this permit application. An emission increase of 0.011 ton per year must be offset. The offsets will come from banking certificate #797. These offsets are not contemporaneous emission reductions and the increase must offset the emission increase at a 1.15 to 1.0 ratio.

```
                    Banking Certificate: 797
    Application no:  2813
 Final Disposition: Certificate Issued     12/18/01
Reduction Location: Ford Motor Co  [San Jose]
 Certificate owner: Ultramar Inc [plant 12758]
   Transfer from #: 791
   Original cert.#: 26
```

tons per year	PM	POC	NOX	SO2	CO	NPOC	PM10
Requested	.000	.000	.000	.000	.000	.000	.000
Approved	.000	102.082	.000	.000	.000	.000	.000
Balance	.000	102.082	.000	.000	.000	.000	.000

pollutant	POC
increase (ton/yr)	0.011
certificate #	**797**

beginning balance	**102.082**
increase (ton/yr)	0.011
ratio	1:15 to 1
offsets required	0.013
ending balance	**102.069**

STATEMENT OF COMPLIANCE

Fugitive components at S-1473 are subject to Regulation 8, Rule 18 Equipment Leaks. Consistent with the emission factors that were approved by the District and developed by Ultramar based on screening value data collected throughout the Ultramar refinery by its fugitive component contractors pursuant to US EPA Reference Method 21 (40 CFR 60, Appendix A), fugitive components will meet a 100 ppmv leak limit imposed in permit conditions. Compliance with the conditions will assure compliance with the leak limits in Regulation 8, Rule 18 Equipment Leaks.

S-1473 fugitive components in gas or light liquid service must also comply with 40 CFR 60, Subpart GGG. Fugitive components are expected to comply with Subpart GGG requirements. The leak standard pursuant to Subpart GGG is 10,000 ppm, far greater than the leak limits imposed pursuant to permit conditions, at 100 ppm. Compliance with the permit conditions will assure compliance with all emission standards required pursuant to Subpart GGG. Aside from some record keeping requirements, compliance with BACT will reasonably assure compliance with the NSPS.

S-1473 must also comply with Regulation 8, Rule 5 Storage of Organic Liquids. The true vapor pressure of methyl mercaptan is greater than 11 psia. S-1473 will comply with Regulation 8, Rule 5, Section 311.3 in that A-14 Vapor Recovery System will collect the vapors in the lines after transfer of ethyl mercaptan to S-1473 and the vapors will be ducted to S-952 No. 1 Gas Plant. The vapors will be incorporated into the refinery's fuel gas system and combusted at combustion sources. During the refilling of S-1474, the vapor space of S-1473 will be transferred back to filling truck by way of its vapor balancing system.

This 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 these projects requires only the application of standard permit conditions and standard emission factors and therefore is not discretionary as defined by CEQA. The ministerial nature of this project is set forth in Permit Handbook Chapters 4.2 and 3.4.

This project is not within 1,000 ft of the nearest public school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

BACT, PSD, NSPS, and NESHAPS are not triggered.

CONDITIONS

S-1473 Pressurized Storage Tank; Storing: Ethyl

Mercaptan Odorant, Capacity: 1000 gallons

abated by A-14 Vapor Recovery System

1. S-1473 shall be abated by A-14 at all times that emissions from S-1473 are not controlled by the ethyl mercaptan delivery vessel's vapor balance system.

(basis: cumulative increase)

2. The total throughput of ethyl mercaptan odorant to S-1473 shall not exceed 3000 gallons during any rolling 12 consecutive month period.
(basis: cumulative increase)

3. Not more than 30 days after the Accelerated Permit to Operate is issued pursuant to permit application #2298, Permittee/Owner/Operator shall ensure that the District's Permit Services Division is in receipt of the actual fugitive component count, by named type and service, installed/operated in conjunction with S-1473.
(basis: cumulative increase, offsets)

4. If the actual fugitive component count, by named type and service, installed/operated in conjunction with S-1473 results in an emission quantification larger than that amount already charged to the plant cumulative increase for S-1473 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)

5. Permittee/Owner/Operator shall ensure that each flange/connector's total organic compound emissions do not exceed 100 ppm, subject to the leak repair provisions of Regulation 8, Rule 18.
(basis: cumulative increase, Reg. 8-18)

6. Permittee/Owner/Operator shall ensure that each valve's total organic compound emissions do not exceed 100 ppm, subject to the leak repair provisions of Regulation 8, Rule 18.
(basis: cumulative increase, Reg. 8-18)

7. In a District approved log, Permittee/Owner/Operator shall record the amount of each organic liquid material throughput to S-1473 each month and for each rolling 12 consecutive month period, by material name. 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)

RECOMMENDATION

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

Issue an Accelerated Permit to Operate to Ultramar, Inc. for the following source:

S-1473	Pressurized Storage Tank; Storing: Ethyl Mercaptan Odorant, Capacity: 1000 gallons abated by A-14 Vapor Recovery System

_____

Terry D. Carter
Senior Quality Engineer
Permit Services Division

TDC:tc\2298evl/ultramar/eval/f\04-27-02

ENGINEERING EVALUATION
TESORO REFINING AND MARKETING COMPANY; SITE 14629
APPLICATION 4400

BACKGROUND

Ultramar, Inc. submitted this permit application. Subsequent to its submittal date, Tesoro Refining and Marketing Company took ownership of the Amorco Wharf, the Avon Refinery, and permit application #4400. The permit application was submitted to obtain a Permit to Operate for two emergency standby diesel fired, fire-water pump engines (S-56, S-57). Both engines are to be operated at the Amorco Wharf. The source descriptions for the sources are as follows:

> **S-56 On-Shore Fire-Water Pump: Diesel Engine, Make: Caterpillar, Model: 3412DIT, Rated Horsepower: 660 hp**
>
> **S-57 Off-Shore/Wharf Fire-Water Pump: Diesel Engine, Make: Caterpillar, Model: 3412DIT, Rated Horsepower: 700 hp**

Tesoro felt that both the engines were loss of exemption engines that needed permitting pursuant to amendments to Regulation 2, Rule 1 that took effect September 1, 2001. In fact, only S-56 is a loss of exemption source. S-57 is a new source. Tesoro Refining and Marketing Company (Ultramar, Inc.) should have secured an Authority to Construct for S-57 prior to installing S-57.

Page 9 of the staff report for the relevant regulatory amendments that took effect on September 1, 2001 states "…Any engine that is on site on or after the effective date of this proposed revision will be treated as a new engine." S-56 is treated as loss of exemption source because it first arrived on site at the Tesoro's refinery adjacent to the Amorco Wharf (prior to September 1, 2001) on August 7, 2001. S-57 is treated as a new source because it arrived at Tesoro's Amorco Wharf on September 1, 2001. Though Tesoro's petroleum refinery and the Amorco wharf are each assigned a separate District plant number, Tesoro owns and controls the refinery and the wharf, the two facilities have a support relationship, and both facilities are included in the single Title V permit.

Both S-56 and S-57 are fire-water pump engines. This means that the engines will be used to drive pumps used to pump water to extinguish a fire. In order for the engines to be used in such service, they must be Factory Mutual (FM) and Underwriters Laboratory (UL) Listed.

EMISSIONS

Basis:
Daily and annual emissions from S-56 and S-57, assuming 1001 hrs/yr of total operation and 660 and 700 brake horsepower (bhp), respectively, at full load, will be calculated using emission factors gathered from manufacturer's specification data:

Engine Displacement: 1649 cubic inches for both sources
Fuel Consumption: 34.2 gal/hr @ Full Load for S-56
Fuel Consumption: 37.6 gal/hr @ Full Load for S-57

The calculation of highest day emissions for each engine is based on each engine operating for 24 consecutive hours.

Formulas for Calculating Emissions:
Highest Day Emissions [=] lbs/day =

(24 hrs/day) • (Emission Factor [=] g/hr) • (1 lb/453.6 g) (1)

Annual Emissions [=] lbs/yr =

1 Maximum hours of operation given for reliability-related activities as promulgated in Reg. 9-8-330.

(100 hrs/yr) • (Emission Factor [=] g/hr) • (1 lb/453.6 g) ***(2)***

Annual Emissions [=] tons/yr =

(Annual Emissions [=] lbs/yr)/(2000 lb/ton) ***(3)***

Table 1: Emission Calculations for S-56

Pollutant	Emission Factor (g/hr)	Highest Day Emissions (lbs/day/source)	Annual Emissions	
			(lbs/yr/source)	(tons/yr/source)
POC	153	8.10	33.7	0.017
CO	892	47.2	197	0.098
NO_x	10439	552	2,301	1.151
PM_{10}	135	7.14	29.8	0.015
SO_2 (see note)		5.91	24.6	0.012

SO_2 Note: SO_2 emission calculation is based on the sulfur in diesel at 0.05 wt% and all of the sulfur being oxidized to SO_2 during combustion

Table 2: Emission Calculations for S-57

Pollutant	Emission Factor (g/hr)	Highest Day Emissions (lbs/day/source)	Annual Emissions	
			(lbs/yr/source)	(tons/yr/source)
POC	153	8.10	33.7	0.017
CO	892	47.2	197	0.098
NO_x	10439	552	2,301	1.151
PM_{10}	135	7.14	29.8	0.015
SO_2 (see note)		6.7E-03	2.5	0.001

SO_2 Note: SO_2 emission calculation is based on the sulfur in diesel at 0.0015 wt% and all of the sulfur being oxidized to SO_2 during combustion, based on using Amber® 363 fuel.

TOXIC RISK SCREEN ANALYSIS

A Toxic Risk Screen Analysis was required for S-56 and S-57 since the calculated diesel exhaust particulate matter emission rate for each engine is 29.8 lbs/yr, in excess of the District's toxic trigger level set forth in Table 2-1-316 of 0.64 lbs/yr for diesel exhaust particulate matter.

On July 19, 2002 a memo requesting a Risk Screen Analysis (RSA) for S-56 and S-57 was sent to Brian Bateman, Air Quality Engineering Manager, Toxics Evaluation Section, via Barry Young, Principal Air Quality Engineer, Permit Evaluation Section. In a memo dated August 27, 2002, Irma Salinas, Air Quality Engineer, Toxics Evaluation Section, communicated that S-56 and S-57 passed the risk screen for 100 hours per year of operation for reliability-related activities (excluding emergency conditions) with a risk of 0.59 in a million. Therefore, no further toxics risk assessment of this project is required.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

S-56 is not a new source as defined in Regulation 2-1-232. It is a loss of exemption source not subject to BACT or emission offsetting requirements. S-56 had been exempt from permitting pursuant to version of Regulation 2, Rule 1 (Section 114.2.3) adopted by the District Board on May 17, 2000 which exempted standby internal combustion engines operated for not more than 200 hours in any calendar year with an additional 100 hours per calendar year for maintenance and testing. The exemption was eliminated in the version of Regulation 2, Rule 1, (Section 114) adopted by the District Board on August 1, 2001 that took effect on September 1, 2001.

2-1-232 New Source: Any source that meets at least one of the following criteria, except sources which lose a permit exemption or exclusion in accordance with Regulation 2-1-424, shall be considered a new source:

S-57 triggers BACT pursuant to Regulation 2-2-301.1 for NO_x and CO since this source is a new source, as defined in Regulation 2-1-232, and emits greater than or equal to 10.0 lbs of NO_x and CO per highest day:

2-2-301 Best Available Control Technology Requirement: An applicant for an authority to construct or a permit to operate shall apply BACT to any new or modified source:

301.1 Which results in an emission from a new source or an increase in emissions from a modified source and which has the potential to emit 10.0 pounds or more per highest day of precursor organic compounds (POC), non-precursor organic compounds (NPOC), nitrogen oxides (NOx), sulfur dioxide (SO2), PM10 or carbon monoxide (CO). BACT shall be applied for any of the above pollutants which meets both criteria. (Amended 6/15/94; 10/7/98; 5/17/00)

For each of S-56 and S-57, BACT is not triggered for POC, PM_{10}, or SO_x since their respective highest day emissions are not greater than or equal to 10.0 lbs per highest day. The BACT/TBACT guideline that most closely covers fire-water pumps is BACT Guideline 96.1.2, which is shown below:

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Best Available Control Technology (BACT) Guideline

Source Category

Source:	***IC Engine - Compression Ignition***	Revision:	***5***
		Document #:	***96.1.2***
Class:	***> or = 175 horsepower output rating***	Date:	***03/08/01***

Determination

POLLUTANT	BACT 1. Technologically Feasible/ Cost Effective 2. Achieved in Practice 3. TBACT	TYPICAL TECHNOLOGY
POC	1. *0.30 g/bhp-hr [62 ppmvd @ 15% O_2] a,b* 2. *1.5 g/bhp-hr [309 ppmvd @ 15% O_2] b,c*	1. *Catalytic Oxidation and CARB or EPA (or equivalent) low-total hydrocarbon emitting certified engine a,b* 2. *CARB or EPA (or equivalent) low-total hydrocarbon emitting certified engine b,c*
NOx	1. *1.5 g/bhp-hr [107 ppmvd @ 15% O_2] a,b* 2. *6.9 g/bhp-hr [490 ppmvd @ 15% O_2] a,b,c,d* 3. *6.9 g/bhp-hr [490 ppmvd @ 15 % O_2] d*	1. *Selective Catalytic Reduction (SCR) + Timing Retard + Turbocharger w/ Intercooler a,b* 2. *Timing Retard $\leq$ 4o + Turbocharger w/ Intercooler a,b,c,d* 3. *Timing Retard $\leq$ 4o + Turbocharger w/ Intercooler d*

SO_2	1. *n/d* 2. *fuel oil < 0.05% sulfur a,b*	1. *n/d* 2. *Fuel Selection a,b*
CO	1. *n/s* 2. 2.75 *g/bhp-hr [319 ppmvd @ 15% O2] b,c*	1. *Catalytic Oxidation b* 2. *CARB or EPA (or equivalent) low-CO emitting certified engine b,c*
PM_{10}	1. *n/d* 2. *If practical, gas-fueled engine or electric motor. If not, "California Diesel Fuel" (fuel oil w/ < 0.05% by weight sulfur and < 20% by volume aromatic hydrocarbons) b* 3. *0.1 grams/bhp-hr d*	1. *Catalyst Guard Bed a,b* 2. *Fuel Selection b,d* 3. *CARB or EPA (or equivalent) low-particulate matter emitting certified engine, or particulate filter d*
NPOC	1. *n/a* 2. *n/a*	1. *n/a* 2. *n/a*

References

a. CARB/CAPCOA Clearinghouse
b. BAAQMD NOTE: IC Engine BACT and TBACT is a low emitting, spark-ignited, gas-fueled engine with lean burn combustion or rich burn with non-selective catalytic reduction, or electric motor. A diesel engine will be permitted only if a gas-fueled engine, or electric motor, is not practical (e.g., a remote location without natural gas availability or electric power, or only a diesel engine will meet the portability and/or power/torque/rpm requirements of the application under review, or the engine is used exclusively for emergency use during involuntary loss of power).
c. Timing retard, etc. controls alone may be acceptable only in very limited situations for temporary sources.
d. "All reasonable risk reduction measures" are required if the carcinogenic risk due to diesel particulate matter is calculated to be more than 10 in a million and less than 100 in a million. TBACT for diesel engines is specified in the District's risk management policy for diesel engines approved by Ellen Garvey, APCO/Executive Officer, dated 3/2/01. For questions about this policy or to obtain a copy of the policy, contact Brian Bateman, Toxic Evaluation Section Manager.

Because BACT is expressed in units of g/bhp·hr, shown below in Table 3 are emission factors for S-56 and S-57 expressed in g/bhp·hr calculated based on manufacturer's specification data and the rated horsepower of each engine:

Table 3: Emission Factors of Criteria Pollutants for S-56 and S-57

Source	POC (g/bhp-hr)	CO (g/bhp-hr)	NO_x (g/bhp-hr)	PM_{10} (g/bhp-hr)	SO_x (g/bhp-hr)
S-56	0.232	1.35	15.8	0.205	0.169
S-57	0.219	1.27	14.9	0.193	0.176

BACT for CO:
S-57 complies with BACT for CO since its CO emission rates are less than the BACT 2 limit of 2.75 g/(bhp·hr) for CO emissions for compression ignition engines set forth in BACT Guideline 96.1.2. BACT 1 for CO is not specified by the current BACT guideline for the source category.

BACT for NO_x:
The NO_x emission rate for S-57 is 14.9 g/(bhp·hr), based on the manufacturer's specification data and the rated horsepower of each engine. This emission rate is higher than the BACT 2 limit of 6.9 g/(bhp·hr) for NO_x emissions set forth in BACT Guideline 96.1.2. This emission rate does not comply with the NO_x emission limit set forth in the current BACT/TBACT Guideline for diesel-fired internal combustion engines over 175 hp.

In addition, the District is not aware of any fire pump engine from any manufacturer with an output rating greater than 375 bhp that complies with the 6.9 g/(bhp·hr) BACT emission rate limit. There is currently no District BACT/TBACT Guideline specifically addressing diesel fired fire-water pump engines. Fire-water pump engines are different than standard compression ignition engines because they must be listed (e.g., Underwriters Laboratory

(UL) listed or Factory Mutual (FM) certified) for fire pump service pursuant to *National Fire Protection Association (NFPA) 20, Standard for the Installation of Stationary Pumps for Fire Protection* Chapter 8, Section 2.1.1 and 2.1.2, as follows:

8-2 Engines.
8-2.1 Listing.
8-2.1.1 Engines shall be listed for fire pump service.
8-2.1.2 Engines shall be specifically listed for fire pump service by a testing laboratory.

Also, any add-on abatement devices, engine timing retardation, or other alteration of equipment operation is prohibited since it will result in the loss of this certification as corroborated in a letter received by the District on January 27, 2003, by Steve Cushman, Chief Engineer at Peterson Power Systems, and that provides information regarding reasons why fire-water pump engines that are Factory Mutual (FM) and Underwriter's Lab listed should not be expected to meet all of the District's current BACT/TBACT requirements. The District considered Mr. Cushman's comments in evaluating BACT for S-57.

Therefore, BACT for S-57 will be determined on a "case-by-case" basis per Regulation 2-2-206. BACT is defined in Regulation 2-2-206 as follows:

2-2-206 Best Available Control Technology (BACT): For any new or modified source, except cargo carriers, the more stringent of:

206.1 The most effective emission control device or technique which has been successfully utilized for the type of equipment comprising such a source; or
206.2 The most stringent emission limitation achieved by an emission control device or technique for the type of equipment comprising such a source; or
206.3 Any emission control device or technique determined to be technologically feasible and cost-effective by the APCO; or
206.4 The most effective emission control limitation for the type of equipment comprising such a source which the EPA states, prior to or during the public APCO that such limitations are not achievable. Under no circumstances shall the emission control required be less stringent than the emission control required by any applicable provision of federal, state or District laws, comment period, is contained in an approved implementation plan of any state, unless the applicant demonstrates to the satisfaction of the rules or regulations.
The APCO shall publish and periodically update a BACT/TBACT Workbook specifying the requirements for commonly permitted sources. BACT will be determined for a source by using the workbook as a guidance document or, on a case-by-case basis, using the most stringent definition of this Section 2-2-206. (Amended October 7, 1998)

The vast majority of fire-water pumps are diesel-driven. Electricity is not preferred since it is interruptible. Also, the use of electricity to power the pump engine may prevent the equipment from being mobile. The use of gasoline as fuel is also not common since it presents storage safety concerns due to its higher volatility compared to diesel fuel oil. Furthermore, in some instances, neither electricity nor gasoline can provide the power required by fire-water pumps. The District is aware of at least one manufacturer, Clarke Detroit Diesel-Allison, whose diesel fired fire-water pump engines of comparable size have demonstrated significantly lower emission rates for NO_x and other pollutants compared to S-56 and S-57 as shown below in Table 4:

Table 4: Criteria Pollutant Emission Factors for Fire Pump Engines of comparable size

Fire Pump Engine	Model	BHP	POC (g/bhp-hr)	NO_x (g/bhp-hr)	CO (g/bhp-hr)	SO_x (g/bhp-hr)	PM_{10} (g/bhp-hr)
Sample Clarke Engines	DDFP-12FH	686	0.07	10.50	2.70	0.68	0.15
	DDFP-08FH	708	0.16	8.83	1.91	0.66	0.18

S-56	---	660	0.232	15.8	1.35	0.169	0.205
S-57	---	700	0.219	14.9	1.27	0.176	0.193

In addition, several tests have compared Amber® 363 fuel (see attached Material Safety Data Sheet (MSDS)), a low nitrogen diesel equivalent, to #2 Diesel fuel oil. The results indicate that the use of Amber® 363 fuel results in significantly lower NO_x emissions. The reason for this is two fold. The chemical composition of Amber® 363 is similar to that of diesel oil except that Amber® 363 fuel contains significantly less fuel nitrogen (<1 ppm by weight3) and it also contains less fuel sulfur (< 0.005 percent, by weight[3]). Therefore, as compared to diesel, less NO_x emissions result from fuel NO_x and essentially all NO_x emissions from Amber® 363 fuel comes from thermal NO_x formation. Furthermore, due to Amber® 363's lower aromatic concentration and higher saturates concentration, a lower flame temperature is achieved during combustion, reducing thermal NO_x formation. Therefore, BACT in this case was initially determined to be the use of a fire-water pump engine of comparable size, with emission limits *less than or equal to 8.83* g/bhp·hr NOx, in conjunction with the use of Amber® 363 low NO_x fuel.

The District identified the Clarke DDFP-08FH engine listed above as a BACT compliant engine (provided Amber Fuel is used exclusively at the engine) and presented the information to Tesoro. Tesoro reviewed the information and explained that the Clarke DDFP-08FH engine cannot be used in place of S-57. Specifically, when the District asked Tesoro why the Clarke DDFP-08FH engine cannot be used in place of S-57, the current engine, Tesoro replied that:

> "Both rpm and brake horsepower (BHP) are important in selecting the proper pump driver. The current engine is 700 BHP at 2100 rpm. The Clarke DDFP-08FH at 2100 rpm produces 669 BHP, which is less than the installed engine and would have a corresponding reduction in fire water flow rate. At 2350 rpm, the Clarke DDFP-08FH produces 708 horsepower but would overspeed the pump, producing higher water pressures than the system design. The design pressure is controlled by pressure constraints in the fire water system and its associated components.
>
> Basically, this engine is too small, especially when you derate it for actual operating temperature and sea water as required by NFPA (fire) codes."

The District will not require that Tesoro use the Clarke DDFP-08FH engine when the applicant has disclosed legitimate business and safety reasons for objecting to doing so.

Since Amber® 363 fuel is not as commercially available as CARB Ultra Low Sulfur diesel fuel, and emissions are expected to be comparable, CARB Ultra Low Sulfur diesel fuel will be required for use at S-57 as BACT. At this time, the District does not have source test data demonstrating the extent to which NOx and PM-10 emissions are reduced at either of the sample Clarke engines listed in Table 4 through the use of CARB Ultra Low Sulfur diesel fuel, in comparison to firing California diesel fuel, at the sample Clarke engines. This data can be gathered by the District after S-57 is operated within the District using CARB Ultra Low Sulfur diesel fuel. Based on available information, a reduction in NOx and PM-10 emissions is expected. Since the applicant cannot be required to install add-on abatement equipment at S-57, the use of CARB Ultra Low Sulfur diesel fuel will be required. CARB Ultra Low Sulfur has a total sulfur content that is less than or equal to 15 ppmw.

BACT measures such as SCR, retarding fuel injection timing, or the use of an intercooler or aftercooler, or the use NSCR are not possible for S-57. As stated above, any add-on abatement devices, engine timing retardation, or other alteration of equipment operation is prohibited since it will result in the loss of this certification as corroborated in a letter received by the District on January 27, 2003, by Steve Cushman, Chief Engineer at Peterson Power Systems, and that provides information regarding reasons

3 Values taken from attached *Core Laboratories* Analytical Report. See technical documentation in application folder.

why fire-water pump engines that are Factory Mutual (FM) and Underwriter's Lab listed should not be expected to meet all of the District's current BACT/TBACT requirements. The District considered Mr. Cushman's comments in evaluating BACT for S-57.

CUMULATIVE INCREASE

Emissions from S-56 are not included in the cumulative increase and the emissions from S-56 need not be offset pursuant to Regulation 2, Rule 2. Section 302.

	Current (tons/yr)	+	Proposed (tons/yr)	=	New Total (tons/yr)
NO_x:	0.000	+	1.151 tons/yr	=	1.151
CO:	0.000	+	0.098 tons/yr	=	0.098
SO_x:	0.000	+	0.001 tons/yr	=	0.001
PM_{10}:	0.000	+	0.015 tons/yr	=	0.015
POC:	0.000	+	0.017 tons/yr	=	0.017

OFFSETS

Plant 12759 (plant 14629) emits more than 50 tons per year of precursor organic compounds. POC offsets are required for the permitted POC emissions from S-57 emitted during periods of non-emergency operation of the engines, pursuant to Regulation 2, Rule 2, Section 302.

POC emissions of 0.017 tons per year must be offset pursuant to Regulation 2, Rule 2, Section 302. Banking certificate number 834 will be used. The offset ratio is 1.15 to 1. The credits are not on site credits and they are not contemporaneous emission reduction credits. Therefore 0.020 ton/year of POC is due to the District.

```
                    Banking Certificate: 834
    Application no:  5666
 Final Disposition: Certificate Issued     08/29/02
Reduction Location: Ford Motor Co  [San Jose]
 Certificate owner: Tesoro Refining & Marketing Company
           Contact: Sharon Lim, tel: (925) 335-3467
   Mailing address: 150 Solano Way, Martinez, CA  94553

   Transfer from #: 797
   Original cert.#: 26
```

tons per year	PM	POC	NOX	SO2	CO	NPOC	PM10
Requested	.000	.000	.000	.000	.000	.000	.000
Approved	.000	9.426	.000	.000	.000	.000	.000
Applic: 6674 Withdrawal	.000	1.877	.000	.000	.000	.000	.000
Balance	***.000***	***7.549***	***.000***	***.000***	***.000***	***.000***	***.000***

STATEMENT OF COMPLIANCE

S-56 is a loss of exemption source, not subject to BACT or offsets. S-57 is a new source as defined in Regulation 2-1-232 since it was installed after September 1, 2001. Each engine is subject to Regulation 9-8. S-56 and S-57 are subject to the monitoring and record keeping procedures described in Regulations 9-8-502 and 9-8-530, the SO_2 limitations of 9-1-304 (0.5% by weight in fuel), and the Ringelmann No. 2 limitations of Regulation 6-303

(emissions opacity limitations). Each source is exempt from of Regulation 9-1-302 (ground level concentration) by complying with Regulation 9-1-302.1. Requirements for Regulations 9-8-502 and 9-8-530 are included in the proposed permit conditions. For S-56, compliance with Regulations 9-1-302 and 9-1-304 is likely since California law mandates using diesel fuel with a 0.05% by weight sulfur. For S-57, the use of Ultra Low Sulfur Diesel fuel will ensure compliance with 9-1-304 and it is expected to ensure compliance with 9-1-302. For S-57, since the applicant will be required to use only Ultra Low Sulfur Diesel fuel which contains even less sulfur than the 0.05% by weight, California diesel, with a sulfur content less than 0.0015 percent, by weight, the applicant is expected to comply with the requirements of Regulation 9-1-304.

Regulation 9-8-111 exempts engines rated at, or below, 1000 brake horsepower, which operate less than 200 hours in any 12-consecutive-month period from Section 9-8-301 and 9-8-302 provided that the requirements of Section 9-8-502 are met. Tesoro is expected to comply with Regulation 9-8-502.

Per Regulation 6, Section 303, a person shall not emit for a period or periods aggregating more than three minutes in any hour, a visible emission that is as dark or darker than No. 2 on the Ringelmann Chart, or of such opacity as to obscure an observer's view to an equivalent or greater degree, nor shall said emission, as perceived by an opacity sensing device in good working order, where such device is required by District regulations, be equal to or greater than 40% opacity.

This application is considered to be ministerial under the District's proposed CEQA guidelines (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 emission factors in accordance with Permit Handbook Chapter 2.3.

This project is over 1,000 ft from the nearest public school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

A toxic risk screening analysis was required and performed.

For S-57, pursuant to Regulation 2-2-301.1, BACT is triggered for NO_x and CO. S-57 must comply with BACT for NO_x and CO since it is a new source, as defined in Regulation 2-1-232, and emits equal to or greater than 10.0 lbs of NO_x and CO per highest day. For S-57, BACT is not triggered for POC, PM_{10}, or SO_x since their respective annual emissions were less than 10.0 lbs per highest day from each source. S-57 complies with BACT for CO since their CO emission rates are less than the BACT 2 limit of 2.75 g/(bhp·hr) for CO emissions. The NO_x emission rates for S-57 do not comply with the NO_x emission limits as set forth in the current BACT/TBACT Guideline. BACT in this case is determined to be the use of the S-57 Caterpillar engine Model: 412DIT, 700 HP in conjunction with the use of Amber® 363 low NO_x fuel. S-57 complies with this BACT determination, as the engine is currently proposed.

PSD, NSPS, and NESHAPS are not triggered.

PERMIT CONDITIONS

S-56 On-Shore Fire-Water Pump: Diesel Engine,
Make: Caterpillar, Model: 3412DIT,
Rated Horsepower: 660 HP

1. Hours of Operation: Permittee/Owner/Operator shall ensure that S-56 is operated exclusively to mitigate emergency conditions or for reliability-related activities. For S-56, Permittee/Owner/Operator shall ensure that operation for reliability-related activities does not exceed 100 hours in each calendar year. Operation while mitigating emergency conditions is unlimited.
[Basis: Toxic Risk Screen]

2. "Emergency Conditions" is defined as any of the following:
   a. Impending threat of fire
   b. Fire
[Basis: Reg. 9-8-231]

3. "Reliability-related activities" is defined as any of the following:
   a. Operation of an emergency standby engine to test its ability to perform for an emergency use, or
   b. Operation of an emergency standby engine during maintenance of a primary motor.
[Basis: Reg. 9-8-232]

4. Permittee/Owner/Operator shall ensure that S-56 is equipped with:
   a. a non-resettable totalizing meter that measures and records the hours of operation for the engine.
[Basis: Reg. 9-8-530]

5. Records: Permittee/Owner/Operator shall ensure
+
that for S-56, the following monthly records are maintained in a District-approved log and retained on site for at least 5 years from date of last entry, and that these records are made available for District inspection upon request:
   a. Hours of operation (total).
   b. Hours of operation (emergency).
   c. For each emergency, the nature of the emergency condition.
   d. Fuel usage each month by fuel type.
[Basis: Reg. 9-8-530, Reg. 1-441]

S-57 Off-Shore/Wharf Fire-Water Pump:
Diesel Engine,
Make: Caterpillar, Model: 3412DIT,
Rated Horsepower: 700 HP

1. Hours of Operation: Permittee/Owner/Operator shall ensure that S-57 is operated exclusively to mitigate emergency conditions or for reliability-related activities. For S-57, Permittee/Owner/Operator shall ensure that operation for reliability-related activities does not exceed 100 hours during each rolling 12 consecutive month period. Operation while mitigating emergency conditions is unlimited.
[Basis: Toxic Risk Screen, cumulative increase]

2. "Emergency Conditions" is defined as any of the following:

a. Impending threat of fire
b. Fire
[Basis: Reg. 9-8-231, cumulative increase]

3. "Reliability-related activities" is defined as any of the following:
a. Operation of an emergency standby engine to test its ability to perform for an emergency use, or
b. Operation of an emergency standby engine during maintenance of a primary motor.
[Basis: Reg. 9-8-232]

4. Permittee/Owner/Operator shall ensure that S-57 is equipped and operated with:
a. a District approved non-resettable totalizing meter that measures and records the hours of operation for S-57.
[Basis: Reg. 9-8-530, cumulative increase]

5. Records: Permittee/Owner/Operator shall ensure that for S-57, the following monthly records are maintained in a District-approved log and retained on site for at least 5 years from date of last entry, and that these records are made available for District inspection upon request:
a. Hours of operation (total).
b. Hours of operation (emergency).
c. For each emergency, the nature of the emergency condition.
d. Fuel usage each month by fuel name.
[Basis: Reg. 9-8-530, Reg. 1-441, cumulative increase]

6. Permittee/Owner/Operator shall ensure that on August 1, 2003 and thereafter, no fuel other than CARB Ultra Low Sulfur diesel fuel is fired at S-57. CARB Ultra Low Sulfur diesel fuel has a total sulfur content not greater than 15 ppmw.
[Basis: BACT, cumulative increase]

RECOMMENDATION

1) Issue a conditional Permit to Operate to Tesoro Refining and Marketing Company for each of the following sources:

S-56 On-Shore Fire-Water Pump: Diesel Engine, Make: Caterpillar, Model: 3412DIT, Rated Horsepower: 660 HP

S-57 Off-Shore/Wharf Fire-Water Pump: Diesel Engine, Make: Caterpillar, Model: 3412DIT, Rated Horsepower: 700 HP

2) Use Tesoro Refining Company's banking certificate number 834 and deduct 0.020 ton/yr of POC from it. Don't reissue the balance. Tesoro has a separate application (#6820) in house and pending. Tesoro will use certificate number 834 to offset emissions associated with application #6820.

BY: _____ _____

Terry D. Carter **Date**
Senior Air Quality Engineer
Permit Services Division

TDC:tc/4400eval7.doc/TesoroAmorco/04-29-03

ADDENDUM
ENGINEERING EVALUATION
Tesoro Refining and Marketing Company
PLANT NO. 14628
APPLICATION NO. 6201

BACKGROUND

This addendum to Application #6201 is to modify the conditions originally written for the Authority to Construct and/or Permit to Operate the following equipment:

S-532 Oil Water Separator; Tank 532, modified to operate as an Oil Water Separator; Volume: 630K Gallons, Capacity 286 BPH abated by A-14 Vapor Recovery

Condition #20099 requires source testing for POC destruction efficiency of the process heaters used to burn the vapors collected by the A-14 Vapor Recovery System or 40 pound fuel gas line. The heaters to be tested are S-908, S-909, S-912, S-913, S-916, S-917, and S-991. Heaters S-916 and S-917 have since been repiped to burn fuel gas from the 100 pound fuel gas line instead of the 40 pound fuel gas line (Application #6820, April 2003). During source testing, Condition #2009 also requires the owner/operator to measure the heater firebox temperatures and oxygen content of the stack flue gases in order to establish parametric monitoring for POC destruction efficiency through the heaters. Tesoro does not have thermocouple or temperature measuring devices in the heater fireboxes. Tesoro is unable to measure the firebox temperatures at the process heaters. The heater temperatures are controlled by controlling the process fluid temperatures at desired the setpoints as opposed to keeping the firebox temperatures at a desired setpoint. 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 completed source testing at heaters S-908, S-909, S-912, and S-913 and has demonstrated a 99.9% POC destruction efficiency for the A-14 Vapor Recovery System and process heaters. Because of the absence of thermocouples in the heater fireboxes, and due to the establishment of high POC abatement efficiency of process heaters in the literature and by experience, the owner/operator will source test the POC destruction efficiency of the process heaters every five years, in the prior to the Title V renewal, in lieu of parametric monitoring (temperature in the fireboxes and oxygen content of the stack fuel gas).

PERMIT CONDITIONS

Changes and updates to the permit condition are in strikeout and underline format.

COND# 20099 ----------
Application 6201 (November 2002), Condition updated after Start-up (December 2004).

S-532 Oil Water Separator; Tank 532, modified to operate as an Oil Water Separator; Volume: 630K Gallons, Capacity: 286 BPH abated by A-14 Vapor Recovery System

1) Permittee/Owner/Operator shall ensure that the total throughput of all VOC/petroleum materials to S-532 does not exceed 2,505,360 barrels during any 12 consecutive month period. (basis: cumulative increase, toxics, BACT, offsets)

2) Permittee/Owner/Operator shall ensure that S-532 is of welded construction and that S-532 meaning as set forth in Regulation 8, Rule 8. (basis: Regulation 8-8, cumulative increase, toxics, offsets, BACT)

3) Notwithstanding any provision of District regulations allowing for the malfunction of A-14 due to a valid breakdown at No. 1 Gas Plant vapor recovery compressor(s), Permittee/Owner/Operator shall ensure that S-532 (excluding the pressure vacuum relief valve vent), including the pressure vent at S-532, is abated by A-14 at all

times that S-532 is operated and at all times that S-532 contains VOC/petroleum materials. (basis: BACT, Regulation 8-8, cumulative increase, toxics, offsets)

4) Permittee/Owner/Operator shall ensure that VOC/POC emissions from S-532 that are ducted to A-14 are abated with a destruction efficiency of at least 98 percent, by weight, as measured across the combustion device(s) burning (the vapors from the) 40 Pound Fuel Gas system. (basis: BACT)

5) Not more than 120 days after the start-up of S-532 pursuant to Authority to Construct #6201, Permittee/Owner/Operator shall conduct a District approved source test at each of the following sources:

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-916 No. 1 HDS Heater~~
~~S-917 No. 17 Furnace, No 1 HDS Prefractionator~~

to measure for each source each of the follow
ing:

- 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
- ~~the firebox temperature~~
- ~~the location of the firebox thermocouple~~
- the destruction efficiency of POC/VOC as measured across the Furnace/combustion device

Permittee/Owner/Operator shall ensure that two copies of the results of the source testing along with related calculations and relevant process data are received by the District's Permit Services Division not more than 35 days following the date of the source test.

~~The source test data will be used to determine firebox temperature and flue gas oxygen content required to ensure that 98 percent, by weight, combustion of POC/VOC is achieved.~~

5A) Not more than 5 days after S-991 undergoes its first start-up subsequent to the first maintenance turnaround at the FCCU after December 31, 2002, Permittee/Owner/Operator shall ensure that a District approved source test is conducted at S-991 FCCU Preheat Furnace to measure each of 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
- ~~the firebox temperature~~
- ~~the location of the firebox thermocouple~~
- the destruction efficiency of POC/VOC as measured across the Furnace/combustion device

Permittee/Owner/Operator shall ensure that two copies of the results of the source testing along with related calculations and relevant process data are received by the District's Permit Services Division not more than 35 days following the date of the source test. (basis: BACT)

6) To determine compliance with part 4, the owner/operator shall conduct a District approved source test at each of the following sources every 5 years in the year prior to the Title V Permit Renewal.

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
- 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 35 days of the source test.
(basis: Cumulative Increase, Toxic Risk Screen, Offsets, Regulation 1-238)

7 ~~6~~) During periods of preventative maintenance on A-14 Vapor Recovery System not to exceed 36 hours per rolling consecutive 12 month period, Permittee/Owner/Operator shall ensure that there is no liquid flow into S-532 and that under no circumstances shall the preventative maintenance begin prior to 6:00 PM PST. During the preventative maintenance on A-14 Vapor Recovery System S-532 does not need to be abated by A-14. (basis: BACT)

~~7) On a daily basis, twice each day, for each of S-908, S-909, S-912, S-913, S-916, S-917, and S-991, Permittee/Owner/Operator shall measure and record in District approved log(s), the firebox/flue temperature. Permittee/Owner/Operator shall ensure that the District approved log is retained on site for not less than 5 years from date of last entry, and that it is made available to District staff upon request. (basis: BACT)~~

~~8) On a continuous basis, for each of S-908, S-909, S-912, S-913, S-916, S-917, and S-991, Permittee/Owner/Operator shall continuously measure and record in District approved log(s), the oxygen content in the flue gas using a District approved oxygen sensing device and a District approved recording device. Permittee/Owner/Operator shall ensure that the District approved log is retained on site for not less than 5 years from date of last entry, and that it is made available to District staff upon request. Each of the temperature monitors and each of the oxygen monitors required pursuant to these conditions is considered to be a parametric monitor as defined in Regulation 1, Section 238. (basis: BACT, Reg. 1-238)~~

8 ~~9~~) On a monthly basis, in a District approved log, the Permittee/Owner/Operator shall record the throughput of liquid material throughput month and for each rolling 12 consecutive month period. The Permittee/Owner/Operator shall ensure that the District approved log is retained on site for not less than 5 years from date of last entry, and that it is made available to District staff upon request. (basis: cumulative increase, toxics, offsets)

9 ~~10~~) On a monthly basis, in a District approved log, the Permittee/Owner/Operator shall record the time, date, duration, and reason for each instance during which S-532 is not abated by A-14. The Permittee/Owner/Operator shall ensure that the District approved log is retained on site for not less than 5 years from date of last entry, and that it is made available to District staff upon request. (basis: cumulative increase, toxics, offsets)

~~11) For S-908, S-909, S-912, S-913, S-916, S-917, and S-991, after the District receives and accepts the results of the District approved source tests from conditions 5 and 5A, the District will use the data to impose conditions specifying the minimum amount of oxygen that must be present in the flue gas, and specifying the minimum temperature of the firebox and/or flue, to ensure that 98 percent, by weight, destruction of VOC/POC is achieved. (basis: BACT)~~

10 ~~12~~) Upon start-up of S-532 pursuant to Authority to Construct #6201, Permittee/Owner/Operator shall ensure that S-46 Fixed Roof Tank, Capacity: 252K gal is not operated and is permanently taken out of service, additionally the Permit to Operate for S-46 shall become null and void. (basis: offsets)

By:_____

Pamela J. Leong
Air Quality Engineer II
December 21, 2004

TDC:tc/6673evlF/tesoro/eval/f

ENGINEERING EVALUATION
TESORO REFINING AND MARKETING COMPANY
APPLICATION #6673 – PLANT #14628

BACKGROUND

Tesoro Refining and Marketing Company submitted this permit application to obtain an Authority to Construct and Permit to Operate to make physical changes to the following existing permitted equipment:

S-659 West Coke Storage Tank (Silo) abated by A-9 Coke Silo Electrostatic Precipitator

S-660 East Coke Storage Tank (Silo) abated by A-9 Coke Silo Electrostatic Precipitator

The modifications to S-659 sought by Tesoro Refining and Marketing Company will allow for the petroleum coke transferred to haul trucks from S-659 to be abated by the existing permitted electrostatic precipitator, A-9, Coke Silo Precipitator. Currently truck loading of coke at S-659 is unabated and results in fugitive dust in and around the point of loading that is so great that the applicant is concerned about the possibility of visible emission violations. Additionally, the applicant will mitigate unnecessary worker exposure to the coke transfer fugitive particulate matter emissions. An annulus encircling the point of discharge from the loading arm to the fill point at haul trucks will duct air and entrained particulate petroleum coke to A-9 for abatement. The result is that there is no increase in emissions. There will be a decrease in particulate emissions from S-659 since fugitive dust that had been emitted unabated will now be abated at A-9.

The modifications to S-660 sought by Tesoro pursuant to permit application #6673 will allow for petroleum coke to be transferred to S-660 from existing permitted source S-838, the Coker Pit Feeder, and from existing permitted S-836, the Coker Elutriator Handling System. These coke transfers are enclosed and occur in enclosed piping without generating fugitive particulate emissions to atmosphere during the transfers. This change will allow for operational flexibility in the operation of S-659 and S-660.

Finally, pursuant to application #6673 Tesoro proposes to replace the existing 6” line at the Coker main blower with an 8” line. This line replacement will enable better capture of fugitive particulate from any of the four existing loading lines at S-659 and S-660.

S-659 and S-660 are the only sources abated by A-9. Both of these sources are used to store petroleum coke with a moisture content that is less than 1 percent, by weight.

There are actually 3 blowers that move air from S-659 and S-660 to A-9 for abatement. Tesoro identifies them as the Primary Main Blower, with a maximum flow rate of approximately 2200 SCFM; the Coker Main Blower, with a maximum flow rate of approximately 4000 SCFM, the Dust Collection Fan at approximately 1000 SCFM, and there is an additional estimated 100 SCFM of air displaced from S-659 and S-660 to A-9 by petroleum coke entering these sources for storage. Tesoro does not have exact numbers for the flow rate of each fan and determined these numbers from performance curves and engineering judgment.

Tesoro states that the day in and day out operational flow rate to exhaust gas to A-1 from S-659 and S-660 is approximately 4,700 SCFM. There are no express conditions imposed by the District on S-659 and/or S-660.

EMISSIONS CALCULATION

There is no anticipated emission increase associated with this application. In fact, a decrease in particulate emissions is associated with this physical modification at S-659. The proposed changes to S-660 do not increase the

rate of petroleum coke transfer to S-659 and S-660 or result in an emission increase for either source. Currently, the loading of haul trucks with petroleum coke at S-659 results in the formation of fugitive particulate dust emissions. Though there will be increased particulate loading in the vent gas from S-659 to A-9, vent gas flow to A-9 is well beneath its design capacity of 9850 SCFM.

The outlet of A-9 has been source tested four times to the District's knowledge. Only the July 14, 1993 source test is a District approved source test. It was actually conducted by the District's Source Test Section. The results of the four tests are as follows:

			(all values in units of grains per dscf)			
date	tester	average flow (dscf/m)	run 1	run 2	run 3	average
July 9, 2002	Advanced Air Testing, LLC	6,267	0.015	0.008	0.004	0.009
August 4, 1994	Best Environmental	2,893	0.00225	0.00556	0.00418	0.004
July 14, 1993	BAAQMD	5,100	0.003	0.003	0.004	0.003
July 7, 1993	Best Environmental	5,565	0.0693	0.1117	0.1582	0.113

Currently, there is no express outlet grain loading limit on A-9 operations.

PLANT CUMULATIVE INCREASE

	Current (ton/yr)	Proposed (ton/yr)	New Total (ton/yr)
PM-10	0.000	0.000	0.000

TOXIC RISK SCREEN ANALYSIS

A Toxic Risk Screen Analysis is not required for this application. There is no anticipated increase in the emission rate of any TAC associated with this application.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

S-659 and S-660 are each new sources as defined in Regulation 2-1-232. Neither source's physical change is to result in an emission increase. In fact, a decrease in actual emissions is anticipated or no change in actual emissions is anticipated. Based on the District's definition for New Source and Modified Source, each shown below, neither source is subject to BACT review under Regulation 2, Rule 2, Section 301.1:

2-1-234 **Modified Source:** Any existing source which undergoes a physical change, change in the method of operation of, increase in throughput or production, or addition which results or may result in any of the following:

234.1 An increase of either the daily or annual emission level of any regulated air pollutant, or an increase in the production rate or capacity that is used to estimate the emission level, that exceeds emission or production levels approved by the District in any authority to construct.

234.2 An increase of either the 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 levels contained in a permit condition in any current permit to operate or major facility review permit.

234.3 For sources which have never been issued a District authority to construct, and which do not have conditions limiting daily or annual emissions, 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:

3.1 The highest of the following:

3.1.1 The highest attainable design capacity, as shown in pre-construction 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.

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).

For the purposes of applying Section 234.3, only increases in annual emission levels shall be considered for storage vessels.

234.4 The emission of any regulated air pollutant not previously emitted in a quantity which would cause the source to fail an air toxic screening analysis performed in accordance with the current Air Toxic Risk Screening Procedure.

For the purposes of applying this definition, an hourly limit or capacity may be converted to a daily limit or capacity by multiplication by 24 hours/day; a daily capacity may be converted to an annual capacity or limit by multiplication by 365 days/year.

(Adopted 5/17/00; Amended 11/15/00)

2-1-232 **New Source:** Any source that meets at least one of the following criteria, except sources which lose a permit exemption or exclusion in accordance with Regulation 2-1-424, shall be considered a new source:

232.1 Any source constructed or proposed to be constructed after March 7, 1979 but which never had a valid District authority to construct or permit to operate.
232.2 Any source which was not in operation for a period of one year or more and did not hold a valid District permit to operate during this period of non-operation, occurring after March 7, 1979.
232.3 Any relocation of an existing source to a non-contiguous property, except for a portable source.
232.4 Any replacement of a source, including an identical replacement of a source, occurring after March 7, 1979, regardless of when the original source was constructed.
232.5 Any replacement of an identifiable source within a group of sources permitted together under a single source number for the purpose of District permitting convenience.
232.6 "Rebricking" of a glass furnace where changes to the furnace design result in a change in heat generation or absorption. (Adopted May 17, 2000)

Neither S-659 nor S-660 triggers BACT because neither source is a new source as defined in Regulation 2, Rule 1, Section 232 and because neither source is a modified source as defined in Regulation 2, Rule 1, Section 234 undergoing a modification as defined in Regulation 2-1-234 and since neither source's modification is expected to increase emissions. In fact, a decrease in emissions is anticipated.

2-2-301 **Best Available Control Technology Requirement:** An applicant for an authority to construct or a permit to operate shall apply BACT to any new or modified source:

301.1 Which results in an emission from a new source or an increase in emissions from a modified source and which has the potential to emit 10.0 pounds or more per highest day of precursor organic compounds (POC), non-precursor organic compounds (NPOC), nitrogen oxides (NOx), sulfur dioxide (SO2), PM10 or carbon monoxide (CO). BACT shall be applied for any of the above pollutants which meets both criteria. (Amended 6/15/94; 10/7/98; 5/17/00)

EMISSION OFFSETS

Emission offsets are not required because there is no increase in the emission rate of any pollutant associated with permit application #6673.

STATEMENT OF COMPLIANCE

S-659 and S-660 are each subject to Regulation 6 Particulate Matter and Visible Emissions. S-659 and S-660 are each expected to continue to comply with the Ringelmann 1 requirement in Section 301 of Regulation 6 because pursuant to the modifications sought in permit application #6673, fugitive particulate emissions from S-659 will now be abated by A-9. For S-660, this source's particulate emissions are already abated by A-9. Each of S-659 and S-660 is expected to comply with the outlet grain loading limit of 0.15 grains per dscf of exhaust in Section 310, and the visible particle emission limit of Regulation 6, Section 305 that prohibits emissions of visible particles that fall on adjacent property. The source testing results show for District approved and non-approved source testing, that the outlet grain loading at A-9 is well beneath the 0.15 grains per dscf requirement.

		run 1	run 2	run 3	average
July 9, 2002	Advanced Air Testing, LLC	0.015	0.008	0.004	0.009
August 4, 1994	Best Environmental	0.00225	0.00556	0.00418	0.004
July 14, 1993	BAAQMD	0.003	0.003	0.004	0.003
July 7, 1993	Best Environmental	0.0693	0.1117	0.1582	0.113

S-659 and S-660 are situated far from property owned by persons other than Tesoro. I have seen S-659 or S-660 in operation. It is unlikely and there will be particulate fallout on adjacent property in quantities or of such size and nature as to be visible individually as incandescent particles in violation of Regulation 6, Section 305 as result of the operation of S-659 and/or S-660.

A permit condition will be imposed on S-659 to limit the outlet grain loading to 0.006 grain per dry standard cubic foot of exhaust, pursuant to BACT on A-9 in its abatement of S-659 and S-660.

6-301 **Ringelmann No. 1 Limitation:** Except as provided in Sections 6-303, 6-304 and 6-306, a person shall not emit from any source for a period or periods aggregating more than three minutes in any hour, a visible emission which is as dark or darker than No. 1 on the Ringelmann Chart, or of such opacity as to obscure an observer's view to an equivalent or greater degree.

6-305 **Visible Particles:** A person shall not emit particles from any operation in sufficient number to cause annoyance to any other person, which particles are large enough to be visible as individual particles at the emission point or of such size and nature as to be visible individually as incandescent particles. This Section 6-305 shall only apply if such particles fall on real property other than that of the person responsible for the emission.

6-310 **Particulate Weight Limitation:** A person shall not emit from any source particulate matter in excess of 343 mg per dscm (0.15 gr. per dscf) of exhaust gas volume.

This application is not considered to be ministerial under the District's proposed CEQA guidelines (Regulation 2-1-311) but is exempt from CEQA review. The applicant has completed an Appendix H form for this project. This project is exempt from CEQA pursuant to Regulation 2, Rule 1, Sections 312.2 and 312.6:

2-1-312 **Other Categories of Exempt Projects:** In addition to ministerial projects, the following categories of projects subject to permit review by the District will be exempt from the CEQA review, either because the category is exempted by the express terms of CEQA (subsections 2-1-312.1 through 312.9) or because the project has no potential for causing a significant adverse environmental impact (subsections 2-1-312.10 and 312.11). Any permit applicant wishing to qualify under any of the specific exemptions set forth in this Section 2-1-312 must include in its permit application CEQA-related information in accordance with subsection 2-1-426.1. In addition, the CEQA-related information submitted by any permit applicant wishing to qualify under subsection 2-1-312.11 must demonstrate to the satisfaction of the APCO that the proposed project has no potential for resulting in a significant environmental effect in connection with any of the environmental media or resources listed in Section II of Appendix I of the State CEQA Guidelines.

312.2 Permit applications to install air pollution control or abatement equipment.

312.6 Permit applications relating exclusively to the repair, maintenance or minor alteration of existing facilities, equipment or sources involving negligible or no expansion of use beyond that previously existing.

This project is over 1,000 ft from the nearest public school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

A toxic risk screening analysis is not required because there is no increase in the emission rate of any pollutant associated with this application.

BACT, PSD, NSPS, emission offsetting and NESHAPS are not triggered.

PERMIT CONDITIONS

```
S-659  Coke Storage Tank (Silo) A-659 abated

       by A-9 Coke Silo Electrostatic Precipitator


S-660  Coke Storage Tank (Silo) A-660 abated

       by A-9 Coke Silo Electrostatic Precipitator

1.  Permittee/Owner/Operator shall ensure that
    S-659 and S-660 are abated by A-9 at all times
    that petroleum coke transfer operations occur
    at/to/from S-659 and/or S-660 and at all times
    that there is air flow from S-659 and/or S-660
    to A-9.
    (basis: cumulative increase)

2.  Permittee/Owner/Operator shall ensure that
    the total throughput of petroleum coke to
    S-659 and S-660 does not exceed 1,016,160
    tons during each rolling consecutive 12 month
    period. (basis: cumulative increase)

3.  In a District approved log, Permittee/Owner/
    Operator shall record the amount of petroleum
    coke transferred to S-659 and S-660 during each
    month and during 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)
```

RECOMMENDATION

Issue a conditional Authority to Construct to Tesoro Refining and Marketing Company to physically change each of the following sources:

S-659 **West Coke Storage Tank (Silo) abated by A-9 Coke Silo Electrostatic Precipitator (**to be physically changed to add fugitive particulate abatement at A-9 to existing permitted truck loading operations that occur at S-659; and to replace the existing 6" line at the Coker main blower with an 8" line**)**

S-660 **East Coke Storage Tank (Silo) abated by A-9 Coke Silo Electrostatic Precipitator (**to be physically changed to allow petroleum coke transfer inside enclosed piping to S-660 from existing permitted source S-838, the Coker Pit Feeder, and to S-660 from existing permitted source S-836, the Coker Elutriator Handling System**)**

Terry D. Carter
Senior Air Quality Engineer
Permit Services Division

TDC:tc/6673eval/tesoroR&M/06-04-03

ADDENDUM
ENGINEERING EVALUATION
Tesoro Refining and Marketing Company
PLANT NO. 14628
APPLICATION NO. 6674

BACKGROUND

This addendum to Application #6674 is to refund the unused offsets provided by Tesoro Refining and Marketing Company for the Authority to Construct the following equipment:

S-1485 Internal Floating Roof Tank; Tank A-870, Capacity: 130,000 Barrels, Storing: Gasoline Blending Components

In order to obtain the Authority to Construct for S-1485, Tesoro was required to estimate the type and number of tank fittings in order to estimate POC emissions. As required by Permit condition #20520, Part 4, Tesoro has provided a written notification disclosing the type and number of tank fittings installed at S-1485 (letter from Sharon Lim of Tesoro, August 18, 2004). The following table shows the type and number of tank fittings proposed versus the actual type and number of tank fittings installed. The associated POC emissions are also shown. The Tanks 4.0 program was used to determine the amount of POC emissions from S-1485. The results of the Tanks 4.0 program are attached to this Addendum.

Tank Fittings	**Proposed**	**Installed**
Access Hatch	1	1
Gauge-Hatch/Sample Well	1	1
Vacuum Breaker	1	1
Slotted Guide-Pole/Sample Well	1	1
Ladder Well	**1**	**NONE**
Level Gauge Well	1	1
Adjustable Roof Leg	**52**	**67**
POC Emissions (Tanks 4.0)	**5585.1 lb/yr**	**3697.0 lb/yr**
	2.793 tpy	**1.849 tpy**

As seen in the table above, additional roof legs were installed, while the ladder well was eliminated. Emissions of POC are now only 1.849 tpy versus 2.793 tpy. Condition #20520, Part 4 states that if additional offsets are owed to the District after installation of S-1485, then Tesoro must provide the credits to the District. Conversely, if actual emissions are less than the District approved emissions, then the District will refund credits to Tesoro. Tesoro originally owed 2.793 tpy of POC offsets to the District. In this application (Application #6674), Tesoro had provided 1.161 tpy of on-site emission reduction credits from the shutdown of S-312 Tank A-312. Banking Certificate #834 provided the balance of the offsets.

<u>Offsets Originally owed to the District based on Projected tank fittings:</u>
2.793 tpy – 1.161 typ (on-site credit) = 1.632 typ X 1.15 offset ratio = 1.877 tpy

As seen in Appendix A, 1.877 tpy of offsets were deducted from Banking Certificate #834.

<u>Offsets Actually owed to the District based on Actual tank fittings:</u>
1.849tpy - 1.161 typ (on-site credit) = 0.688 typ X 1.15 offset ratio = 0.791 tpy

<u>Offsets owed to Tesoro:</u>
Offsets Provided – Actual Offsets Required = 1.877 – 0.791 = 1.086 tpy

RECOMMENDATION

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

Issue emission reduction credits (ERCs) to Tesoro Refining and Marketing Company in the amount shown below.

POC 1.085 tons per year

By:_____

Pamela J. Leong
Air Quality Engineer II
August 25, 2004

Appendix A

Banking Certificate: 834
Application no: 5666
Final Disposition: Certificate Issued 08/29/02
Reduction Location: Ford Motor Co [San Jose]
Certificate owner: Tesoro Refining & Marketing Company
Contact: Sharon Lim, tel: (925) 335-3467
Mailing address: 150 Solano Way, Martinez, CA 94553

Transfer from #: 797
Original cert.#: 26

tons per year	PM	POC	NOX	SO2	CO	NPOC	PM10
Requested	.000	.000	.000	.000	.000	.000	.000
Approved	.000	9.426	.000	.000	.000	.000	.000
Applic: 6674							
Withdrawal	**.000**	**1.877**	**.000**	**.000**	**.000**	**.000**	**.000**
Applic: 6945							
Withdrawal	.000	.021	.000	.000	.000	.000	.000
Applic: 7642							
Withdrawal	.000	.116	.000	.000	.000	.000	.000
Applic: 7642							
To B#: 890	.000	7.412	.000	.000	.000	.000	.000
Balance	.000	.000	.000	.000	.000	.000	.000

TDC:tc\6674evl\tesoro\eval/f\04-09-03

ENGINEERING EVALUATION
Tesoro Refining and Marketing Company
Application #6674 - PLANT #14628

BACKGROUND

Tesoro Refining and Marketing Company submitted this permit application to obtain an Authority to Construct and Permit to Operate for the following new source:

S-1485 Internal Floating Roof Tank; Tank A-870, Capacity: 130,000 BBL, Storing: Gasoline Blending Components

Gasoline blending components is another name for each and all of the following materials: heavy cracked naphtha, cat cracked heavy naphtha, heavy naphtha reformate, heavy catalytic reformed naphtha, medium reformate fractionator bottoms, stabilized reformate, FCC gasoline, and/or FCC Merox product.

The emission increase associated with S-1485 will be offset in this application with contemporaneous emission reductions from the permanent closure of S-312. S-312 is an internal floating roof tank that Tesoro has taken out of service. It has the following source description:

S-312 Internal Floating Roof Tank; Tank A-312, Capacity: 3,318,000 Gallons, Storing Gasoline

Tesoro completed this application on February 24, 2003. The calculation of emission reduction credits for S-312 will be based on the 36 consecutive month period ending on January 31, 2003.

EMISSIONS CALCULATION

The Tanks emission calculation for S-1485 appears at the end of the engineering evaluation report. Annual emissions are calculated to be 5585.1 pounds per year of POC. The calculation of the annual emission rate of each toxin listed in Table 2-1-318 of Regulation 2 Rule 1 is the product of the weight percent of the toxin in the bulk liquid and the annual emission rate of POC calculated for S-1485. The toxic compound content of the material to be stored in S-1485 is taken from a laboratory analysis submitted by the applicant of the Merox product conducted by Core Laboratories on or about September 28, 1993.

S-1485
From Tanks 4.0 Output
POC: 5585.1 lb/yr
POC: 2.793 Ton/yr

emitted toxin	wt%	emissions (lb/yr)	risk trigger (lb/yr)	emissions > trigger (y/n)
benzene	0.5926	29.18	6.70E+00	YES
hexane, n-	0.6537	32.18	8.30E+04	NO
naphthalene	0.3190	15.71	2.70E+02	NO
toluene	4.2283	208.17	3.90E+04	NO
xylenes	6.7287	331.28	5.80E+04	NO

Emissions Charged to the Plant Cumulative and Requiring Offsetting

POC (lb/yr)	5585.1
POC (ton/yr)	2.793

PLANT CUMULATIVE INCREASE

POC: 0.000 tpy (current) + 2.793 tpy (proposed) = 2.793 tpy (new total)

TOXIC RISK SCREENING ANALYSIS

Toxic Pollutant Emitted (lb/yr)	Emission Rate (lb/yr)	Risk Screening Trigger Required?	Screening
benzene	**29.18**	**6.70E+00**	**YES**
hexane, n-	32.18	8.30E+04	NO
naphthalene	15.71	2.70E+02	NO
toluene	208.17	3.90E+04	NO
xylenes	331.28	5.80E+04	NO

A risk screen has been completed by the District's Toxic Section because the projected maximum annual benzene emission rate is greater than the risk screening trigger for benzene. This conclusion is based on the risk triggers listed in Table 2-1-316. The Toxics Section has quantified the maximum cancer risk associated with application #6674 at less than 0.036 in a million and with a maximum chronic hazard index of 0.00015. The memorandum from the Toxic Section indicates that this level of risk is acceptable pursuant to the District's Risk Management Policy. See the memorandum included in the application folder from B. Bateman, Engineering Manager, dated April 7, 2003.

BEST AVAILABLE CONTROL TECHNOLOGY

BACT for S-1485

BACT is triggered for S-1485. Anticipated and permitted POC emissions from this source are greater than 10 pounds per highest day, at 13.5 pounds per day, on average.

BACT is triggered for S-1485. Anticipated and permitted POC emissions from this source are equal to or greater than 10 pounds per highest day. The District's BACT/TBACT Workbook states that BACT (1) is vapor recovery with an overall system efficiency greater than or equal to 98 percent. BACT (2) is a BAAQMD approved roof with a liquid mounted primary seal and a zero gap secondary seal all meeting design criteria of Regulation 8, Rule 5 in addition to no ungasketted roof penetrations, no slotted guide pole unless equipped with float and wiper seals, and no adjustable roof legs unless fitted with vapor seal boots or equivalent.

BACT (1) Thermal Incinerator

Instead of purchasing an incinerator with an abatement efficiency of greater than 98 percent and ducting the emissions from S-1485 to it for abatement, an arguably more cost effective option would be to duct organic

emissions from S-1485 to an existing vapor recovery system at Tesoro for combustion at an existing combustion device. The location of S-1485 is not situated in an area where vapor recovery already exists. To duct S-1485 emissions to a new thermal oxidizer would involve the cost of the new thermal oxidizer as well as to the ducting. The cost of ducting emissions from S-1485 to a thermal oxidizer is estimated to be in excess of $75,000. The cost estimate is obtained from Bob Nishimura's research during Regulation 8, Rule 5 rule development activities. The cost is based on ducting existing refinery fixed roof tank to an existing vapor recovery system. Two quotes for the installed cost of a thermal incinerator (afterburner) in a separate permit application #10519 were $800,000.00 and another was $1,200,000.00. These quotes did not include any construction costs associated with adding vapor recovery to an internal floating roof tank. Using the cost of the lowest priced thermal incinerator and the projected cost of the ducting, the total fixed cost is expected to be at least $875,000.00.

Calculation of annualized cost:

$875,000.00 x (0.163 + 0.01 + 0.01 + 0.02 + 0.05) = $221,375.00

0.163	cost recovery factor
0.01	tax
0.01	insurance
0.02	G and A factor
0.05	operating and maintenance

cost in $/ton = $875,000.00 / (0.981) (5585.1 lb/yr/2000 lb/ton)
= $80,808.80/ton

The cost in $/ton is greater than $17,500.00 and therefore BACT (1) is not cost effective. BACT (2) must be used.

<u>BACT (2)</u>

To satisfy BACT requirements, S-1485 must be equipped and operated with a District approved roof with a liquid mounted primary seal and a zero gap secondary seal, each complying with Regulation 8, Rule 5. Additionally, at S-1485, to comply with BACT, there shall be no ungasketted roof penetrations, no guide pole that is slotted (unless the guide pole is equipped with float and wiper seal), no adjustable roof legs (unless fitted with a vapor seal boot or equivalent).

Permit conditions for S-1485 will require that S-1485 is to be operated with a liquid mounted mechanical shoe seal, that its secondary seal is a District approved zero gap rim mounted seal, that all roof penetrations at S-1485 are gasketted, that each adjustable roof leg at S-1485 is fitted with a District approved vapor seal boot, that each slotted guide pole is equipped with a District approved float and wiper seal and pole sleeve.

OFFSETS

Emission offsets are required for S-1485 pursuant to Regulation 2, Rule 2, Section 302. The offsets will come from S-312, an existing internal floating roof tank that has been permanently shutdown and will be replaced by 1485.

The calculation of contemporaneous emission reduction credits for S-312 has been done consistent with Regulation 2, Rule 2, Section 605, which reads as follows:

2-2-605 Emission Calculation Procedures, Emission Reduction Credits: The following methodology shall be used to calculate emission reduction credits.

605.1 The baseline period consists of the 3 year period immediately preceding the date that the application is complete (or shorter period if the source is less than 3 years old). The applicant

must have sufficient verifiable records of the source's operation to substantiate the emission rate and throughput during the entire baseline period.

605.2 Baseline throughput is the lesser of:

2.1 actual average throughput during the baseline period; or

2.2 average permitted throughput during the baseline period, if limited by permit condition.

605.3 Baseline emission rate, expressed in the units of mass of emissions per unit of throughput, is the average actual emission rate during the baseline period. Periods where the actual emission rate exceeded regulatory or permitted limits shall be excluded from the average.

605.4 Baseline Throughput and Emission Rate - Fully Offset Source: For a source which has, contained in a permit condition, an emission cap or emission rate which has been fully offset by the facility (without using emission reductions from the Small Facility Banking Account), the baseline throughput and baseline emission rate shall be based on the levels allowed by the permit condition.

605.5 The adjusted baseline emission rate shall be determined by adjusting the baseline emission rate downward, if necessary, to comply with the most stringent of RACT, BARCT, and District rules and regulations in effect or contained in the most recently adopted Clean Air Plan.

605.6 Emission reduction credits shall be the difference between the adjusted baseline emission rate times the baseline throughput, and the emission cap or emission rate accepted by the applicant as a federally enforceable limiting conditions. (Amended 6/15/94; 5/17/00)

Tesoro completed this permit application on February 24, 2003. The baseline period for this application is the 36 consecutive month period ending on January 31, 2003. The baseline throughput of petroleum liquid to S-312 by calendar month as disclosed by Tesoro in gallons is follows:

S-312 GAL	MONTH
13155264.36	Feb-2000
13155264.36	Mar-2000
13155264.36	Apr-2000
13155264.36	May-2000
13155264.36	Jun-2000
13155264.36	Jul-2000
13155264.36	Aug-2000
13155264.36	Sep-2000
13155264.36	Oct-2000
13155264.36	Nov-2000
13155264.36	Dec-2000
14485816.8	Jan-2001
14485816.8	Feb-2001
14485816.8	Mar-2001
14485816.8	Apr-2001
14485816.8	May-2001
0	Jun-2001
0	Jul-2001
0	Aug-2001
0	Sep-2001
0	Oct-2001
0	Nov-2001
0	Dec-2001
0	Jan-2002
0	Feb-2002

0	Mar-2002
0	Apr-2002
0	May-2002
0	Jun-2002
0	Jul-2002
0	Aug-2002
0	Sep-2002
0	Oct-2002
0	Nov-2002
0	Dec-2002
0	Jan-2003

217,136,992.0 36 month total in gallons
72,378,997.3 12 month total (= 36 month total divided by 3) in gallons

Therefore, 72,378,997.3 gallons per year is the baseline throughput to S-312. Per Tesoro, the material is gasoline range material with a true vapor pressure of 5.8 psia. There is no throughput data for S-312 requested by the District or disclosed by the applicant pursuant to the annual information update process stating the throughput or petroleum materials throughput to S-312. The throughput used to calculate emissions from S-312 is not in excess of annual information update data.

S-312
From Tanks 4.0 Output
POC: 1629.10 lb/yr

Tesoro pointed out the Tanks 4.09 program calculation does not account for the riveted structure of S-312 and that rim seal losses associated with the operation of the riveted tank are higher than calculated by the program.

Per Table 4 of the document entitled Manual of Petroleum Measurement Standards Chapter 19 – Evaporative Loss Measurement Section 2-Evaporative Loss from Floating Roof Tanks First Edition, April 1997 (Formerly, API Publications 2517and 2519), there are rim seal loss factors for riveted tanks that should be used to calculate rim seal losses. Equation 3 of this manual provides the equation for calculation of rim seal losses. It reads as follows:

Lr = Fr P*MvKc

Equation 10 reads as follows:

Fr = Kr D

Since S-312 is an internal floating roof tank, Kr = Kra per equation 12. Ambient wind speed is not a significant parameter.

Therefore:

Lr = KrDP* MvKc
= 1.1 x 140 x 0.1243 x 68 x 1
= 1301.7 lb/yr POC

Total cotemporaneous emission reduction credits attributable to the losses from S-312:

S-312 Loss Description	POC (lb/yr)

Rim Seal Loss (calculated above)	1301.7
Withdrawel Loss (Tanks Program)	168.1
Deck Fitting Loss (Tanks Program)	852.4
Total Emissions	2322.3

Net increase requiring offsets:

Description	POC (lb/yr)
S-1485	5585.1
S-312	-2322.3
Offsets Due (lb/yr)	3262.8
Offsets Due (ton/yr)	1.631

The offsets from S-312 are contemporaneous emission reductions as defined in Regulation 2, Rule 2, Section 242:

> **2-2-242** **Contemporaneous:** The five year period of time immediately prior to the date of application for an authority to construct or permit to operate.

Therefore, POC emission credits amounting to 1.631 tpy are due to the District from Tesoro Refining and Marketing Company. The offset ratio is 1.15 to 1. The amount due is 1.876 tons per year. Tesoro has authorized the District to take 1.876 tons per year of POC from certificate number 834.

```
                    Banking Certificate: 834
    Application no:  5666
 Final Disposition: Certificate Issued     08/29/02
Reduction Location: Ford Motor Co  [San Jose]
 Certificate owner: Tesoro Refining & Marketing Company
           Contact: Sharon Lim, tel: (925) 335-3467
   Mailing address: 150 Solano Way, Martinez, CA  94553

   Transfer from #: 797
   Original cert.#: 26
```

tons per year	PM	POC	NOX	SO2	CO	NPOC	PM10
Requested	.000	.000	.000	.000	.000	.000	.000
Approved	.000	9.426	.000	.000	.000	.000	.000
Balance	.000	9.426	.000	.000	.000	.000	.000

STATEMENT OF COMPLIANCE

S-1485 is subject to Regulation 8, Rule 5: Storage of Organic Liquids. This source is subject to the requirements of Regulation 8, Rule 5, Sections 304.2, 311.2.1 or 311.2.3, 321.1, 321.3.1, and 321.3.2.

Section 304.2 triggers applicability of Section 311.2.1 or 311.2.3. It reads as follows:

8-5-304 Storage Tanks Larger than 75 m^3: A person shall not store organic liquid in any storage tank with a capacity greater than 75 m^3 (19,813 gal) unless such tank meets the following conditions:

304.2 Storage tanks with a capacity of 150 m^3 (39,626 gal) or greater storing an organic liquid with a true vapor pressure greater than 25.8 mm Hg (0.5 psia) must meet the requirements of Section 8-5-311.

Either 311.2.1 or 311.2.3 is applicable to S-1485, but since S-1485 must be equipped with a liquid mounted mechanical shoe seal in addition to a secondary seal that is a zero gap rim mounted seal, section 311.2.3 applies to S-1485 and S-311.2.1 does not apply. The two sections read as follows:

8-5-311 Vapor Loss Control Device Requirements: The vapor loss control device shall be one of the following:

311.2 An internal floating roof which satisfies one of the following conditions:

2.1 A liquid mounted primary seal, mounted in full contact with the liquid in the annular space between the tank shell and floating roof; or

2.3 A liquid mounted primary and a secondary seal which satisfies the requirements of Sections 8-5-321 and 322, if the seals were installed after February 1, 1993.

Section 311.2.3 invokes the applicability of Sections 321 and 322. Section 321 sets forth requirements for the primary seal at S-1485. Sections 321.1, 321.3.1, and 321.3.2 apply to the primary seal at S-1485. These sections read as follows:

8-5-321 Primary Seal Requirements: A person shall not operate a storage tank equipped with a primary seal subject to the requirements of Section 8-5-311 unless such tank meets the following conditions:

321.1 There shall be no holes, tears, or other openings in the primary seal fabric which allow the emission of organic vapors.

321.3 Metallic-shoe-type seals shall be installed so that one end of the shoe extends into the stored liquid and the other end extends a minimum vertical distance of 61 cm (24 in.) for external floating roofs and 18 inches for internal floating roofs above the stored liquid surface.

3.1 The geometry of the shoe shall be such that the maximum gap between the shoe and the tank shell is no greater than double the gap allowed by the seal gap criteria for a length of at least 46 cm (18 in.) in the vertical plane above the liquid surface.

3.2 For welded tanks, no gap between the tank shell and the primary seal shall exceed 3.8 cm (1-1/2 in.). No continuous gap greater than 0.32 cm (1/8 in.) shall exceed 10% of the circumference of the tank. The cumulative length of all primary seal gaps exceeding 1.3 cm (1/2 in.) shall be not more than 10% of the circumference, and the cumulative length of all primary seal gaps exceeding 0.32 cm (1/8 in.) shall be not more than 40% of the circumference.

S-1485 is expected to comply with all of these requirements. S-1485 will be a new state of the art welded tank subject to BACT.

Section 322 sets forth secondary seal requirements. The secondary seal at S-1485 must comply with sections 322.1, 322.2, and 322.3. These sections read as follows:

8-5-322 Secondary Seal Requirements: A person shall not operate a storage tank equipped with a secondary seal subject to the requirements of Section 8-5-311, unless such tank meets the following conditions:

322.1 There shall be no holes, tears, or other openings in the secondary seal fabric which allow the emission of organic vapors.

322.2 The secondary seal shall allow easy insertion of probes up to 3.8 cm (1-1/2 in.) in width in order to measure gaps in the primary seal.

322.3 For welded tanks, no gap between the tank shell and the secondary seal shall exceed 1.3 cm (1/2 in.). The cumulative length of all secondary seal gaps exceeding 0.32 cm (1/8 in.) shall be not more than 5% of the circumference of the tank.

S-1485 is expected to comply with all of these requirements. S-1485 will be a new state of the art welded tank subject to BACT.

NSPS requirements are triggered for S-1485. This source is expected to comply with the applicable NSPS requirements. These requirements are set forth in 40 CFR 60, Subpart Kb, Section 60.112b (2). These requirements are expected to be met because S-1485 is required to be equipped/operated such that it is of welded construction, such that its primary seal is a liquid mounted mechanical shoe seal, such that its secondary seal is a zero gap rim mounted seal, such that all roof penetrations are gasketted, such that each adjustable roof leg is fitted with a vapor seal boot, such that each slotted guide pole is equipped with a float and a wiper seal and a pole sleeve.

The calculation of contemporaneous emission reduction credits due to the shutdown and closure of S-312 has been conducted in compliance with Regulation 2, Rule 2, Section 605.

This 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 emission factors and therefore is not discretionary as defined by CEQA. The ministerial nature of this project is set forth in Permit Handbook Chapter 4.2.

This project is not within 1,000 ft of the nearest public school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

The Toxics Section has quantified the maximum cancer risk associated with application #6674 at less than 0.036 in a million and with a maximum chronic hazard index of 0.00015. The memorandum from the Toxic Section indicates that this level of risk is acceptable pursuant to the District's Risk Management Policy. See the memorandum included in the application folder from B. Bateman, Engineering Manager, dated April 7, 2003.

NSPS BACT, PSD, and offsetting requirements have been satisfied.

NESHAPS are not triggered.

CONDITIONS

```
S-1485  Internal Floating Roof Tank; Tank A-870,
        Capacity: 130,000 BBL,
        Storing: Gasoline Blending Components

1)   Permittee/Owner/Operator shall ensure that
the total throughput of all VOC/petroleum
materials to S-1485 does not exceed 11,000,000
barrels during every 12 consecutive month period.
(basis: cumulative increase, toxics, offsets)

2)   Permittee/Owner/Operator shall ensure that
the true vapor pressure of each and all
VOC/petroleum materials throughput to and/or
stored in S-1485 is always less than or equal
```

to 11 psia.
(basis: cumulative increase, toxics, offsets)

3) Permittee/Owner/Operator shall ensure that S-1485 is of welded construction, that its primary seal is a District approved liquid mounted mechanical shoe seal, that its secondary seal is a District approved zero gap rim mounted seal, that all roof penetrations at S-1485 are gasketted, that each adjustable roof leg at S-1485 is fitted with a District approved vapor seal boot, that each slotted guide pole is equipped with a District approved float and wiper seal and pole sleeve.
(basis: BACT, Regulation 8-5, cumulative increase, toxics, NSPS, Regulation 10 Subpart Kb, offsets)

4) During permitting of S-1485, Permittee/Owner/Operator disclosed to the District that S-1485 will be equipped with the following fittings, in the number indicated in parenthesis:

- access hatch (1)
- gauge hatch sample well (1)
- vacuum breaker (1)
- slotted guide pole-sample well (1)
- ladder well (1)
- automatic gauge float well (1)
- adjustable roof leg (52)
- SAAB radar level gauge or equivalent (1)

Not more than 30 days after Permittee/Owner/Operator first places any petroleum material into S-1485, Permittee/Owner/Operator shall ensure that the District's Permit Services Division is in receipt of a written notification disclosing by type, number, and name, each and all fittings situated at S-1485.

If, after construction of S-1485, the District determines that the fittings situated at S-1485 result in a POC emission rate that is excess of the amount of POC emissions offset by Permittee/Owner/Operator then, Permittee/Owner/Operator shall surrender to the District, District approved emission reduction credits of the type and amount specified by the District. Permittee/Owner/Operator shall ensure that the District is in receipt of the District approved emission credits not more than 30 days after receipt of the District's written request for the offsets.

Conversely, if the District's quantification of permitted emissions for S-1485 is less than the amount of District approved emission reduction credits offset by Permittee/Owner/Operator, then then the District shall refund to Tesoro the amount of credits the District determines to be due to Tesoro based on the District's quantification of permitted and offset emissions for S-1485.

(basis: cumulative increase, toxics, offsets)

5) Permittee/Owner/Operator shall ensure that no VOC/petroleum material other than heavy cracked naphtha, cat cracked heavy naphtha, heavy naphtha reformate, heavy catalytic reformed naphtha, medium reformate fractionator bottoms, stabilized reformate, FCC gasoline, and/or FCC Merox product is throughput to or stored at S-1485, unless Permittee/Owner/Operator complies with each and all of the following:

a) the Permittee/Owner/Operator shall ensure that the storage of each material complies with all other conditions applicable this source.
b) the Permittee/Owner/Operator shall ensure the storage of each material complies with all other applicable regulatory requirements applicable to this source.
c) the Permittee/Owner/Operator shall ensure that it creates and maintains accurate and factual District approved records that demonstrate to the District's satisfaction that no toxin listed in Table 2-1-316 is emitted from S-1485 in an amount in excess of the toxin's respective trigger emission level set forth in Table 2-1-316.

(basis: cumulative increase, toxics, offset)

6) On a monthly basis, in a District approved log, the Permittee/Owner/Operator shall record the throughput of each VOC/petroleum material throughput to S-1485, in gallon or barrel units, by the material’s MSDS name true name as disclosed on the material’s MSDS (e.g., cat cracked heavy naphtha, medium reformate fractionator bottoms, stabilized reformate, FCC gasoline) for each month and for each rolling 12 consecutive month period. The Permittee/Owner/Operator shall ensure that the District approved log is retained on site for not less than 5 years from date of last entry, and that it is be made available to District staff upon request.
(basis: cumulative increase, toxics, offsets)

RECOMMENDATIONS

1) Issue an **Authority to Construct** to **Tesoro Refining and Marketing Company** for the following equipment:

S-1485 ***Internal Floating Roof Tank; Tank A-870, Capacity: 130,000 BBL, Storing: Gasoline Blending Components***

2) Take 1.876 tons per year of POC emission reduction credits from banking certificate 843 that is owned by **Tesoro Refining and Marketing Company** and reissue the balance to Tesoro Refining and Marketing Company.

3) **Cancel the Permit to Operate for S-312,** which had the following source description:

S-312 ***Internal Floating Roof Tank; Tank A-312, Capacity: 3,318,000 Gallons, Storing Gasoline***

_____
Terry D. Carter
Senior Quality Engineer
Permit Services Division

TDC:tc/6674evl2/tesoro/eval/f/04-09-03

TDC:tc/|8002evlfinal/|tesoro/|eval/f/|12-11-03

ENGINEERING EVALUATION
Tesoro Refining and Marketing Company
APPLICATION #8002 - PLANT #14628

BACKGROUND

Tesoro Refining and Marketing Company submitted this permit application to obtain an Authority to Construct and Permit to Operate for the following source:

S-1496 Fixed Roof Tank; Tank A-876, Capacity: 80,000 Barrels, Storing: Heavy Reformate, Straight Run Heavy Naphtha abated by A-14 Vapor Recovery System

This tank will replace the following, recently demolished source:

S-324 Fixed Roof Tank; Tank A-324, Capacity: 79,000 Barrels, Storing: Heavy Reformate, Straight Run Heavy Naphtha abated by A-14 Vapor Recovery System

S-324 is a grandfathered source without explicit permit conditions or a true vapor pressure limit. Emission reduction credits resulting from the shutdown of S-324 will be used to partially offset emission increases associated with permitting S-1496. Tesoro completed this application on November 3, 2003. The calculation of emission reduction credits for the shut down of S-324 will be based on the 36 consecutive month period ending on October 31, 2003.

The applicant seeks authorization for the replacement tank, S-1496, to store material two materials, straight run gasoline from S-1001 No. 50 Crude Unit and heavy reformate. While stored at or throughput to S-1496, straight run gasoline will have a maximum true vapor pressure of 8 psia. The applicant has agreed to limit the number of days per year that material with a true vapor pressure as high as 8 psia (straight run gasoline) may be stored at S-1496 to 4 months or 121 days. Heavy reformate will have a maximum true vapor pressure of 0.2 psia while stored at S-1496. It may be stored at S-1496 365 days per year.

EMISSIONS CALCULATION

There are four Tanks 4.0 emission calculations associated with the evaluation of this permit application. One is the emission calculation for S-1496. This calculation is based on the worst emissions situation in which straight run gasoline occupies S-1496 for 4 month per year long period, and heavy reformate occupies S-1496 for the remaining 8 months per year long period. Permit conditions will be imposed on S-1496 to limit the number of days per year long period that straight run gasoline may occupy S-1496 to 120 days per year. A monitoring requirement will be imposed on S-1496 to require Tesoro to measure and record the true vapor pressure of the material in S-1496 each time the material is changed. Aside from heavy reformate and straight run gasoline, only materials with a true vapor pressure that is less than 0.2 psia will be authorized to be throughput to or stored in S-1496.

The emission increase for permitting S-1496 is:

4.671 ton/yr POC
9,341.3 lb/yr POC

There are three Tanks 4.0 emission calculations for S-324. One is for each of the three 12 month baseline periods for S-324. The average of these three annual POC emission rates is the baseline emission rate for S-324 used to partially offset emissions from S-1496.

Tanks 4.0 Outputs	S-324 36-consecutive Month Baseline Period	S-324 unabated POC emissions (lb/yr)
	Nov-00 to Oct-01	11,102.33
	Nov-01 to Oct-02	141,819.61
	Nov-02 to Oct-03	290,106.01

S-324 unabated baseline POC emissions (lb/yr)	147,675.98
S-324 abated [at 98.5 wt%] baseline POC emissions (lb/yr)	2,215.14
Based on 4 months at 8 psia and 8 months at 0.2 psia	
S-1496 unabated emission increase (lb/yr)	622,755.82
S-1496 abated [at 98.5 wt%] permitted POC emissions (lb/yr)	9,341.33
S-1496 net emission increase to cumulative increase (lb/yr)	7,126.20
S-1496 net emission increase to cumulative increase (ton/yr)	3.563

heavy reformate

(toxin)	lab analysis (ug/l)	bulk liquid (lb/lb)	abated emitted (lb/yr)
sec-butylbenzene	670,000	7.69E-04	0.1
ethylbenzene	3,000,000	3.44E-03	0.6
isopropylbenzene	590,000	6.77E-04	0.1
p-isopropyltoluene	240,000	2.76E-04	0.0
2-methylnaphthalene	11,000,000	1.26E-02	2.2
naphthalene	25,000,000	2.87E-02	5.0
n-propylbenzene	3,900,000	4.48E-03	0.8
toluene	920,000	1.06E-03	0.2
trichloroethene	29,000	3.33E-05	0.0
1,2,4-trimethylbenzene	85,000,000	9.76E-02	17.1
1,3,5-trimethylbenzene	20,000,000	2.30E-02	4.0
xylenes	32,000,000	3.67E-02	6.4

heavy straight run naphtha

(toxin)	msds (wt%)	abated emitted (lb/yr)
benzene	0.999	115.4
cyclohexane	2.999	346.5
ethylbenzene	2.999	346.5
hydrogen sulfide	0.999	115.4
n-hexane	4.999	577.6
toluene	4.999	577.6
xylenes	4.999	577.6

toxic emissions summary

(toxin)	emissions (lb/yr)
benzene	115.4
cyclohexane	346.5
sec-butylbenzene	0.1
ethylbenzene	347.1

n-hexane	577.6
hydrogen sulfide	115.4
isopropylbenzene	0.1
p-isopropyltoluene	0.0
2-methylnaphthalene	2.2
naphthalene	5.0
n-propylbenzene	0.8
toluene	577.8
trichloroethene	0.0
1,2,4-trimethylbenzene	17.1
1,3,5-trimethylbenzene	4.0
xylenes	584

PLANT CUMULATIVE INCREASE

POC: 0.000 tpy (current) + 4.671 tpy (proposed) = 4.671 tpy (new total)

TOXIC RISK SCREENING ANALYSIS

Toxic Pollutant Emitted (lb/yr)	Emission Rate (lb/yr)	Risk Screening Trigger Required?	Screening

toxin	emissions (lb/yr)	risk trigger (lb/yr)	risk screen? (y/n)
benzene	115.4	6.7E+00	YES
cyclohexane	346.5	N/A	NO
sec-butylbenzene	0.1	N/A	NO
ethylbenzene	347.1	N/A	NO
n-hexane	577.6	8.30E+04	NO
hydrogen sulfide	115.4	N/A	NO
isopropylbenzene	0.1	N/A	NO
p-isopropyltoluene	0.0	N/A	NO
2-methylnaphthalene	2.2	N/A	NO
naphthalene	5.0	2.70E+02	NO
n-propylbenzene	0.8	N/A	NO
toluene	577.8	3.90E+04	NO
trichloroethene	0.0	N/A	NO
1,2,4-trimethylbenzene	17.1	N/A	NO
1,3,5-trimethylbenzene	4.0	N/A	NO
xylenes	584	5.80E+04	NO

A toxic risk screen was required and completed for this project. The results of the analysis were reported in an interoffice memorandum dated November 18, 2003. The level of risk was determined to be acceptable under the District's risk management policy.

BEST AVAILABLE CONTROL TECHNOLOGY

BACT is triggered for S-1496. Anticipated and permitted POC emissions from this source are greater than 10 pounds per highest day, at approximately 25.6 pounds per day on average calculated as follows.

9341.33 lb/yr POC/ 365 days/yr = 25.6 lb/day POC

S-1496 is proposed as a fixed roof tank abated by vapor recovery. The District's BACT/TBACT Workbook specifies the following for a fixed roof tank.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Best Available Control Technology (BACT) Guideline

Source Category

Source:	*Storage Tank - Fixed Roof, Organic Liquids*	Revision:	*2*
		Document #:	*167.3.1*
Class:	*≥20,000 Gallons*	Date:	*03/03/95*

Determination

POLLUTANT	BACT 1. Technologically Feasible/ Cost Effective 2. Achieved in Practice	TYPICAL TECHNOLOGY
POC	1. *n/d* 2. *Vapor recovery system w/ an overall system efficiency ≥98%*[a,T]	1. *n/d* 2. *Thermal Incinerator; or Carbon Adsorber; or Refrigerated Condenser; or BAAQMD approved equivalent*[a,T]
NOx	1. *n/a* 2. *n/a*	1. *n/a* 2. *n/a*
SO_2	1. *n/a* 2. *n/a*	1. *n/a* 2. *n/a*
CO	1. *n/a* 2. *n/a*	1. *n/a* 2. *n/a*
PM_{10}	1. *n/a* 2. *n/a*	1. *n/a* 2. *n/a*
NPOC	1. *n/d* 2. *Vapor recovery system w/ an overall system efficiency ≥98%*[a,T]	1. *n/d* 2. *Carbon Adsorber; or Refrigerated Condenser; or BAAQMD approved equivalent*[a,T]

References

a. BAAQMD
T. TBACT

As proposed, S-1496 complies as BACT(2), a District approved equivalent to carbon adsorption or a refrigerated condenser. Organic emissions from S-1496 are slightly above the BACT trigger.

OFFSETS

The calculation of annualized baseline emissions for S-324 is consistent with Regulation 2, Rule 2, Section 605, which reads as follows:

2-2-605 Emission Calculation Procedures, Emission Reduction Credits: The following methodology shall be used to calculate emission reduction credits.

605.1 The baseline period consists of the 3 year period immediately preceding the date that the application is complete (or shorter period if the source is less than 3 years old). The applicant must have sufficient verifiable records of the source's operation to substantiate the emission rate and throughput during the entire baseline period.

605.2 Baseline throughput is the lesser of:

2.1 actual average throughput during the baseline period; or

2.2 average permitted throughput during the baseline period, if limited by permit condition.

Tesoro completed this permit application on July 31, 2003. The baseline period for this application is the 36 consecutive month period ending on June 30, 2003. The baseline throughput of petroleum liquid to S-1496 by calendar month as disclosed by Tesoro, in completing this application, in barrels per month is as follows:

Baseline Throughput

month	barrels/mo.	material	max. tvp (psia)
Nov-00	45389	heavy reformate	0.2
Dec-00	58856	heavy reformate	0.2
Jan-01	49656	heavy reformate	0.2
Feb-01	42186	heavy reformate	0.2
Mar-01	52275	heavy reformate	0.2
Apr-01	52690	heavy reformate	0.2
May-01	40291	heavy reformate	0.2
Jun-01	47185	heavy reformate	0.2
Jul-01	60121	heavy reformate	0.2
Aug-01	66359	heavy reformate	0.2
Sep-01	66259	heavy reformate	0.2
Oct-01	71513	heavy reformate	0.2
Nov-01	65060	heavy reformate	0.2
Dec-01	94561	heavy reformate	0.2
Jan-02	4691	heavy reformate	0.2
Feb-02	4619	heavy reformate	0.2
Mar-02	229	heavy reformate	0.2
Apr-02	35153	heavy reformate	0.2
May-02	3621	heavy reformate	0.2
Jun-02	79171	heavy reformate	0.2
Jul-02	58899	**heavy SR gasoline**	8
Aug-02	32016	**heavy SR gasoline**	8
Sep-02	10337	**heavy SR gasoline**	8
Oct-02	43479	**heavy SR gasoline**	8
Nov-02	24389	**heavy SR gasoline**	8
Dec-02	38832	**heavy SR gasoline**	8
Jan-03	24187	**heavy SR gasoline**	8
Feb-03	50177	**heavy SR gasoline**	8
Mar-03	18180	**heavy SR gasoline**	8
Apr-03	24662	**heavy SR gasoline**	8
May-03	274	**heavy SR gasoline**	8
Jun-03	260	**heavy SR gasoline**	8
Jul-03	0	no throughput	0
Aug-03	0	no throughput	0
Sep-03	0	no throughput	0
Oct-03	0	no throughput	0

1265574.5	barrels/36 months

	421858.1642	barrels/yr
Baseline Throughput:	17,718,042.9	gallons/yr

This throughput will be used in the Tanks 4.0 emission calculation yielding this output.

Tanks 4.0 Outputs	S-324 36-consecutive Month Baseline Period	S-324 unabated POC emissions (lb/yr)
	Nov-00 to Oct-01	11,102.33
	Nov-01 to Oct-02	141,819.61
	Nov-02 to Oct-03	290,106.01

The average POC emission rate in lb/yr is:

S-324 unabated baseline POC emissions (lb/yr)	147,675.98
S-324 abated [at 98.5 wt%] baseline POC emissions (lb/yr)	2,215.14

These offsets from S-324 are contemporaneous emission reductions as defined in Regulation 2, Rule 2, Section 242: 42:

2-2-242 **Contemporaneous:** The five year period of time immediately prior to the date of application for an authority to construct or permit to operate.

Deducting these emission reductions from the permitting emission increase for S-1496 yields:

S-1496 net emission increase to cumulative increase (lb/yr)	7,126.20
S-1496 net emission increase to cumulative increase (ton/yr)	3.563

Therefore, POC emission credits amounting to 3.563 tpy are due to the District from Tesoro Refining and Marketing Company. The offset ratio is 1.15 to 1. Tesoro has authorized the District to take 3.859 tons per year of POC from banking certificate number 902.

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                    Banking Certificate: 902
    Application no:  7768
 Final Disposition: Certificate Issued     10/27/03
Reduction Location: Ford Motor Co  [San Jose]
 Certificate owner: Tesoro Refining and Marketing Company [plant 14628]
   Transfer from #: 890
   Original cert.#: 26
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tons per year	PM	POC	NOX	SO2	CO	NPOC	PM10
Requested	.000	.000	.000	.000	.000	.000	.000
Approved	.000	4.829	.000	.000	.000	.000	.000
Balance	.000	4.829	.000	.000	.000	.000	.000

Pollutant	POC

Certificate #	902
Beginning Balance (ton/yr)	4.829
Amount to be Offset (ton/yr)	3.356
Offset Ratio	1.15
Amount Due (ton/yr)	3.859
Ending Balance (ton/yr)	0.970

STATEMENT OF COMPLIANCE

S-1496 is subject to Regulation 8, Rule 5: Storage of Organic Liquids. This source is subject to the requirements of Regulation 8, Rule 5, Sections 301:

8-5-301 **Storage Tanks Control Requirements:** A person shall not store organic liquid in any storage tank unless such tank is equipped with a vapor loss control device that is specified by the table below for the tank capacity, or for a higher capacity, and for the true vapor pressure of the tank organic liquid contents, or for a higher true vapor pressure.

Tank Capacity	True Vapor Pressure of Tank Organic Contents		
	>0.5 to ≤1.5 psia	>1.5 to <11 psia	≥ 11 psia
≥150 m^3 (≥39,626 gallons)	Internal floating roof, external floating roof, or approved emission control system	Internal floating roof, external floating roof, or approved emission control system	Pressure tank or approved emission control system

To comply S-1496 will need to be abated by an approved emission control system. The requirements for such a system are set forth as follows:

8-5-306 **Requirements for Approved Emission Control Systems:** An Approved Emission Control System must be gas tight. It must also provide an abatement efficiency of at least 95% by weight, except as allowed by subsection 8-5-328.1.2.

NSPS requirements are triggered for S-1496. This source is expected to comply with the applicable NSPS requirements. These requirements are set forth in 40 CFR 60, Subpart Kb, Section 60.112b (3).

Sec. 60.**112b** Standard for volatile organic compounds (VOC).

(a) The owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m\3\ containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 5.2 kPa but less than 76.6 kPa or with a design capacity greater than or equal to 75 m\3\ but less than 151 m\3\ containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 27.6 kPa but less than 76.6 kPa, shall equip each storage vessel with one of the following:

(3) A closed vent system and control device meeting the following specifications:

(i) The closed vent system shall be designed to collect all VOC vapors and gases discharged from the storage vessel and operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background and visual inspections, as determined in part 60, subpart VV, Sec. 60.485(b).

(ii) The control device shall be designed and operated to reduce inlet VOC emissions by 95 percent or greater. If a flare is used as the control device, it shall meet the specifications described in the general control device requirements (Sec. 60.18) of the General

Provisions.

These NSPS requirements are expected to be met because S-1496 is required to be equipped/operated such that it is of welded construction and such that it is abated by vapor recovery system A-14. The leak standard to which S-1496 is subject pursuant to District regulations is set at 100 ppm, more stringent than the leak standard under the NSPS. A capture and destruction efficiency of 98.5 percent, by weight is conservatively expected for VOC emitted by S-1496 in being abated by A-14. This level of capture and abatement is greater than and in compliance with the NSPS requirement.

The calculation of contemporaneous emission reduction credits associated with the shutdown of S-324 was conducted in compliance with Regulation 2, Rule 2, Section 605.

This 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 emission factors and therefore is not discretionary as defined by CEQA. The ministerial nature of this project is set forth in Permit Handbook Chapter 4.2.

This project is not within 1,000 ft of the nearest public school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

A toxic risk screen was completed for this project. The results of the analysis were reported in an interoffice memorandum dated November 18, 2003. The level of risk was determined to be acceptable under the District’s risk management policy.

NSPS, BACT, and offsetting requirements have been satisfied.

NESHAPS and PSD are not triggered.

CONDITIONS

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Application #8002

S-1496   Fixed Roof Tank; Tank A-876,
         Capacity: 80,000 Barrels,
         Storing: Heavy Reformate,
         Straight Run Heavy Naphtha
         abated by A-14 Vapor Recovery System

1.   Permittee/Owner/Operator shall ensure that
the total throughput of all VOC/petroleum
materials to S-1496 does not exceed 5,500,000
barrels during every 12 consecutive month period.
(basis: cumulative increase, toxics, offsets)

2.   Permittee/Owner/Operator shall ensure
that no VOC/petroleum material other than the
following materials are throughput to or stored
in S-1496:  heavy reformate, fractionator
splitter bottoms, conventional gasoline
stock, heavy naphtha, or straight run gasoline,
unless the storage of the material complies with
all conditions applicable to S-1496.
(basis: cumulative increase, offsets)

3.   Permittee/Owner/Operator shall ensure that
the true pressure of each and all materials stored
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in or throughput to S-1496 is less than or equal to 0.2 psia, except for not more than 121 days per rolling 12 consecutive month period during which the true vapor pressure of material throughput to S-1496 shall not exceed 8 psia.
(basis: cumulative increase, offsets)

4A. Each time there is a change in the material throughput to or stored in S-1496, in a District approved log, Permittee/Owner/Operator shall record the time, date, name of the material throughput to S-1496 just prior to the change, and the name of the material just after the change.

4B. Each time there is a change in the material throughput to or stored in S-1496, Permittee/Owner/Operator shall sample the material throughput to S-1496 (after the change) and subject the sample to laboratory analysis to determine its true vapor pressure in psia units, using the methodology set forth in BAAQMD Manual of Procedures, Volume III, Lab Method 28.

4C. Permittee/Owner/Operator shall ensure that the true vapor pressure determination is completed and that the results of the analysis are recorded in the District approved log not more than 14 calendar days after the date of the material change at S-1496 triggering the requirement for the laboratory analysis.
(basis: cumulative increase, offsets)

5. To determine compliance with the 121 day limit (per 12 consecutive month period) on the storage at S-1496 or throughput to S-1496 of material with a true vapor pressure greater than 0.2 psia but less than or equal to 8 psia set forth in part 3 of these conditions, the results of the laboratory analysis of each material shall disclose the true vapor pressure of the material throughput to S-1496 for each day until there is a change in the material throughput to S-1496 and until there is a subsequent true vapor pressure determination conducted on the material using the methodology set forth in BAAQMD Manual of Procedures, Volume III, Lab Method 28, and until the results of which are recorded in the District approved log.
(basis: cumulative increase, offsets)

6. Permittee/Owner/Operator shall ensure that S-1496 is abated by A-14 Vapor Recovery System at all times that VOC/petroleum material is throughput to or stored in S-1496.
(basis: BACT, Regulation 8-5, cumulative increase, toxics, NSPS, Regulation 10 Subpart Kb, offsets)

7. On a daily basis, in a District approved log, the Permittee/Owner/Operator shall record the throughput of each VOC/petroleum material throughput to S-1496, in gallon or barrel

units, by the material's name as disclosed on the MSDS for the material (e.g., heavy reformate, fractionator splitter bottoms, conventional gasoline stock, heavy naphtha, 50 Unit straight run gasoline). The daily log throughput entries shall be summed and recorded in the log for each month and for each rolling 12 consecutive month period. Permittee/Owner/Operator shall ensure that the District approved log is retained on site for not less than 5 years from date of last entry, and that it is made available to District staff upon request.
(basis: cumulative increase, toxics, offsets)

8. In a District approved log, each day, Permittee/Owner/Operator shall record the true vapor pressure of the material stored in S-1496. Permittee/Owner/Operator shall ensure that the District approved log is retained on site for not less than 5 years from date of last entry, and that it is made available to District staff upon request.
(basis: cumulative increase, offsets)

RECOMMENDATION

1) Deduct 3.859 tons per year of POC from banking certificate #902 and refund the balance to Tesoro Refining and Marketing Company.

Pollutant	POC
Certificate #	902
Beginning Balance (ton/yr)	4.829
Amount to be Offset (ton/yr)	3.356
Offset Ratio	1.15
Amount Due (ton/yr)	3.859
Ending Balance (ton/yr)	0.970

2) Cancel the Permit to Operate for the following source:

S-324 **Fixed Roof Tank; Tank A-324, Capacity: 79,000 Barrels, Storing: Heavy Reformate, Straight Run Heavy Naphtha abated by A-14 Vapor Recovery System**

3) Issue an **Authority to Construct** to Tesoro Refining and Marketing Company for the following new source:

S-1496 **Fixed Roof Tank; Tank A-876, Capacity: 80,000 Barrels, Storing: Heavy Reformate, Straight Run Heavy Naphtha abated by A-14 Vapor Recovery System**

_____
Terry D. Carter
Senior Quality Engineer
Permit Services Division

TDC:tc/|8002evlfinal/|tesoro/|eval/f/|12-11-03

ADDENDUM
ENGINEERING EVALUATION
Tesoro Refining and Marketing Company
PLANT NO. 14628
APPLICATION NO. 9129

BACKGROUND

This addendum to Application #9129 is to correct the offset and banking certificate calculations for Tesoro Refining and Marketing Company's application for an Authority to Construct and/or Permit to Operate the following equipment:

S-871 Tank A-871, External Floating Roof, Capacity: 13,146K gallons, Crude and Low Sulfur Vacuum Gas Oil Storage

Banking Certificate #902 was believed to have 4.829 tpy of POC credits, but only 0.970 tpy of credit was available. Banking Certificate #902 was also used for Tesoro Application #8002 and 3.859 tpy of POC credits were deducted. The corrections to the offset and banking certificate calculations are in strikeout underline format below.

Offsets: Offsets are required because Tesoro emits more than 50 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:

POC offsets = 7.95 tpy X 1.15 = 9.143 tpy

Tesoro has supplied the following Banking Certificates to provide the required offsets. A new certificate for 4.129 0.271 tpy of POC should be issued to Tesoro for the balance of Certificate #893.

Banking Certificate #	POC Banking Credits	POC Offset Balance (9.143 tpy)
827	1.044 tpy	8.099 tpy
839	0.319 tpy	7.780 tpy
902	4.829 0.970 tpy	2.951 6.81 tpy
893	7.080 tpy	0 tpy

Balance of Banking Certificate #893 = 4.129 0.27 tpy

By:_____
Pamela J. Leong
Air Quality Engineer II
May 20, 2004

ENGINEERING EVALUATION
Tesoro Refining and Marketing Company
PLANT NO. 14628
APPLICATION NO. 9129

BACKGROUND

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

S-871 Tank A-871, External Floating Roof, Capacity: 13,146K gallons, Crude and Low Sulfur Vacuum Gas Oil Storage

Tesoro will demolish two fixed roof tanks, S-226 Tank A-226 and S-228 Tank A-228, and replace them with external floating roof tanks. The new tanks, S-871 Tank A-871 and S-872 Tank A-872, will be built near the site of the old fixed roof tanks. The external floating roof tanks, S-871 and S-872, have mechanical shoe primary seals, "zero-gap" secondary seals, and controlled fittings. S-871 Tank A-871 will store crude and low sulfur vacuum oil. S-872 will be used to store only low sulfur vacuum gas oil with a flash point of 150F and gravity of 10 API. S-872 is exempt from permitting as per District Regulation 2-1-123.3.3 since the flashpoint of the vacuum gas oil is greater than 130F and is stored at least 36F below flashpoint. S-872 is also exempt from permitting as per District Regulation 2-1-123.3.10 since the gravity is less than 25 API.

Tesoro is also demolishing S-1 Tank A-01 and replacing it with fixed roof tank S-873 Tank A-873. S-873 will be used to store fuel oil with a flashpoint of 181F and gravity of 22.3 API. S-873 is exempt from permitting as per District Regulation 2-1-123.3.3 since the flashpoint of the vacuum gas oil is greater than 130F and is stored at least 36F below flashpoint. S-873 is also exempt from permitting as per District Regulation 2-1-123.3.10 since the gravity is less than 25 API.

EXEMPT:
S-872 Tank A-872, External Floating Roof, Capacity: 10,192K gallons, Low Sulfur Vacuum Gas Oil Storage (Exempt: Regulation 2-1-123.3.3 and 2-1-123.3.10)
S-873 Tank A-873, Fixed Roof, Capacity: 4,074K gallons, Fuel Oil Storage (Exempt: Regulation 2-1-123.3.3 and 2-1-123.3.10)

Tesoro has surrendered Banking Certificates #827, #839, #902, and #893 to offset emissions from the installation and operation of S-871.

EMISSIONS SUMMARY

Annual Emissions:
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% crude.

Source Number	Capacity (Gallons)	Throughput (Gallons)	Diameter (feet)	Total POC Emissions
S-871 Tank A-871	13,146,0000	840,000,000	200 ft	15,904 lb/yr = 7.95 tpy

Maximum Daily Emissions:

Daily Maximum POC Emissions from S-871 = (15,904 lb/yr)(yr/52 weeks)(week/7 days) = 43.69 lb/day

Toxic Risk Screening:

For a conservative estimate of toxic air contaminants, the tank contents of S-871 are assumed to be 100% crude. Tesoro has completed a laboratory analysis on the contents of the crude to be stored in S-871 to determine the content of toxic air contaminants. Annual emissions of benzene of 9.7 lb/yr exceed the District trigger level of 6.7 lb/yr and a risk screening is required. Within the past two years, Tesoro has installed three additional organic liquid storage tanks (S-1485, S-775, and S-1496) that have required risk screenings. As per the District's Risk Management Policy, a risk screening analysis has been completed for the cumulative impacts from all related projects. This includes the health risks due to emissions from tanks S-871, S-1485, S-775, and S-1496.

S-871 (840,000,000 gal/yr) Toxic Pollutant	Emissions (lb/yr)	Risk Screening Trigger (lb/yr)
Benzene	9.7	6.7
Toluene	35.0	38600
Xylenes	55.1	579000
Ethylbenzene	12.6	193000
Hexane	44.5	83000
Naphthalene	10.0	270

Cumulative Emissions from Related Projects	
S-1485 Tank A-870 (Application 6674, 4/15/03)	29.18 lb/yr benzene
S-775 Tank A-849 (AN 4579, 7/31/02)	339.0 lb/yr benzene
S-1496 Tank A-876 (AN 8002, 12/11/03)	115.4 lb/yr benzene
S-871 Tank A-871 (AN 9129, current application)	9.7 lb/yr benzene
TOTAL EMISSIONS	493.28 lb/yr benzene

The cumulative impacts from the installation of S-871 and all related projects results in a maximum increased cancer risk of less than one in a million or 0.3 in a million. The level of risk is considered acceptable under the district's Risk Management Policy. (See memo from Toxics Group, March 8, 2004.)

STATEMENT OF COMPLIANCE

The owner/operator of S-871 Tank A-871 External Floating Roof Tank is subject to Regulation 8-5-301 Storage Tank Control Requirements. For tanks greater than 150 m3 (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-871is 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, NOx, CO,

SO_2 or PM_{10}. 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 200 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 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 S-871. The results are attached to the evaluation. Total unabated emissions are 7,040,024 lb/yr of POC. Even with an abatement efficiency of 98%, the abated emissions of 140,800 lb/yr (70.40 tpy) of POC would be higher than the emissions of 15,904 lb/yr (7.95 tpy) of POC from the proposed external floating roof tank. For S-871, the BACT 2 design proposed by Tesoro results in lower emissions than the BACT 1 design and will satisfy BACT requirements.

Offsets: Offsets are required because Tesoro emits more than 50 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:

POC offsets = 7.95 tpy X 1.15 = 9.143 tpy

Tesoro has supplied the following Banking Certificates to provide the required offsets. A new certificate for 4.129 tpy of POC should be issued to Tesoro for the balance of Certificate #893.

Banking Certificate #	POC Banking Credits	POC Offset Balance (9.143 tpy)
827	1.044 tpy	8.099 tpy
839	0.319 tpy	7.780 tpy
902	4.829 tpy	2.951 tpy
893	7.080 tpy	0 tpy

Balance of Banking Certificate #893 = 4.129 tpy

Federal NESHAPS

The owner/operator of S-871 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 A of this engineering evaluation.

PSD does not apply.

PERMIT CONDITIONS

Application #9129 (April 2004)

S-871 Tank A-871, External Floating Roof, Capacity: 13,146K gallons, Crude and Low Sulfur Vacuum Gas Oil Storage

1) The total throughput at tank S-871 shall not exceed 20,000,000 barrels in any consecutive 12-month period.

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

2) Materials stored in S-871 shall be limited to the following:
   a. Crude or low sulfur vacuum gas oil with a true vapor pressure less than 11 psia
   b. A liquid other than those specified above may be stored in S-871, 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 15,904 pounds per year; and
      3. toxic emissions in lbs/year, based on the maximum throughput in part 1, do not exceed any risk screening trigger level.

(basis: Cumulative Increase, Toxic Risk Screen)

3) The owner/operator disclosed to the District that S-871 would be equipped with the following fittings:

   Access Hatch (1)
   Slotted Guide Pole (1)
   Radar Gauge System (1)
   Vacuum Breaker (1-12")
   Roof Leg, Pontoon Area (40)
   Roof Leg, Center Area (60)
   Roof Drain, 90% closed (2)
   Roof Drain, open to atmosphere (not hydrocarbon in tank) (1-6")

   Within 30 days of loading any petroleum material into S-871, 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-871 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-871 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)

RECOMMENDATION

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

S-871 Tank A-871, External Floating Roof, Capacity: 13,146K gallons, Crude and Low Sulfur Vacuum Gas Oil Storage

EXEMPTIONS

S-872 Tank A-872, External Floating Roof, Capacity: 10,192K gallons, Low Sulfur Vacuum Gas Oil Storage (Exempt: Regulation 2-1-123.3.3 and 2-1-123.3.10)
S-873 Tank A-873, Fixed Roof, Capacity: 4,074K gallons, Fuel Oil Storage (Exempt: Regulation 2-1-123.3.3 and 2-1-123.3.10)

By:_____

Pamela J. Leong
Air Quality Engineer II
April 14, 2004

Appendix A
Federal NSPS Subpart Kb and Subpart A

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

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) **EXEMPT**	Y	
40 CFR 60.113b(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?	***40 CFR*** 60.113b(b)(1) **not addressed** * 40 CFR 60.113b(b)(1) **not addressed** *	Y	
	EXTENSIONS OF TIME: If EFRT is unsafe to inspect & cannot be emptied within 45 d?	40 CFR 60.113b(b)(1) **not addressed** *	Y	
	Notification of Inspections: Are notifications of inspections to demonstrate initial compliance required, For EFR seal gap measurements:	40 CFR 60.113b(b)(1) & (5) **Required-Notifications & reports per Ongoing Reports**	Y	
	Seal Gap Measurements: FREQUENCY AFTER INITIAL COMPLIANCE, For the EFR Primary Seal:	40 CFR 60.113b(b)(1)(i) **every 5 years**	Y	
	Seal Gap Measurements: For new EFRTs:	40 CFR 60.113b(b)(1)(i) &(ii) **measure gaps of both seals within 60 days after initial fill**	Y	
	Seal Gap Measurements: FREQUENCY AFTER INITIAL COMPLIANCE, For the EFR Secondary Seal:	40 CFR 60.113b(b)(1)(ii) **annually**	Y	
	Seal Gap Measurements: For EFRTs returned to affected service after 1 yr or more of exempt service:	40 CFR 60.113b(b)(1)(iii) **measure gaps of both seals within 60 days**	Y	
	MEASUREMENT COND'S: Are EFR seal gap measurements to be made with the roof floating?	40 CFR 60.113b(b)(2)(i) **YES**	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) **YES**	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) **YES**	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) **YES**	Y	
	EFRT REPAIRS:	40 CFR 60.113b(b)(4)	Y	

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

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

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

EVALUATION REPORT for Exempt Sources

Applicant Tesoro Refining and Marketing Company

Plant Number 14628 Application Number 9208

1. Background:

The Applicant has applied for exemption status for the following source.

S-467 Tank A-467 Caustic Tank, Cone Roof, abated by A-14 Vapor Recovery System

The tank is a 1,000-barrel cone roof storage tank for caustic (sodium hydroxide). The tank is abated by A-14 Vapor Recovery System to prevent potential odors and to prevent potential polymerization from exposure to oxygen. The tank is located at the Tesoro Golden Eagle Refinery in Martinez, California. The tank is exempt from permitting requirements of Regulation 2-1-301 and 302 and meets all the exemption requirements of Regulation 2-1-123.2. S-467 does not contain any organic compounds. S-467 Tank A-467 Caustic Tank is abated by the A-14 Vapor Recovery System and emissions of sodium hydroxide are expected to be much less than the trigger level of 930 lb/yr in Table 2-1-316.

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.

123.2 Tanks, vessels and pumping equipment used exclusively for the storage or dispensing of any aqueous solution which contains less than 1 percent (wt) organic compounds. Tanks and vessels storing the following materials are not exempt.

2.1 Sulfuric acid with an acid strength of more than 99.0% by weight.
2.2 Phosphoric acid with an acid strength of more than 99.0% by weight.
2.3 Nitric acid with an acid strength of more than 70.0% by weight.
2.4 Hydrochloric acid with an acid strength of more than 30.0% by weight.
2.5 Hydrofluoric acid with an acid strength of more than 30.0% by weight.
2.6 More than one liquid phase, where the top phase contains more than one percent VOC (wt).

2. Emission Calculations:

There is no chargeable cumulative increase for the exempt equipment described in Section 1. This exempt equipment does not emit one or more toxic air contaminants in quantities that exceed the limits listed in Table 2-1-316 of Regulation 2-1 nor does it emit any hazardous substances above the quantities listed in Regulation 2-1-318, for a PSD Major Facility.

3. Statement of Compliance:

The exempt equipment described in Section 1 is exempt from Sections 2-1-301 and 302, in accordance with the specific section(s) of Regulation 2-1 cited in Section 1. I certify:

- This exempt equipment does not emit one or more toxic air contaminants in quantities that exceed the limits listed in Table 2-1-316 of Regulation 2-1. Hence, an Air Toxics Risk Screening is not required.
- This exempt equipment has not received two or more public nuisance violations, under Regulation 1-301 or Section 41700 of the California Health and Safety Code, within any consecutive 180-day period.

- This exempt equipment does not emit any hazardous substances in excess of the quantities listed in Regulation 2-1-318 (for PSD Major Facilities).

Regulation 10 - New Source Performance Standard and Regulation 11 - Hazardous Pollutants requirements are not triggered. Because this application is ministerial (exempt source), the requirements of the California Environmental Quality Act (CEQA) are not triggered.

4. Exemptions:

I recommend that the Applicant be issued exemption status for the exempt equipment described and listed in Section 1.

Application Reviewed By: Pamela Leong
Position: Air Quality Engineer II

Signature of Reviewer _____

Date _____

ENGINEERING EVALUATION
Tesoro Refining and Marketing Company
PLANT NO. 14628
APPLICATION NO. 9259

BACKGROUND

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

S-1489 Fixed Volume Portable Tank #1; Storing: Slop Oil and Water Mixture, Capacity: 500 BBL abated in series by A-1001 Carbon Canister 200 LB Activated Carbon and A-1002 Carbon Canister 200 LB Activated Carbon

S-1490 Fixed Volume Portable Tank #2; Storing: Slop Oil and Water Mixture, Capacity: 500 BBL abated in series by A-1001 Carbon Canister 200 LB Activated Carbon and A-1002 Carbon Canister 200 LB Activated Carbon

The portable tanks will be used to hold a mixture of slops and water. Organic and toxic air contaminant content of the slops will vary depending upon the source of the leak or the service of the tanks. To be conservative, pure gasoline will be used to determine emissions.

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 between 19,803 and 39,626 gallons with material equal to or greater than 11 psia use a pressure tank or approved emission control system. Tanks S-1489 and S-1490 are abated by A-1001 Carbon Canister and A-1002 Carbon Canister. 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. The carbon canisters have an efficiency of 95%.***

Source Number	Capacity (Gallons)	Throughput (Gallons)	Total POC Emissions
S-1489	21,000	546,000	355.75 lb/yr = 0.178 tpy
S-1490	21,000	546,000	355.75 lb/yr = 0.178 tpy
TOTAL			**711.50 lb/yr = 0.356 tpy**

Maximum Daily Emissions:

Emissions from Tanks 4.0 show that 239.93 lb/yr of POC emissions are from working losses and 115.82 lb/yr of POC emissions are from breathing losses. The non-working losses will be assumed to be distributed evenly over each day of the year, while the working losses will be assumed to occur on days when a turnover occurs.

Turnovers = 546,000 gallons/21,000 gallons =26 turnovers

Daily Maximum POC Emissions from S-1489 = (239.93 lb/yr)(yr/26 days) + (115.82 lb/yr)(yr/365 days) = 9.55 lb/day
Daily Maximum POC Emissions from S-1490 = (239.93 lb/yr)(yr/26 days) + (115.82 lb/yr)(yr/365 days) = 9.55 lb/day

Toxic Risk Screening:

For a conservative estimate of toxic air contaminants, the tank contents of S-1489 and S-1490 are assumed to be 100% gasoline. The carbon canisters provide a 95% reduction in POC emissions. Annual emissions of benzene of 35.58 lb/yr exceed the District trigger level of 6.7 lb/yr and a risk screening is required. Within the past two years, Tesoro has installed four additional organic liquid storage tanks (S-871, S-1485, S-775, and S-1496) that have required risk screenings. In addition, Tesoro has applied for a Permit to Operate another portable storage tank (Application Number 9260, Source S-1491). As per the District's Risk Management Policy, a risk screening analysis has been completed for the cumulative impacts from all related projects. This includes the health risks due to emissions from tanks S-1489, S-1490, S-1491, S-871, S-1485, S-775, and S-1496.

S-1489 and S-1490 Toxic Pollutant	Emissions (lb/yr)	Risk Screening Trigger (lb/yr)
Benzene	35.58	6.7
Toluene	426.90	38600
Xylenes	289.83	579000
Hexane	74.71	83000

Cumulative Emissions from Related Projects	
S-871 Tank A-871 (Application 9129, 4/29/04)	9.7 lb/yr benzene
S-1485 Tank A-870 (Application 6674, 4/15/03)	29.18 lb/yr benzene
S-775 Tank A-849 (AN 4579, 7/31/02)	339.0 lb/yr benzene
S-1496 Tank A-876 (AN 8002, 12/11/03)	115.4 lb/yr benzene
S-1491(AN 9260, current application)	17.79 lb/yr benzene
S-1489 and S-1490 (AN 9259, current application)	35.58 lb/yr benzene
TOTAL EMISSIONS	546.65 lb/yr benzene

The cumulative impacts from the installation of S-1489 and S-1490 and all related projects results in a maximum increased cancer risk of less than one in a million or 0.3 in a million for nearby residences. The maximum increased cancer risk is less than one in a million or 0.6 in a million for off-site workers. The level of risk is considered acceptable under the district's Risk Management Policy. (See memo from Toxics Group, May 20, 2004.)

STATEMENT OF COMPLIANCE

The owner/operator of S-1489 and S-1490 Fixed Volume Portable Tanks is subject to Regulation 8-5-301 Storage Tank Control Requirements. For tanks greater than 75 m3 (19,803 gallons) but less than 150 m3 (39,626 gallons) with organic contents with a true vapor pressure greater or equal to 11 psia, a pressure tank or approved emission control system is required. The owner/operator of S-1489 and S-1490 is subject to Regulation 8-5-306 Requirements for Approved Emission Control Systems. The owner/operator will be required to abate S-1489 and S-1490 with A-1001 Carbon Canister and A-1002 Carbon Canister at all times. The canisters must be gas tight and provide an abatement efficiency of at least 95% by weight POC, except as allowed by Regulation 8-5-328.1.2 for tank degassing. The owner/operator is also subject to recordkeeping (Regulation 8-5-501).

Tesoro will be required to check the carbon canisters for breakthrough every other day. Carbon Canisters A-1001 and A-1002 will be used to abate three portable tanks, S-1489, S-1490, and S-1491 (Application Number 9260). Each tank can emit 9.55 lb/day of POC. As a conservative estimate, each pound of carbon can absorb one third of its weight with POC. For a conservative estimate, assume the canisters are abating all three tanks at one time.

3 tanks X 9.55 lb/day POC = 28.65 lb/day POC X 3 lb carbon/lb POC = 85.95 lb carbon/day
200 lb carbon bed/85.95 lb carbon/day = 2.32 days

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, NOx, CO, SO_2 or PM_{10}. Based on the emission calculations above, the owner/operator of S-1489 Portable Tank abated by A-1001 and A-1002 Carbon Canisters and S-1490 Portable Tank abated by A-1001 and A-1002 Carbon Canisters is not subject to BACT.

Offsets: Offsets are required because Tesoro emits more than 50 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:

POC offsets = 0.356 tpy X 1.15 = 0.409 tpy

Tesoro has supplied Banking Certificate #928 and #916 to provide the required offsets. The remaining credits from Banking Certificate #916 will be used to offset emissions from Tesoro's permit application for another portable storage tank (Application #9260).

Banking Certificate #	POC Banking Credits	Required Offset		POC Offset Balance
928	0.271 tpy	0.409 - 0.271	=	0.138 tpy
916	35.620 tpy	0.138 – 0.138	=	0

Balance of Banking Certificate #916 = 35.620 - 0.138 =35.482 tpy

Federal NESHAPS
The owner/operator of S-1489 and S-1490 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 A of this engineering evaluation.

PSD does not apply.

PERMIT CONDITIONS
Application #9259 (June 15, 2004)

S-1489 Fixed Volume Portable Tank #1; Storing: Slop Oil and Water Mixture, Capacity: 500 BBL abated in series by A-1001 Carbon Canister 200 LB Activated Carbon and A-1002 Carbon Canister 200 LB Activated Carbon

S-1490 Fixed Volume Portable Tank #2; Storing: Slop Oil and Water Mixture, Capacity: 500 BBL abated in series by A-1001 Carbon Canister 200 LB Activated Carbon and A-1002 Carbon Canister 200 LB Activated Carbon

2) The total throughput at tank S-1489 shall not exceed 13,000 barrels in any consecutive 12-month period. (basis: Cumulative Increase, Toxic Risk Screen)

3) The total throughput at tank S-1490 shall not exceed 13,000 barrels in any consecutive 12-month period. (basis: Cumulative Increase, Toxic Risk Screen)

4) The owner/operator shall abate S-1489 and S-1490 with A-1001 and A-1002 Carbon Canisters in series at all times. The carbon canisters (200 lb/each activated carbon) shall have an overall collection and adsorption efficiency of at least 95% by weight POC.
(basis: Cumulative Increase, Toxic Risk Screen)

4) Materials stored in S-1489 and S-1490 shall be limited to the following:
   c. Slop Oil and water mixture with a true vapor pressure less than 11 psia
   d. Liquids other than those specified above may be stored in S-1489 and S-1490, 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 parts 1 and 2, do not exceed 711.50 pounds per year; and
      3. toxic emissions in lbs/year, based on the maximum throughput in parts 1 and 2, do not exceed any risk screening trigger level.

   (basis: Cumulative Increase, Toxic Risk Screen)

5) The owner/operator of this source shall monitor with a photo-ionization detector (PID), flame-ionization detector (FID), or other method approved in writing by the Air Pollution Control Officer at the following locations:
   a. At the inlet to the second to last carbon vessel in series.
   b. At the inlet to the last carbon vessel in series.
   c. At the outlet of the carbon vessel that is last in series prior to venting to the atmosphere.

   When using an FID to monitor breakthrough, readings may be taken with and without a carbon filter tip fitted on the FID probe. Concentrations measured with the carbon filter tip in place shall be considered methane for the purpose of these permit conditions.
   (basis: Cumulative Increase, Toxic Risk Screen)

6) These monitor readings shall be recorded in a monitoring log at the time they are taken. The monitoring results shall be used to estimate the frequency of carbon change-out necessary to maintain compliance with parts number 7 and 8, and shall be conducted every other day. The owner/operator of this source may propose for District review, based on actual measurements taken at the site during operation of the source, that the monitoring schedule be changed based on the decline in organic emissions and/or the demonstrated breakthrough rates of the carbon vessels. Written approval by the District's Permit Services Division must be received by the owner/operator prior to a change to the monitoring schedule.
   (basis: Cumulative Increase, Toxic Risk Screen)

7) The second to last carbon vessel shall be changed out with unspent carbon upon breakthrough, defined as the detection at its outlet of the higher of the following:
   a. 10 % of the inlet stream VOC concentration to the Carbon vessel.
   b. 10 ppmv or greater VOC (measured as C1).

   (basis: Cumulative Increase, Toxic Risk Screen)

8) The last carbon vessel shall be changed out with unspent carbon upon detection at its outlet of 10 ppmv or greater VOC (measured as C1).
   (basis: Cumulative Increase, Toxic Risk Screen)

9) Any exceedance of conditions parts 7 and/or 8 shall be reported to the Permit Services Division with the log as well as the corrective action taken. The submittal shall detail the corrective action taken and shall include the data showing the exceedance as well at the time of occurrence.
   (basis: Cumulative Increase, Toxic Risk Screen)

10) 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.
   b. Each monitor reading or analysis result for the day of operation they are taken.

c. The number of carbon beds removed from service.
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, Regulation 1-441, Regulation 8-5-501)

RECOMMENDATION

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

S-1489 Fixed Volume Portable Tank #1; Storing: Slop Oil and Water Mixture, Capacity: 500 BBL abated in series by A-1001 Carbon Canister 200 LB Activated Carbon and A-1002 Carbon Canister 200 LB Activated Carbon

S-1490 Fixed Volume Portable Tank #2; Storing: Slop Oil and Water Mixture, Capacity: 500 BBL abated in series by A-1001 Carbon Canister 200 LB Activated Carbon and A-1002 Carbon Canister 200 LB Activated Carbon

EXEMPTIONS

none

By:_____

Pamela J. Leong
Air Quality Engineer II
June 15, 2004

Appendix A
Federal NSPS Subpart Kb and Subpart A

Applicable Requirement	Regulation Title or Description of Requirement		Federally Enforceable (Y/N)	Future Effective Date
Refinery MACT	**NESHAP for Petroleum Refineries** **REQUIREMENTS FOR TANKS ALSO SUBJECT TO NSPS Kb**		Y	
63.640(n)	Which rule governs for storage vessels subject to both Refinery MACT and NSPS subpart Kb?	63.640(n)(1) **NSPS subpart Kb**	Y	
	Does Refinery MACT provide for EFR secondary seals to be pulled back or temporarily removed during NSPS Kb inspections of the primary seal?	63.640(n)(8)(i) **YES**	Y	
	Does Refinery MACT provide for delay of NSPS Kb seal gap measurements due to unsafe conditions?	63.640(n)(8)(ii) **YES – up to 30 days, or empty the tank within 45 days**	Y	
	Does Refinery MACT provide for extensions of time to perform NSPS Kb inspections of unsafe tanks?	63.640(n)(8)(iii) **YES – up to 2 extensions of 30 days each**	Y	
	Does Refinery MACT provide for extensions of time to repair defects found during NSPS Kb inspections?	63.640(n)(8)(iii) **YES – up to 2 extensions of 30 days each**	Y	
	Does Refinery MACT provide for waiving the NSPS Kb prior-request requirement for extensions of time?	63.640(n)(8)(iii) **YES**	Y	
	Does Refinery MACT provide for submitting NSPS Kb documentation of the need for an extension with the next semi-annual periodic report?	63.640(n)(8)(iv) **YES**	Y	
	Does Refinery MACT provide for submitting reports of NSPS Kb inspection failures on the semi-annual periodic report schedule?	63.640(n)(8)(v) **YES**	Y	
	Does Refinery MACT provide for not reporting the results of NSPS Kb inspections when there was no out-of-compliance (i.e., recordkeeping only)?	63.640(n)(8)(vi) **YES**	Y	
NSPS Subpart Kb	**Volatile Organic Liquid Storage Vessels** **REQUIREMENTS FOR FIXED ROOF TANK-CONTROL DEVICE**		Y	
60.112b(a)	**Closed vent system** Performance requirements:	60.112b(a)(3)(i) **no detectable emissions (i.e., < 500 ppm)**	Y	
	Control device Performance requirements:	60.112b(a)(3)(ii) **at least 95% efficient, or a flare per 60.18**	Y	
60.113b(c)(2)	**Control device (other than flare)** Operating requirements:	60.113b(c)(2) **operate and monitor per the plan**	Y	

Applicable Requirement	Regulation Title or Description of Requirement		Federally Enforceable (Y/N)	Future Effective Date
60.115b	**Recordkeeping for inspections:** Keep inspection reports as specified.	60.115b **Keep required records for 5 years**	Y	
60.115b(c)	**Recordkeeping for tanks routed to a control device other than a flare:**	60.115b(c) **operating plan & records of parametric monitoring data**	Y	
60.116b(a)	**Applicability records:** Time period for keeping records of applicability determination, unless specified otherwise.	60.116b(a) **Keep required records for 5 years**	Y	
60.116b(b)	**Applicability records:** Records of dimensions & capacity required for nonexempt tanks?	60.116b(b) **Required Keep record readily accessible for the life of the tank**	Y	
60.116b(c)	**Applicability records:** Additional recordkeeping requirements for certain tanks.	60.116b(c) **identification & TVP of the stored product, if capacity ≥ 20,000 gallons. and TVP ≥ 2.2, OR capacity ≥ 40,000 gallons. and TVP ≥ 0.51 Keep record as long as the tank is in that service**	Y	
60.116b(e)	**True vapor pressure (TVP) determination for applicability:**	60.116b(e) **maximum TVP of the stored liquid, based on highest calendar month average storage temperature**	Y	
60.116b(g)	**Applicability determination:** Miscellaneous recordkeeping exemptions:	60.116b(g) **keeping record of TVP is not required if tank is routed to a compliant control device**	Y	
NSPS Subpart A	**New Source Performance Standards GENERAL PROVISIONS**		Y	
60.7(a)	**Initial Notification:** Is initial notification of the source's existence required?	60.7(a)(1) **notification within 30 days after begin construction**	Y	
	Report (document) having initially achieved compliance?	60.7(a)(3) 60.115b(a)(1) & (b)(1) **within 15 days after initial fill**	Y	
	Notification of Compliance Status report:	60.7(a)(3) [cf. 60.115b(a)(1)&(b)(1)] **notification within 15 days after startup**	Y	
	Initial Notification: Is initial notification required if tank becomes affected only as a result of a modification?	60.7(a)(4) **notification 60 days or as soon as practicable before the change**	Y	
60.7(f)	**General recordkeeping requirements:** Time period for keeping records, unless specified otherwise.	60.7(f) **Keep all reports & notifications for 2 years**	Y	

Applicable Requirement	Regulation Title or Description of Requirement		Federally Enforceable (Y/N)	Future Effective Date
	General recordkeeping requirements: Keep all reports and notification for the specified period of time.	60.7(f) **required**	***Y***	
60.14(g)	Achieve compliance for: New Tanks (or tanks that become affected as a result of a change or modification)?	60.14(g) **up to 180 days after modifications (otherwise prior to fill)**	***Y***	

ENGINEERING EVALUATION
Tesoro Refining and Marketing Company
PLANT NO. 14628
APPLICATION NO. 9260

BACKGROUND

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

S-1491 Fixed Volume Portable Tank #3; Storing: Slop Oil and Water Mixture, Capacity: 500 BBL abated in series by A-1001 Carbon Canister 200 LB Activated Carbon and A-1002 Carbon Canister 200 LB Activated Carbon

The portable tank will be used to hold a mixture of slops and water. Organic and toxic air contaminant content of the slops will vary depending upon the source of the leak or the service of the tank. To be conservative, pure gasoline will be used to determine emissions.

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 between 19,803 and 39,626 gallons with material equal to or greater than 11 psia use a pressure tank or approved emission control system. Tank S-1491 is abated by A-1001 Carbon Canister and A-1002 Carbon Canister. 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. The carbon canisters have an efficiency of 95%.

Source Number	Capacity (Gallons)	Throughput (Gallons)	Total POC Emissions
S-1491	21,000	546,000	355.75 lb/yr = 0.178 tpy

Maximum Daily Emissions:

Emissions from Tanks 4.0 show that 239.93 lb/yr of POC emissions are from working losses and 115.82 lb/yr of POC emissions are from breathing losses. The non-working losses will be assumed to be distributed evenly over each day of the year, while the working losses will be assumed to occur on days when a turnover occurs.

Turnovers = 546,000 gallons/21,000 gallons =26 turnovers

Daily Maximum POC Emissions from S-1491 = (239.93 lb/yr)(yr/26 days) + (115.82 lb/yr)(yr/365 days) = 9.55 lb/day

Toxic Risk Screening:

For a conservative estimate of toxic air contaminants, the tank contents of S-1491is assumed to be 100% gasoline. The carbon canisters provide a 95% reduction in POC emissions. Annual emissions of benzene of 17.79 lb/yr exceed the District trigger level of 6.7 lb/yr and a risk screening is required. Within the past two years, Tesoro has installed four additional organic liquid storage tanks (S-871, S-1485, S-775, and S-1496) that have required risk screenings. In addition, Tesoro has applied for a Permit to Operate two other portable storage tanks (Application Number 9259, Sources S-1489 and S-1490). As per the District's Risk Management Policy, a risk screening

analysis has been completed for the cumulative impacts from all related projects. This includes the health risks due to emissions from tanks S-1489, S-1490, S-1491, S-871, S-1485, S-775, and S-1496.

S-1491 Toxic Pollutant	Emissions (lb/yr)	Risk Screening Trigger (lb/yr)
Benzene	17.79	6.7
Toluene	426.90	38600
Xylenes	289.83	579000
Hexane	74.71	83000

Cumulative Emissions from Related Projects	
S-871 Tank A-871 (Application 9129, 4/29/04)	9.7 lb/yr benzene
S-1485 Tank A-870 (Application 6674, 4/15/03)	29.18 lb/yr benzene
S-775 Tank A-849 (AN 4579, 7/31/02)	339.0 lb/yr benzene
S-1496 Tank A-876 (AN 8002, 12/11/03)	115.4 lb/yr benzene
S-1489 and S-1490 (AN 9260, current application)	17.79 lb/yr benzene
S-1489 and S-1490 (AN 9259, current application)	35.58 lb/yr benzene
TOTAL EMISSIONS	546.65 lb/yr benzene

The cumulative impacts from the installation of S-1491 and all related projects results in a maximum increased cancer risk of less than one in a million or 0.3 in a million for nearby residences. The maximum increased cancer risk is less than one in a million or 0.6 in a million for off-site workers. The level of risk is considered acceptable under the district's Risk Management Policy. (See memo from Toxics Group, May 20, 2004.)

STATEMENT OF COMPLIANCE

The owner/operator of S-1491 Fixed Volume Portable Tank is subject to Regulation 8-5-301 Storage Tank Control Requirements. For tanks greater than 75 m3 (19,803 gallons) but less than 150 m3 (39,626 gallons) with organic contents with a true vapor pressure greater or equal to 11 psia, a pressure tank or approved emission control system is required. The owner/operator of S-1491 is subject to Regulation 8-5-306 Requirements for Approved Emission Control Systems. The owner/operator will be required to abate S-1491 with A-1001 Carbon Canister and A-1002 Carbon Canister at all times. The canisters must be gas tight and provide an abatement efficiency of at least 95% by weight POC, except as allowed by Regulation 8-5-328.1.2 for tank degassing. The owner/operator is also subject to recordkeeping (Regulation 8-5-501).

Tesoro will be required to check the carbon canisters for breakthrough every other day. Carbon Canisters A-1001 and A-1002 will be used to abate three portable tanks, S-1491, and S-1490 and S-1491 (Application Number 9259). Each tank can emit 9.55 lb/day of POC. As a conservative estimate, each pound of carbon can absorb one third of its weight with POC. For a conservative estimate, assume the canisters are abating all three tanks at one time.

3 tanks X 9.55 lb/day POC = 28.65 lb/day POC X 3 lb carbon/lb POC = 85.95 lb carbon/day
200 lb carbon bed/85.95 lb carbon/day = 2.32 days

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, NOx, CO,

SO_2 or PM_{10}. Based on the emission calculations above, the owner/operator of S-1491 Portable Tank abated by A-1001 and A-1002 Carbon Canisters is not subject to BACT.

Offsets: Offsets are required because Tesoro emits more than 50 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:

POC offsets = 0.178 tpy X 1.15 = 0.205 tpy

Tesoro has supplied Banking Certificate #916 to provide the required offsets

Banking Certificate #	POC Banking Credits	Required Offset	POC Offset Balance
928	35.482 tpy *	0.205	0 tpy

* Certificate #928 = 35.62 – 0.138 (AN9259) = 35.482 tpy

Balance of Banking Certificate #916 = 35.482 - 0.205 = 35.277 tpy

Federal NESHAPS
The owner/operator of S-1491 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 A of this engineering evaluation.

PSD does not apply.

PERMIT CONDITIONS
Application #9160 (June 15, 2004)

S-1491 Fixed Volume Portable Tank #3; Storing: Slop Oil and Water Mixture, Capacity: 500 BBL abated in series by A-1001 Carbon Canister 200 LB Activated Carbon and A-1002 Carbon Canister 200 LB Activated Carbon

5) The total throughput at tank S-1491 shall not exceed 13,000 barrels in any consecutive 12-month period.
(basis: Cumulative Increase, Toxic Risk Screen)

6) The owner/operator shall abate S-1491 with A-1001 and A-1002 Carbon Canisters in series at all times. The carbon canisters (200 lb/each activated carbon) shall have an overall collection and adsorption efficiency of at least 95% by weight POC.
(basis: Cumulative Increase, Toxic Risk Screen)

3) Materials stored in S-1491 shall be limited to the following:
   e. Crude or low sulfur vacuum gas oil with a true vapor pressure less than 11 psia
   f. A liquid other than those specified above may be stored in S-1491, provided that both of the following criteria are met:
      1. Slop Oil and water mixture with true vapor pressure must be less than 11 psia
      2. POC emissions, based on the maximum throughput in part 1, do not exceed 355.75 pounds per year; and
      3. toxic emissions in lbs/year, based on the maximum throughput in part 1, do not exceed any risk screening trigger level.

      (basis: Cumulative Increase, Toxic Risk Screen)

4) The owner/operator of this source shall monitor with a photo-ionization detector (PID), flame-ionization detector (FID), or other method approved in writing by the Air Pollution Control Officer at the following locations:
   a. At the inlet to the second to last carbon vessel in series.
   b. At the inlet to the last carbon vessel in series.
   c. At the outlet of the carbon vessel that is last in series prior to venting to the atmosphere.
   When using an FID to monitor breakthrough, readings may be taken with and without a carbon filter tip fitted on the FID probe. Concentrations measured with the carbon filter tip in place shall be considered methane for the purpose of these permit conditions.
   (basis: Cumulative Increase, Toxic Risk Screen)

5) These monitor readings shall be recorded in a monitoring log at the time they are taken. The monitoring results shall be used to estimate the frequency of carbon change-out necessary to maintain compliance with parts number 6 and 7, and shall be conducted every other day. The owner/operator of this source may propose for District review, based on actual measurements taken at the site during operation of the source, that the monitoring schedule be changed based on the decline in organic emissions and/or the demonstrated breakthrough rates of the carbon vessels. Written approval by the District's Permit Services Division must be received by the owner/operator prior to a change to the monitoring schedule.
   (basis: Cumulative Increase, Toxic Risk Screen)

6) The second to last carbon vessel shall be changed out with unspent carbon upon breakthrough, defined as the detection at its outlet of the higher of the following:
   a. 10 % of the inlet stream VOC concentration to the Carbon vessel.
   b. 10 ppmv or greater VOC (measured as C1).
   (basis: Cumulative Increase, Toxic Risk Screen)

7) The last carbon vessel shall be changed out with unspent carbon upon detection at its outlet of 10 ppmv or greater VOC (measured as C1).
   (basis: Cumulative Increase, Toxic Risk Screen)

8) Any exceedance of conditions parts 6 and/or 7 shall be reported to the Permit Services Division with the log as well as the corrective action taken. The submittal shall detail the corrective action taken and shall include the data showing the exceedance as well at the time of occurrence.
   (basis: Cumulative Increase, Toxic Risk Screen)

9) 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:
   d. On a monthly basis, type and amount of liquids stored and true vapor pressure ranges of such liquids.
   e. Each monitor reading or analysis result for the day of operation they are taken.
   f. The number of carbon beds removed from service.
   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, Regulation 1-441, Regulation 8-5-501)

RECOMMENDATION

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

S-1491 Fixed Volume Portable Tank #3; Storing: Slop Oil and Water Mixture, Capacity: 500 BBL abated in series by A-1001 Carbon Canister 200 LB Activated Carbon and A-1002 Carbon Canister 200 LB Activated Carbon

EXEMPTIONS
none

By:_____
Pamela J. Leong
Air Quality Engineer II
June 16, 2004

Appendix A
Federal NSPS Subpart Kb and Subpart A

Applicable Requirement	Regulation Title or Description of Requirement		Federally Enforceable (Y/N)	Future Effective Date
Refinery MACT	**NESHAP for Petroleum Refineries** **REQUIREMENTS FOR TANKS ALSO SUBJECT TO NSPS Kb**		Y	
63.640(n)	Which rule governs for storage vessels subject to both Refinery MACT and NSPS subpart Kb?	63.640(n)(1) **NSPS subpart Kb**	Y	
	Does Refinery MACT provide for EFR secondary seals to be pulled back or temporarily removed during NSPS Kb inspections of the primary seal?	63.640(n)(8)(i) **YES**	Y	
	Does Refinery MACT provide for delay of NSPS Kb seal gap measurements due to unsafe conditions?	63.640(n)(8)(ii) **YES – up to 30 days, or empty the tank within 45 days**	Y	
	Does Refinery MACT provide for extensions of time to perform NSPS Kb inspections of unsafe tanks?	63.640(n)(8)(iii) **YES – up to 2 extensions of 30 days each**	Y	
	Does Refinery MACT provide for extensions of time to repair defects found during NSPS Kb inspections?	63.640(n)(8)(iii) **YES – up to 2 extensions of 30 days each**	Y	
	Does Refinery MACT provide for waiving the NSPS Kb prior-request requirement for extensions of time?	63.640(n)(8)(iii) **YES**	Y	
	Does Refinery MACT provide for submitting NSPS Kb documentation of the need for an extension with the next semi-annual periodic report?	63.640(n)(8)(iv) **YES**	Y	
	Does Refinery MACT provide for submitting reports of NSPS Kb inspection failures on the semi-annual periodic report schedule?	63.640(n)(8)(v) **YES**	Y	
	Does Refinery MACT provide for not reporting the results of NSPS Kb inspections when there was no out-of-compliance (i.e., recordkeeping only)?	63.640(n)(8)(vi) **YES**	Y	
NSPS Subpart Kb	**Volatile Organic Liquid Storage Vessels** **REQUIREMENTS FOR FIXED ROOF TANK-CONTROL DEVICE**		Y	
60.112b(a)	**Closed vent system** Performance requirements:	60.112b(a)(3)(i) **no detectable emissions (i.e., < 500 ppm)**	Y	
	Control device Performance requirements:	60.112b(a)(3)(ii) **at least 95% efficient, or a flare per 60.18**	Y	
60.113b(c)(2)	**Control device (other than flare)** Operating requirements:	60.113b(c)(2) **operate and monitor per the plan**	Y	

Applicable Requirement	Regulation Title or Description of Requirement		Federally Enforceable (Y/N)	Future Effective Date
60.115b	**Recordkeeping for inspections:** Keep inspection reports as specified.	60.115b **Keep required records for 5 years**	Y	
60.115b(c)	**Recordkeeping for tanks routed to a control device other than a flare:**	60.115b(c) **operating plan & records of parametric monitoring data**	Y	
60.116b(a)	**Applicability records:** Time period for keeping records of applicability determination, unless specified otherwise.	60.116b(a) **Keep required records for 5 years**	Y	
60.116b(b)	**Applicability records:** Records of dimensions & capacity required for nonexempt tanks?	60.116b(b) **Required Keep record readily accessible for the life of the tank**	Y	
60.116b(c)	**Applicability records:** Additional recordkeeping requirements for certain tanks.	60.116b(c) **identification & TVP of the stored product, if capacity ≥ 20,000 gallons. and TVP ≥ 2.2, OR capacity ≥ 40,000 gallons. and TVP ≥ 0.51 Keep record as long as the tank is in that service**	Y	
60.116b(e)	**True vapor pressure (TVP) determination for applicability:**	60.116b(e) **maximum TVP of the stored liquid, based on highest calendar month average storage temperature**	Y	
60.116b(g)	**Applicability determination:** Miscellaneous recordkeeping exemptions:	60.116b(g) **keeping record of TVP is not required if tank is routed to a compliant control device**	Y	
NSPS Subpart A	**New Source Performance Standards GENERAL PROVISIONS**		Y	
60.7(a)	**Initial Notification:** Is initial notification of the source's existence required?	60.7(a)(1) **notification within 30 days after begin construction**	Y	
	Report (document) having initially achieved compliance?	60.7(a)(3) 60.115b(a)(1) & (b)(1) **within 15 days after initial fill**	Y	
	Notification of Compliance Status report:	60.7(a)(3) [cf. 60.115b(a)(1)&(b)(1)] **notification within 15 days after startup**	Y	
	Initial Notification: Is initial notification required if tank becomes affected only as a result of a modification?	60.7(a)(4) **notification 60 days or as soon as practicable before the change**	Y	
60.7(f)	**General recordkeeping requirements:** Time period for keeping records, unless specified otherwise.	60.7(f) **Keep all reports & notifications for 2 years**	Y	

Applicable Requirement	Regulation Title or Description of Requirement		Federally Enforceable (Y/N)	Future Effective Date
	General recordkeeping requirements: Keep all reports and notification for the specified period of time.	60.7(f) **required**	***Y***	
60.14(g)	Achieve compliance for: New Tanks (or tanks that become affected as a result of a change or modification)?	60.14(g) **up to 180 days after modifications (otherwise prior to fill)**	***Y***	

ENGINEERING EVALUATION
Tesoro Refining and Marketing Company; Plant 14628
Application 9733

Background

The Tesoro Refining and Marketing Company has applied for permits for the following engines at the Golden Eagle Refinery:

S-1499 No. 1 Pump Station, Spare Diesel Pump, Deutz Diesel BF6FL913C, 182 HP
S-1500 Chem Plant Air Compressor, Diesel Engine, John Deere JD4.239T, 109 HP
S-1501 Chem Plant Lorain Crane, Detroit Diesel Engine, Model 50437000, 200 HP
S-1502 High Pressure Water Blaster #4-111082, Serial #820857, Detroit Diesel Engine, 200 HP
S-1503 High Pressure Water Blaster #4-111082, Serial #4222917, Detroit Diesel Engine, 152 HP

These engines were placed into service prior to May 17, 2000 and were excluded from District regulation at that time in accordance with Regulation 1-110.2. Although Regulation 1-110.2 was deleted on May 17, 2000, these engines were exempt from permits in accordance with Regulation 2-1-114.2, subsection 2.3. However, Regulation 2-1-114 was modified effective September 1, 2001 to require permits for nearly all stationary engines over 50 hp. Since the engines suffered a loss of exemption, these engines are neither "new" nor "modified" sources as defined in Regulations 2-1-232 and 2-1-234. Therefore, these engines are not subject to New Source Review requirements (BACT, cumulative increase, offsets, toxic review, public notification requirements triggered by proximity to a K-12 school.)

The owner/operator has no operation limit in regard to time because the engines are less than 250 HP and were placed in service prior to May 17, 2000.

Emissions

Daily emissions from these sources do not need to be quantified for this permit. Default emission factors will be used by the District to calculate emissions.

Plant Cumulative Increase

As discussed above, these sources are not subject to a cumulative increase.

Toxic Risk Screening Analysis

As discussed above, these sources are not subject to the District Risk Management Policy.

Statement of Compliance

The owner/operator is subject to the SO2 limitations of 9-1-301 (ground-level concentration) and 9-1-304 (0.5% by weight in fuel). Compliance with both of these requirements is very likely since diesel fuel with a 0.05% by weight sulfur is mandated for use in California. The owner/operator is subject to Regulation 6 ("Particulate and Visible Emissions"). The engines are not expected to produce visible emissions or fallout in violation of this regulation and are assumed to be in compliance with Regulation 6 pending a regular inspection. The engines are all less than 250 hp and are exempt from the emission limits of Regulation 9-8-301 and 302 and from the recordkeeping requirements of Regulation 9-8-502 as per the exemption in Regulation 9-8-110.1.

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

This application is considered to be ministerial under the District's proposed CEQA guidelines (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 emission factors in accordance with Permit Handbook Chapter 2.3.

The public notification requirements of Regulation 2-1-412 are applicable only to the issuance of Authorities to Construct and Permits to Operate for new and modified sources and do not apply to these "loss of exclusion" sources.

As discussed on page 1 (Background), the sources are not subject to the District Risk Management Policy.

PSD, NSPS and NESHAPS are not applicable to these sources.

BACT and Offsets

As discussed on page 1 (Background), these engines are not subject to BACT or offset requirements.

Monitoring and Records

Because the engines are less than 250 hp, the owner/operator is exempt from the recordkeeping requirements of Regulation 9-8-502 as per the exemption in Regulation 9-8-110

Permit Conditions
Application 9733 (June 21, 2004)
Conditions for:
S-1499 No. 1 Pump Station, Spare Diesel Pump, Deutz Diesel BF6FL913C, 182 HP
S-1500 Chem Plant Air Compressor, Diesel Engine, John Deere JD4.239T, 109 HP
S-1501 Chem Plant Lorain Crane, Detroit Diesel Engine, Model 50437000, 200 HP
S-1502 High Pressure Water Blaster #4-111082, Serial #820857, Detroit Diesel Engine, 200 HP
S-1503 High Pressure Water Blaster #4-111082, Serial #4222917, Detroit Diesel Engine, 152 HP

(none)

Recommendation

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

S-1499 No. 1 Pump Station, Emergency Spare Diesel Pump, Deutz Diesel BF6FL913C, 182 HP
S-1500 Chem Plant Air Compressor, Emergency Diesel Engine, John Deere JD4.239T, 109 HP
S-1501 Chem Plant Lorain Crane, Detroit Diesel Engine, Model 50437000, 200 HP
S-1502 High Pressure Water Blaster #4-111082, Serial #820857, Detroit Diesel Engine, 200 HP
S-1503 High Pressure Water Blaster #4-111082, Serial #4222917, Detroit Diesel Engine, 152 HP

By: _____

Pamela Leong
Air Quality Engineer II
July 6, 2004

ENGINEERING EVALUATION
Tesoro Refining and Marketing Company
PLANT NO. 14628
APPLICATION NO. 9788

ULTRA LOW SULFUR DIESEL PROJECT

BACKGROUND

The Tesoro Refining and Marketing Company (Tesoro) is applying for an Authority to Construct to modify the following equipment at the Golden Eagle Refinery in Martinez, California:

S-920 No. 2 HDS Charge Heater, No. 20 Furnace, Foster Wheeler, Maximum Firing Rate: 63 MMBtu/hr

S-1001 No. 50 Crude Unit

S-1003 No. 2 HDS Unit

The modifications are needed in order to produce ultra low sulfur diesel (ULSD) to comply with CARB and EPA clean diesel requirements. Tesoro must decrease the total sulfur content of the diesel from the current concentration of 100-150 wppm to 15 wppm. The use of ULSD fuel in motor vehicles is required by June 1, 2006. Tesoro will begin making ULSD in 2006.

S-1001 No. 50 Crude Unit
The only modification at the S-1001 No. 50 Crude Unit involves the relocation of the diesel draw in order to improve the feed quality to the S-1003 No. 2 HDS Unit. The feed tanks upstream of the S-1001 No. 50 Crude unit will not be modified and throughput will not increase. The S-1001 No. 50 Crude Unit feeds the S-1003 No. 2 HDS Unit which has a throughput limit in the Title V permit for the facility. The other processing units downstream of S-1001 No. 50 Crude Unit may see a small change in the properties of their feed streams but the capacities of these units will not be affected.

Emissions from S-1001 are fugitive precursor organic compounds.

S-1003 No. 2 HDS Unit
The majority of the modifications will be done at the S-1003 No. 2 HDS Unit. The proposed modifications will increase the operating pressure of the S-1003 No. 2 HDS Unit. The higher operating pressure will improve the desulfurization of the diesel. Capacity of the unit will not change.

The current R-2 reactor will be replaced with a new reactor, R-4, which will allow for an increase in catalyst. An increase in catalyst does not increase the capacity of the unit but will allow for improved hydrotreating of the diesel. The higher pressure and additional catalyst will reduce the sulfur content of the S-1003 diesel product from 100-150 ppmw to less than 10 ppmw. Diesel from S-1003 No. 2 HDS Unit goes directly to the diesel blender and then to storage for sale.

Tesoro will replace the inlet distributor and outlet collector of the existing reactor, R-3, in order to provide more uniform distribution of oil in the reactor, which will improve desulfurization. R-3 is located directly upstream of the new reactor, R-4. A recycle gas line will also be installed to cool the gas leaving R-3 before it enters R-4. The increased hydrotreating severity results in a greater temperature increase across the catalyst beds. The new recycle gas line will cool the material between the reactor beds in order to lower the temperature of the feed to R-4. A high temperature feed to R-4 will degrade the catalyst.

New gaskets and impellers will be installed on the two existing feed pumps in order to improve reliability and increase the discharge pressure of the pumps. The inlet piping to the feed pumps will be shorted to reduce suction to the feed pumps to prevent cavitation. An existing steam turbine driver on one pump will be modified to provide additional horsepower to increase pressure. The other steam turbine driver will be replaced by an electric motor to

provide additional flexibility in balancing the refinery steam system. The changes to the feed pumps provide the additional operating pressure needed at S-1003 No. 2 HDS Unit to optimize desulfurization.

New piping and controls will be installed at the hydrogen makeup compressor. Bleed gas or makeup hydrogen from the hydrocracker will be rerouted from the discharge side of the hydrogen makeup compressors (or the feed of S-1003 No. 2 HDS Unit) to the suction side of the S-1003 No. 2 HDS Unit recycle compressors. The recycle compressors will operate at a higher suction and discharge pressure. An additional line will be added from the discharge of the hydrogen makeup compressors to the feed of R-4. Additional modifications required will be replacement of relief valves and possibly vibration snubbers at the compressors. Operating capacity of the hydrogen make-up compressors will not be affected, only the operating pressure.

The only heat exchanger being modified is E-4358 at the S-1003 No. 2 HDS Unit. A new tube bundle with tubes welded to the tube sheet will be installed to ensure that there is no leakage of high sulfur feed into the ULSD product from S-1003 No. 2 HDS Unit. The new tube bundle will have the same area for heat transfer as the existing bundle and capacity will not be increased.

Emissions from S-1003 are fugitive precursor organic compounds.

S-920 No. 2 HDS Charge Heater, No. 20 Furnace

Modification at S-920 No. 2 HDS Charge Heater, No. 20 Furnace will involve a metallurgical upgrade. Currently S-920 only heats a combination of makeup hydrogen and No. 2 HDS unit feed. Material heated at S-920 will be a combination of makeup hydrogen, recycle hydrogen, and No. 2 HDS unit feed. The configuration allows for a better balance of flows and pressures through the feed preheat section of the S-1003 No. 2 HDS Unit. Tubes in the upper radiant section of the heater will be replaced to minimize corrosion. The tube diameter will remain the same but the metallurgy will be upgraded. There will be no change in throughput or emissions at S-920. Firing rate will not change and there will be no increase in combustion emissions.

Affected Units: Sulfur Mass Balance

By reducing the sulfur content of the diesel produced from 100-150 ppmw to 10 ppmw, an additional 0.73 short tons per day (STPD) of sulfur will be removed from the fuel. The majority of the additional sulfur removed (0.63 STPD) is in the form of hydrogen sulfide (H2S) that is sent as a gas to the #5 Gas Plant. The H2S from the S-1003 No. 2 HDS Unit comes from three separate streams: the product separator hydrogen bleed, the flash drum off-gas, and the depentanizer overhead gas. At the #5 Gas Plant, the H2S is removed by the vapor phase diethanolamine (DEA) absorber. The H2S is removed from the DEA in the DEA regenerator tower at the Chemical Plant. The H2S is then recovered as elemental sulfur in the Sulfur Plant/SCOT Unit or the Sulfuric Acid Plant.

A small part of the sulfur (0.03 STPD) is removed as sulfur in the naphtha product from the depentanizer in the S-1003 No. 2 HDS Unit. This stream is sent to the S-1002 No. 1 HDS Unit for sulfur removal. The sulfur from S-1001 will also be recovered at the sulfur plant or sulfuric acid plant.

The sour water streams from the S-1003 No. 2 HDS Unit includes the remainder of the sulfur removed from the diesel (0.07 STPD). The sulfur is in the form of dissolved H2S. This dissolved H2S is removed from the water in the Foul Water Strippers and is fed to the Ammonia Recovery Unit (ARU) at the chemical plant as concentrated foul water. The H2S removed from the concentrated foul water is recovered as elemental sulfur in the Sulfur Plant/SCOT unit.

The S-1401 Sulfur Recovery Unit can process up to 200 tons per day of sulfur and the S-1411 Sulfuric Acid Manufacturing Plant can process up to 480 tons per day of sulfur. The capacities of the sulfur plant and sulfuric acid plant should easily accommodate the additional 0.73 STPD of additional sulfur removed from the diesel.

Summary

Modifications required to produce ULSD at Tesoro will allow for improved desulfurization by increasing the pressure at S-1003 No. 2 HDS Unit and by increasing the amount of catalyst used. Capacity and throughput will not increase. Processing units, S-1001 and S-1003, do not have discrete emission points. Emissions from S-1001 No. 50 Crude Unit and S-1003 No. 2 HDS Unit are fugitive precursor organic compounds. Emissions from S-920 No. 2 HDS Charge Heater will not change. The furnace tubes will be changed but the number of fugitive

components will remain constant. The firing rate of S-920 will not change and there will be no increase in combustion emissions. All emissions from the Ultra Low Sulfur Diesel Project are fugitive. Any additional sulfur removed from the diesel will result in a small increase in the amount of elemental sulfur recovered at the sulfur and sulfuric acid plants. The increase in sulfur at the sulfur and sulfuric acid plants is well within the capacities of the respective units. SO2 emissions are limited by the existing sulfur bubble in Condition Number 4367.

EMISSIONS SUMMARY

Annual Emissions:
Emissions from the ULSD 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 ULSD project.

Fugitive Component	Emission Factor (lb/hr/source)	Net Change in component count for ULSD project	Increase in POC emissions (lb/day)	Increase in POC emissions (lb/yr)
Valves in gas service	0.0000637	22	0.0336	12.28
Valves in liquid service	0.0000614	15	0.0221	8.07
Pumps	0.001203	0	0	0
Compressors	0.000335	0	0	0
PRV's in gas service	0.000405	0	0	0
PRV's in liquid service	0.000263	0	0	0
Connectors & flanges	0.004	30	2.88	1051.20
Total Emissions			**2.936**	**1071.54**

Maximum Daily Emissions:

Maximum daily POC emissions from the fugitive components are 2.936 lb/day for the ULSD project.

Toxic Risk Screening:

Toxic compounds in the fugitive component emissions have been calculated based on lab analyses of S-1003 No. 2 HDS Diesel. Emissions are based on 1072 lb/yr of fugitive precursor organic compounds. Emissions of toxic compounds in the fugitive emissions are less than the District trigger levels and a risk screening analysis is not required.

Emission Factor Toxic Pollutant	Emissions ppmw	Risk Screening (lb/yr)	Trigger (lb/yr)
Benzene	Not detected	Not detected	
Toluene	67	0.071824	6.7
Ethylbenzene	330	0.35376	39000

m,p-xylenes	1300	1.3936	
o-xylene	820	0.8709	
Total xylenes	2120	2.2645	58000
Hexane	Not detected	Not detected	83000

STATEMENT OF COMPLIANCE

S-920 No. 2 HDS Charge Heater, No. 20 Furnace

The owner/operator of S-920 Furnace shall comply with Regulation 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 S-920 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).

For S-920 Furnace, Tesoro is subject to Regulation 9 Rule 10 (Inorganic Gaseous Pollutants, NOx and CO from Boilers, Steam Generators, and Process Heaters in Petroleum Refineries). Tesoro shall not exceed a refinery-wide emission rate of 0.033 lb NOx/MMBtu based on an operating-day average as per Regulation 9-10-301. Tesoro shall not exceed 400 ppmvd CO at 3% O2 from S-920 Furnace.

S-1001 No. 50 Crude Unit and S-1003 No. 2 HDS Unit

Emissions from S-1001 and S-1003 are fugitive. 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 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 pump and compressor seals, the BACT 2 emission limit is 500 ppm expressed as methane measured at 1 centimeter from the component surface. The BACT 1 limit is 100 ppm as methane measured at 1 centimeter from the component surface. Because no fugitive organic emission increases (0 lb POC/yr) are expected from changes in pump or compressor components (see Emission Calculations), 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 or an abatement device with a recovery and destruction efficiency greater than 98%.

Affected Units: Sulfur Mass Balance

Regulation 9 Rule 1: Inorganic Gaseous Pollutants , Sulfur Dioxide

Regulation 9-1-301 limits the ground level concentration of SO2. The capacities of the sulfur plant (200 tons/day) and sulfuric acid plant (480 tons/day) should easily accommodate the 0.73 tons/day of additional sulfur removed from the diesel fuel. Ground level SO2 concentrations are not expected to increase. For effluent process gas from the sulfur plant, Tesoro is already subject to the SO2 emission limit of 250 ppmvd at 0% oxygen of Regulation 9-1-307. For effluent process gas from the sulfuric acid plant, Tesoro is already subject to the SO2 emission limit of 300 ppmvd at 12% oxygen of Regulation 9-1-309. Tesoro is also subject to Regulation 9-1-313, which requires that the sulfur content of the crude must not exceed 0.10 % by weight OR that the sulfur removal and recovery systems

at the refinery remove and recover 95% of the H2S from the refinery fuel gas and process water streams, and removes 95% of the ammonia from the process water streams. Tesoro is subject to the SO2 area monitoring requirements of Regulation 9-1-501.

Regulation 9 Rule 2: Inorganic Gaseous Pollutants , Hydrogen Sulfide
Regulation 9-2-301 limits the ground level concentration of H2S. Because the sulfur and sulfuric acid plants can easily process the additional sulfur removed from the diesel, ground level concentrations of H2S are not expected to increase.

The California Environmental Quality Act (CEQA) calls for a review of potential significant environmental impacts from proposed projects. This project has been determined to be subject to CEQA by the Contra Costa County Community Development Department (CCCCDD). The CCCDD is the Lead Agency for CEQA for this project. In accordance with Regulation 2-1-310.3, the District may not issue an Authority to Construct until final action has been taken by the Lead Agency. To satisfy CEQA, Environmental Science Associates (ESA) has prepared for Contra Costa County, an addendum to a 1994 Environmental Impact Report (EIR) entitled, "Second Phase of the Ultramar Clean Fuel Project: Addendum to the 1994 EIR, Tosco Refinery Company Clean Fuels Project". The addendum is dated January 2002 and contains the ULSD project on page 3-18.

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_2 or PM_{10}. Emissions from the ULSD project consist solely of fugitive POC. 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 measured at 1 centimeter (cm). 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 measured at 1 centimeter (cm). 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 measured at 1 centimeter (cm). 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 50 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:

POC offsets = 1071.54 lb/yr (1.15) = 1,233.27 lb/yr = 0.616 tpy

Tesoro has supplied Banking Certificate #932 to provide the required offsets.

Banking Certificate #	POC Banking Credits
932	35.039 tpy

Balance of Banking Certificate #932 = 35.039 - 0.616 = 34.423 tpy

Federal NSPS
Tesoro is subject to the requirements of NSPS Subpart J (Petroleum Refineries) for fuel gas combustion devices and sulfur recovery plants. Tesoro is also subject to NSPS Subpart GGG (Equipment Leaks of VOC in Petroleum Refineries).

NESHAPS and PSD do not apply.

PERMIT CONDITIONS
Application #9788 (September 17, 2004)
Ultra Low Sulfur Diesel Project

S-920 No. 2 HDS Charge Heater, No. 20 Furnace, Foster Wheeler, Maximum Firing Rate: 63 MMBtu/hr

S-1001 No. 50 Crude Unit

S-1003 No. 2 HDS Unit
1) Not more than 30 days after the start-up of the Ultra Low Sulfur Diesel Project (S-920, S-1001, and S-1003), 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:

22 valves in gas service
15 valves is liquid service
30 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)

7) The owner/operator shall install valves 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)

8) The owner/operator shall install flanges and connectors 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)

9) The owner/operator shall install pump seals 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)

10) The owner/operator shall install compressor seals 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)

11) The owner/operator shall vent pressure relief valves in hydrocarbon service to the refinery fuel gas system or an abatement device with a capture and destruction efficiency of at least 98% by weight.
(basis: BACT, Regulation 8-28)

12) The owner/operator shall integrate all new fugitive equipment in organic service installed as part of the Ultra Low Sulfur Diesel Project into the facility fugitive equipment monitoring and repair program.
(basis: BACT, Regulation 8-18)

RECOMMENDATION
Issue an Authority to Construct to Tesoro Refining and Marketing Company for modification of the following sources for the Ultra Low Sulfur Diesel Project:

S-920 No. 2 HDS Charge Heater, No. 20 Furnace, Foster Wheeler, Maximum Firing Rate: 63 MMBtu/hr

S-1001 No. 50 Crude Unit

S-1003 No. 2 HDS Unit

EXEMPTIONS
none

By:_____
Pamela J. Leong
Air Quality Engineer II
September 20, 2004

ENGINEERING EVALUATION
Tesoro Refining and Marketing Company
PLANT NO. 14628

APPLICATION NO. 10880
AMENDMENT to APPLICATION 9788

ULTRA LOW SULFUR DIESEL PROJECT

BACKGROUND

The Tesoro Refining and Marketing Company (Tesoro) was issued the Authority to Construct to modify the following equipment at the Golden Eagle Refinery in Martinez, California:

S-920 No. 2 HDS Charge Heater, No. 20 Furnace, Foster Wheeler, Maximum Firing Rate: 63 MMBtu/hr

S-1001 No. 50 Crude Unit

S-1003 No. 2 HDS Unit

The modifications are needed in order to produce ultra low sulfur diesel (ULSD) to comply with CARB and EPA clean diesel requirements. Tesoro must decrease the total sulfur content of the diesel from the current concentration of 100-150 wppm to 15 wppm. The use of ULSD fuel in motor vehicles is required by June 1, 2006. Tesoro will begin making ULSD in 2006. See the engineering evaluation in Application 9788 for a detailed discussion of process changes and emission calculations.

Emissions from the ULSD project are all fugitive precursor organic compounds. In the fugitive component emission factors, Tesoro supplied the incorrect factor for Connectors and Flanges. The emission factor supplied was in the units of lb/day/source instead of lb/hr/source. The emission factors used in the application were originally developed for the original CARB Phase 3 Clean Fuels Project (Application Number 2508). The emission factor for Connectors and Flanges was verified in the engineering evaluation for the CARB Phase 3 Project and the factor of 0.004 is in the units of *lb/day/source* versus lb/hr/source. The emission factor of 0.004 lb/day/source is equivalent to 0.000167 lb/hr/source. The emissions factors for all other fugitive components used in the ULSD Project were verified with the CARB Phase 3 Project and are correct. The corrected emission calculation is shown in the table below.

Fugitive Component	Emission Factor (lb/hr/source)	Net Change in component count for ULSD project	Increase in POC emissions (lb/day)	Increase in POC emissions (lb/yr)
Valves in gas service	0.0000637	22	0.0336	12.28
Valves in liquid service	0.0000614	15	0.0221	8.07
Pumps	0.001203	0	0	0
Compressors	0.000335	0	0	0
PRV's in gas service	0.000405	0	0	0
PRV's in liquid service	0.000263	0	0	0
Connectors & flanges	0.000167 ~~0.004~~	30	0.1202 ~~2.88~~	43.89 ~~1051.20~~
Total Emissions			**0.1759** ~~**2.936**~~	**64.24** ~~**1071.54**~~

The Connectors and Flanges will continue to meet BACT.

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). This meets BAAQMD BACT guidelines for POCs.

Offsets: Offsets are required because Tesoro emits more than 50 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 original calculation for offsets required from Application 9788 are shown below:

POC offsets = 1071.54 lb/yr (1.15) = 1,233.27 lb/yr = 0.616 tpy

Tesoro supplied Banking Certificate #932 to provide the required offsets.

Banking Certificate #	POC Banking Credits
932	35.039 tpy

Balance of Banking Certificate #932 = 35.039 - 0.616 = 34.423 tpy

The CORRECTED amount of offsets owed to the District are shown below:

POC offsets = 64.24 ~~1071.54~~ lb/yr (1.15) = 73.876 ~~1,233.27~~ lb/yr = 0.0369 ~~0.616~~ tpy

Credits to be returned to Tesoro = 0.616 tpy – 0.0369 tpy = 0.579 tpy

Add the credits to be refunded to Tesoro back to Banking Certificate #932 = 34.423 tpy + 0.579 tpy
= 35.002 tpy

PERMIT CONDITIONS

The condition will be clarified to show that BACT compliant technology will be required for fugitive components in light hydrocarbons service (parts 3 through 6). Part 8 will also be clarified to explicitly state that the fugitive components must meet the provisions of Regulation 8-18: Organic Compounds: Equipment Leaks.

Application #9788 (September 17, 2004)
Application #10880 (October, 2004): Amendment to refund offsets and clarify conditions.

Ultra Low Sulfur Diesel Project

S-920 No. 2 HDS Charge Heater, No. 20 Furnace, Foster Wheeler, Maximum Firing Rate: 63 MMBtu/hr

S-1001 No. 50 Crude Unit

S-1003 No. 2 HDS Unit

1) Not more than 30 days after the start-up of the Ultra Low Sulfur Diesel Project (S-920, S-1001, and S-1003), 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:

22 valves in gas service

15 valves is liquid service
30 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)

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)

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)

6) The owner/operator shall install compressor 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)

7) The 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 and destruction efficiency of at least 98% by weight.
(basis: BACT, Regulation 8-28)

8) 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 Ultra Low Sulfur Diesel Project into the facility fugitive equipment monitoring and repair program.
(basis: BACT, Regulation 8-18)

RECOMMENDATION
Refund the Tesoro Refining and Marketing Company the offsets shown below.

POC Credits	**= 0.579 tpy**
Banking Certificate #932	**= 34.423 tpy + 0.579 tpy = 35.002 tpy**

By:_____
Pamela J. Leong
Air Quality Engineer II
October 1, 2004

ENGINEERING EVALUATION
Tesoro Refining and Marketing Company
PLANT NO. 14628
APPLICATION NO. 10476

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

S-622 Fixed Cone Roof Tank; Tank A-622, Capacity: 3,360K Gallons, Storing: Mixture of Diesel and Kerosene

In the District database, S-622 is described incorrectly as shown:

S-622 Internal Floating Roof Tank; Tank A-622, Capacity: 3,360K Gallons, Multi-liquid Tank

The Federal Title V permit describes S-622 as a fixed roof tank but with the incorrect tank contents:

S-622 Fixed Roof Tank; Tank A-622, Capacity: 3,360K Gallons, Storing: Distillate Oil, Gasoline

Tesoro would like to correct the information in the District database and the Federal Title V permit to reflect the correct tank description AND contents. S-622 Tank A-622 has been in service since 1951 and has a grandfathered throughput limit of 14600K barrels per year. The tank is not being physically modified. Updating the District database and Title V Permit to reflect the correct tank description and contents will not affect emissions.

S-622 Tank A-622 holds a mixture of diesel and kerosene from the two crude units. The total vapor pressure for the contents is 0.42 psia. The diesel and kerosene mixture has a gravity of 38 API.

EMISSIONS
As described above, there will be no increase in precursor organic compounds.

PLANT CUMULATIVE INCREASE
There will be no increase in emissions and 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
Since the tank contents are less than 0.5 psia, the owner/operator of S-622 Tank A-622 is exempt from the provisions of Regulation 8 Rule 5: Organic Compounds, Storage of Organic Liquids as per the exemption in Section 117.

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.

BACT and OFFSETS are not triggered.

Federal NESHAPS
The owner/operator of S-622 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 A of this engineering evaluation.

PSD does not apply.

PERMIT CONDITIONS
The owner/operator of S-622 Tank A-622 is not subject to any District Permit Conditions for this source. In the Federal Title V Permit, the owner/operator of S-622 is subject to a "Grandfathered Limit" of 14600K barrels a year in Table IIA. The Grandfathered limit is explained in the Section 1, J: Standard Conditions, Miscellaneous Conditions of the Title V permit.

Section 1. Standard Conditions: J. Miscellaneous Conditions:

> In Table II-A or Table II-C, for each source with a capacity identified as a grandfathered limit, all capacities as shown in Table II-A and Table II-C are based upon District records at the time of the MFR permit issuance. The facility must report any exceedance of these limits following the procedures in Section I.F. 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 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. (Regulation 2-1-234.3)

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

S-622 Fixed Cone Roof Tank; Tank A-622, Capacity: 3,360K Gallons, Storing: Mixture of Diesel and Kerosene

EXEMPTIONS
None.

By:_____
Pamela Leong
Air Quality Engineer II

September 22, 2004

Appendix A

Applicable Requirement	Regulation Title or Description of Requirement		Federally Enforceable (Y/N)	Future Effective Date
BAAQMD Reg 8 Rule 5	**Exempt**		**Y**	
Refinery MACT	**NESHAP for Petroleum Refineries** **REQUIREMENTS FOR TANKS ALSO SUBJECT TO NSPS Kb**		**Y**	
63.640(n)	Which rule governs for storage vessels subject to both Refinery MACT and NSPS subpart Kb?	63.640(n)(1) **NSPS subpart Kb**	**Y**	
NSPS Subpart Kb	**Volatile Organic Liquid Storage Vessels** **REQUIREMENTS FOR RECORDKEEPING ONLY**		Y	
60.116b(a)	**Applicability records:** Time period for keeping records of applicability determination, unless specified otherwise.	60.116b(a) **Keep for 5 years**	**Y**	
60.116b(b)	**Applicability records:** Records of dimensions & capacity required for nonexempt tanks?	60.116b(b) **Required** **Keep record readily accessible for the life of the tank**	**Y**	
60.116b(c)	**Applicability records:** Additional recordkeeping requirements for certain tanks.	60.116b(c) **identification & TVP of the stored product, if capacity ≥ 20,000 gallons. and TVP ≥ 2.2, OR capacity ≥ 40,000 gallons. and TVP ≥ 0.51** **Keep record as long as the tank is in that service**	**Y**	
60.116b(d)	**Periodic Reports:** Miscellaneous additional info to report:	60.116b(d) **TVP exceedances for a tank > 20,000 gallons that is normally below the TVP cutoff**	**Y**	
60.116b(e)	**True vapor pressure (TVP) determination for applicability:**	60.116b(e) **maximum TVP of the stored liquid, based on highest calendar month average storage temperature**	**Y**	
	Applicability determination: Miscellaneous recordkeeping exemptions:	60.116b(g) **keeping record of TVP is not required if tank is routed to a compliant control device**	**Y**	
NSPS Subpart A	**New Source Performance Standards** **GENERAL PROVISIONS**		**Y**	
60.7(a)	**Initial Notification:** Is initial notification of the source's existence required?	60.7(a)(1) **notification within 30 days after begin construction**	**Y**	
	Initial Notification: Is initial notification required if tank becomes affected only as a result of a modification?	60.7(a)(4) **notification 60 days or as soon as practicable before the change**	**Y**	

Appendix A

Applicable Requirement	Regulation Title or Description of Requirement		Federally Enforceable (Y/N)	Future Effective Date
60.7(f)	**General recordkeeping requirements:** Time period for keeping records, unless specified otherwise.	60.7(f) **Keep all reports & notifications for 2 years**	**Y**	
	General recordkeeping requirements: Keep all reports and notification for the specified period of time.	60.7(f) **required**	**Y**	

ENGINEERING EVALUATION
Tesoro Refining and Marketing Company
PLANT NO. 14628
APPLICATION NO. 10659

BACKGROUND

The Tesoro Refining and Marketing Company (Tesoro) is applying for a change in permit conditions for the Authority to Construct and Permit to Operate the following equipment:

S-1496 Fixed Roof Tank; Tank A-876, Capacity: 80,000 Barrels, Storing: Heavy Reformate with Pentanes, Straight Run Heavy Naphtha abated by A-14 Vapor Recovery System

Tesoro would like to clarify Permit Condition 21100, Part 1 to show that the limit of 2,500,000 barrels applies to the "net" versus "total" throughput of the tank. Emissions from S-1496 were calculated using the EPA Tanks 4.0 program. The Tanks 4.0 program uses "Net Throughput" or the "annual net throughput in gallons per year" (from User's Guide to Tanks, September 30, 1999). If the condition is not changed to reflect the "net" throughput, then the emissions associated with S-1496 need to be modified. According to the User's Guide to Tanks, for a tank that is operated with little or no change in the liquid level, "the inputs to the working loss equation should be modified for constant level tanks since the working losses are based on changes in the height of the liquid". The annual tank turnover rate must be adjusted to prevent overestimation of working losses. Instead of updating emissions, the conditions will be clarified to specify the 'net' throughput limit of the tank. S-1496 is equipped with a radar-monitoring device that continuously monitors the level of liquid in the tank. From the continuous level readings, Tesoro can calculate the change in liquid height and determine the "net" throughput through the tank. Condition 21100 will be updated to clarify that the limit of 2,500,000 barrels per year applies to the "net" throughput of S-1496. There will be no increase or change in emissions with the clarification of the permit condition.

EMISSIONS SUMMARY

Annual Emissions:
As described above, there will be no increase in precursor organic compounds.

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-1496 Fixed Volume Portable Tank is subject to Regulation 8-5-301 Storage Tank Control Requirements. For tanks greater than 150 m3 (39,626 gallons) with organic contents with a true vapor pressure greater or equal to 11 psia, a pressure tank or approved emission control system is required. The owner/operator of S-1496 is subject to Regulation 8-5-306 Requirements for Approved Emission Control Systems. The owner/operator will be required to abate S-1496 with A-14 Vapor Recovery System at all times. The A-14 Vapor Recovery System and process heaters will be conditionally permitted to provide an abatement efficiency of at least 99.5% by weight POC (basis: cumulative increase, BACT, Offsets, toxics risk screen), except as allowed by Regulation 8-5-328.1.2 for tank degassing. The 99.5% destruction efficiency was demonstrated via source tests for Application #6201 (S-532 Oil Water Separator; Tank 532 abated by A-14 Vapor Recovery System). Source test results were validated by the District Source Test Division (Memos from Source Test, February 26, 2004). Annual source tests will be required to ensure a POC destruction efficiency of at least 99.5% by weight. The owner/operator is also subject to 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 and Offsets:
BACT and OFFSETS are not triggered.

Federal NESHAPS
The owner/operator of S-1496 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 A of this engineering evaluation.

PSD does not apply.

PERMIT CONDITIONS

Condition #21100:
Application #8002 (December 11, 2003)
Amended by Application #9728 (June 25, 2004): Increase vapor pressure from 8 to 11 psig, decrease throughput from 5,500,000 barrels/yr to 2,500,000 barrels/yr, add monitoring.
Amended by Application 10659: Clarification of conditions including “net” versus “total” throughput limit.

S-1496 Fixed Roof Tank; Tank A-876, Capacity: 80,000 Barrels, Storing: Heavy Reformate with Pentanes, Straight Run Heavy Naphtha abated by A-14 Vapor Recovery System

1) The total net throughput at tank S-1496 shall not exceed 2,500,000 barrels in any consecutive 12-month period. The owner/operator shall use a radar-monitoring device to measure the height of the tank. The owner/operator shall use the change in height to calculate throughput.
(basis: Cumulative Increase, Toxic Risk Screen, Offsets)

2) Notwithstanding any provision of District regulations allowing for the malfunction of A-14 due to a valid break down at No. 1 Gas Plant vapor recovery compressor(s), t~~T~~he owner/operator shall ensure that S-1496 (excluding the pressure vacuum relief valve vent), including the pressure vent at S-1496, is abated by A-14 at all times. ~~abate S-1496 with A-14 Vapor Recovery System at all times.~~ The A-14 Vapor Recovery System shall have a destruction efficiency of at least 99.5% by weight as measured across the combustion device(s) burning the vapors from the fuel gas system.

(basis: Cumulative Increase, Toxic Risk Screen, Offsets, Regulation 8-5, NSPS, Regulation 10 Subpart Kb)

3) Materials stored in S-1496 shall be limited to the following:

~~a.~~g. Heavy reformate, heavy reformate with pentanes, fractionator splitter bottoms, conventional gasoline stock, heavy naphtha, or straight run gasoline with a true vapor pressure less than 11 psia.
~~b.~~h. A liquid other than those specified above may be stored in S-1496, 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 8,868 pounds per year; and
3. toxic emissions in lbs/year, based on the maximum throughput in part 1, do not exceed any risk screening trigger level.

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

4) To determine compliance with part 2, the owner/operator shall conduct a District approved source test at each of 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
- 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 35 days of the source test.
(basis: Cumulative Increase, Toxic Risk Screen, Offsets, Regulation 1-238)

~~5) To determine compliance with part 2, the owner/operator shall conduct a District approved source test at the following source within 60 days of startup of S-1496 and thereafter every 5 years in the year prior to the Title V Permit Renewal.~~

~~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~~
~~- 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 35 days of the source test.~~
~~(basis: Cumulative Increase, Toxic Risk Screen, Offsets, Regulation 1-238)~~

5 ~~6~~) To determine compliance with the above parts, 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:

g. On a monthly basis, type and amount of liquids stored and true vapor pressure ranges of such liquids.
h. The throughput of material shall be added and recorded in the log for each month and for each rolling consecutive 12-month period.

i. The time, date, duration, and reason for each instance that S-1496 is not abated by 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 8-5-501, Regulation 1-238)

RECOMMENDATION
Issue a change of condition in the Authority to Construct to the Tesoro Refining and Marketing Company for the following source:

S-1496 Fixed Roof Tank; Tank A-876, Capacity: 80,000 Barrels, Storing: Heavy Reformate with Pentanes, Straight Run Heavy Naphtha abated by A-14 Vapor Recovery System

EXEMPTIONS
none

By:_____
Pamela J. Leong
Air Quality Engineer II
November 9, 2004

Appendix A
Federal NSPS Subpart Kb and Subpart A

Applicable Requirement	Regulation Title or Description of Requirement		Federally Enforceable (Y/N)	Future Effective Date
Refinery MACT	**NESHAP for Petroleum Refineries** **REQUIREMENTS FOR TANKS ALSO SUBJECT TO NSPS Kb**		Y	
63.640(n)	Which rule governs for storage vessels subject to both Refinery MACT and NSPS subpart Kb?	63.640(n)(1) **NSPS subpart Kb**	Y	
	Does Refinery MACT provide for EFR secondary seals to be pulled back or temporarily removed during NSPS Kb inspections of the primary seal?	63.640(n)(8)(i) **YES**	Y	
	Does Refinery MACT provide for delay of NSPS Kb seal gap measurements due to unsafe conditions?	63.640(n)(8)(ii) **YES – up to 30 days, or empty the tank within 45 days**	Y	
	Does Refinery MACT provide for extensions of time to perform NSPS Kb inspections of unsafe tanks?	63.640(n)(8)(iii) **YES – up to 2 extensions of 30 days each**	Y	
	Does Refinery MACT provide for extensions of time to repair defects found during NSPS Kb inspections?	63.640(n)(8)(iii) **YES – up to 2 extensions of 30 days each**	Y	
	Does Refinery MACT provide for waiving the NSPS Kb prior-request requirement for extensions of time?	63.640(n)(8)(iii) **YES**	Y	
	Does Refinery MACT provide for submitting NSPS Kb documentation of the need for an extension with the next semi-annual periodic report?	63.640(n)(8)(iv) **YES**	Y	
	Does Refinery MACT provide for submitting reports of NSPS Kb inspection failures on the semi-annual periodic report schedule?	63.640(n)(8)(v) **YES**	Y	
	Does Refinery MACT provide for not reporting the results of NSPS Kb inspections when there was no out-of-compliance (i.e., recordkeeping only)?	63.640(n)(8)(vi) **YES**	Y	
NSPS Subpart Kb	**Volatile Organic Liquid Storage Vessels** **REQUIREMENTS FOR FIXED ROOF TANK-CONTROL DEVICE**		Y	
60.112b(a)	**Closed vent system** Performance requirements:	60.112b(a)(3)(i) **no detectable emissions (i.e., < 500 ppm)**	Y	
	Control device Performance requirements:	60.112b(a)(3)(ii) **at least 95% efficient, or a flare per 60.18**	Y	
60.113b(c)(2)	**Control device (other than flare)** Operating requirements:	60.113b(c)(2) **operate and monitor per the plan**	Y	

Applicable Requirement	Regulation Title or Description of Requirement		Federally Enforceable (Y/N)	Future Effective Date
60.115b	**Recordkeeping for inspections:** Keep inspection reports as specified.	60.115b **Keep required records for 5 years**	Y	
60.115b(c)	**Recordkeeping for tanks routed to a control device other than a flare:**	60.115b(c) **operating plan & records of parametric monitoring data**	Y	
60.116b(a)	**Applicability records:** Time period for keeping records of applicability determination, unless specified otherwise.	60.116b(a) **Keep required records for 5 years**	Y	
60.116b(b)	**Applicability records:** Records of dimensions & capacity required for nonexempt tanks?	60.116b(b) **Required Keep record readily accessible for the life of the tank**	Y	
60.116b(c)	**Applicability records:** Additional recordkeeping requirements for certain tanks.	60.116b(c) **identification & TVP of the stored product, if capacity ≥ 20,000 gallons. and TVP ≥ 2.2, OR capacity ≥ 40,000 gallons. and TVP ≥ 0.51 Keep record as long as the tank is in that service**	Y	
60.116b(e)	**True vapor pressure (TVP) determination for applicability:**	60.116b(e) **maximum TVP of the stored liquid, based on highest calendar month average storage temperature**	Y	
60.116b(g)	**Applicability determination:** Miscellaneous recordkeeping exemptions:	60.116b(g) **keeping record of TVP is not required if tank is routed to a compliant control device**	Y	
NSPS Subpart A	**New Source Performance Standards GENERAL PROVISIONS**		Y	
60.7(a)	**Initial Notification:** Is initial notification of the source's existence required?	60.7(a)(1) **notification within 30 days after begin construction**	Y	
	Report (document) having initially achieved compliance?	60.7(a)(3) 60.115b(a)(1) & (b)(1) **within 15 days after initial fill**	Y	
	Notification of Compliance Status report:	60.7(a)(3) [cf. 60.115b(a)(1)&(b)(1)] **notification within 15 days after startup**	Y	
	Initial Notification: Is initial notification required if tank becomes affected only as a result of a modification?	60.7(a)(4) **notification 60 days or as soon as practicable before the change**	Y	
60.7(f)	**General recordkeeping requirements:** Time period for keeping records, unless specified otherwise.	60.7(f) **Keep all reports & notifications for 2 years**	Y	

Applicable Requirement	Regulation Title or Description of Requirement		Federally Enforceable (Y/N)	Future Effective Date
	General recordkeeping requirements: Keep all reports and notification for the specified period of time.	60.7(f) **required**	***Y***	
60.14(g)	Achieve compliance for: New Tanks (or tanks that become affected as a result of a change or modification)?	60.14(g) **up to 180 days after modifications (otherwise prior to fill)**	***Y***	

ENGINEERING EVALUATION
Tesoro Refining and Marketing Company
PLANT NO. 14628
APPLICATION NO. 10668

BACKGROUND

The Tesoro Refining and Marketing Company (Tesoro) is planning to modernize the loading rack facilities at their bulk plant at the Golden Eagle Refinery in Martinez, California. Tesoro is applying for an Authority to Construct to modify the following equipment:

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

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

As part of the modernization project, Tesoro is applying for an Authority to Construct and/or Permit to Operate the following equipment:

S-1504 Bulk Plant Unloading Rack: Ethyl Alcohol

S-1025 Bulk Plant Bottom Loading Facilities: Gasoline, Naphtha, Kerosene, Diesel, Fuel Oil, Ethanol
The S-1025 Loading Rack is currently 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 has not been used since 1999 but the permit to operate has always been maintained.

As a part of the Loading Rack Modernization Project, Tesoro will add two pumps and replace three pumps. Although S-1025 is permitted to transfer material from 24 arms, only 12 have been used. Tesoro will add 8 arms. 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 has stated that they will meet the BACT emission limit of 0.02 pounds of POC per 1000 gallons of liquid transferred. Tesoro has also agreed to decrease the number of arms permitted from 24 to 20. These alterations should result in a decrease in emissions.

In the Federal Title V Operating Permit, S-1025 has a grandfathered throughput limit of 18,615,000 barrels/year. Capacities identified as 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 S-1025 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 S-1025 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. No documentation could be found to show how Tesoro arrived at an annual grandfathered limit of 18,615,000 barrels/year in the Title V permit. Tesoro has since found operating curves of the pumps and equipment installed at S-1025. Calculations for the maximum throughput based on the equipment design capacity are 157,000 barrels per day or 57,565,714 barrels per year (see Appendix A for calculations). This throughput is theoretically possible based on the equipment size but is practically impossible since trucks need time to drive and hook up to the loading station. Therefore, the lower limit in the Title V permit will be considered the annual throughput limit for Tesoro. Tesoro will be conditionally permitted not to exceed the Title V limit of 18,615,000 barrels per year. After the modifications are made at S-1025, annual throughput will not increase beyond the Title V annual limit and annual emissions will not change.

To determine if there will be an increase in daily emissions, the historical daily limit needs to be determined. No CARB certified daily limit could be located at either Tesoro or at the CARB. To determine historical rates, as mentioned above the 157,000 barrels per day is not practically possible. To determine a practical maximum daily operating rate, Tesoro determined the amount of material that could be transferred by determining how much time trucks needed to connect, load, and disconnect. The limiting factor for determining the daily throughput is the number of trucks than can be loaded at S-1025 versus the capacity of the equipment. Assuming 15 minute loading intervals at all three loading bays in continuous use, 64,457 barrels per day or 23,526,857 barrels per year of material could be loaded (see Appendix A for calculations). The maximum daily throughput at S-1025 has always been limited by the number of trucks that can physically be loaded. The maximum daily throughput has been 64,457 barrels per day. After modernizing the S-1025 Loading Rack, throughput will continue to be limited physically by the number of trucks that can be loaded.

Tesoro will be conditionally limited not to exceed 64,457 barrels per day. Tesoro will be conditionally limited to 18,615,000 barrels per year as shown in the Title V permit.

After the Loading Rack Modernization Project is complete, throughput at S-1025 will remain within the physical limitations of the trucks downstream of S-1025 that may be loaded as per Regulation 2-1-234.3.2. Emissions as limited by the 'capacity' of the trucks will not increase and therefore the project is not considered a "modification" but an alteration.

PM10 emissions are associated with the tank truck traffic coming into Tesoro for loading of gasoline and diesel. Again, the daily maximum capacity has been limited by the number of trucks that can physically load at S-1025. After modernizing the S-1025 Loading Rack, throughput will continue to be limited physically by the number of trucks that can be loaded. The capacity of trucks loading at the rack cannot increase and there will be no increase in PM10 emissions.

In the Title V permit, Tesoro is permitted to load gasoline, naphtha, kerosene, diesel, and fuel oil at S-1025. Tesoro would like to add ethanol to the list of materials that may be transferred from S-1025. Since Tesoro is limited to a

throughput at S-1025 to 64,457 barrels per day and 18,615,000 barrels per year, the loading of ethanol, which is less volatile than gasoline, would result in a decrease in emissions when loading ethanol instead of gasoline. Ethanol is not on the District list of toxic air contaminants and does not trigger a risk screen. Tesoro will be allowed to transfer ethanol at S-1025.

Any increase in emissions from the modernization of S-1025 will be fugitive precursor organic compounds.

S-1504 Bulk Plant Unloading Rack: Ethyl Alcohol
New CARB gasoline regulations require refiners to blend ethanol into gasoline product. The truck loading facility is currently designed for ethanol blending. Ethanol is currently received via ship and barge. The addition of S-1504 Bulk Plant Unloading Rack will allow for the receipt of ethanol via tank truck from a local terminal rather than by ship or barge. S-1504 will have two unloading arms and two pumps. S-1504 will unload ethanol into an existing tank, S-612 Tank A-612 Internal Floating Roof Tank; Contents: Ethyl Alcohol, Gasoline. The throughput of S-612 is limited by condition number 6740. Tesoro is concurrently applying for an increase in throughput and change in condition number 6740 for S-612 (application #11091). Tesoro will be permitted to increase throughput at S-612 from 243,000 barrels to 400,000 barrels per year. S-1540 Bulk Plant Unloading Rack will also have the same throughput limit of 400,000 barrels per year. S-612 Tank A-612 already has the capability to feed the S-1025 Loading Rack for blending of ethanol with gasoline. Emissions from unloading of the ethanol tank trucks are from working or loading losses from the filling and emptying of S-612 Tank A-612 and precursor organic emission losses associated with the tank and have been accounted for at Tesoro. Other emissions from S-1504 Bulk Plant Unloading Rack are precursor organic compounds from the fugitive components and PM10 from the dust from the additional traffic delivering ethanol via tank truck.

S-613 Vapor Recovery Tank A-613; Fixed Roof Tank, Capacity 420 K Gallons, Storing: Organic Liquid
S-696 Tank A-696; Internal Floating Roof Tank, Capacity 630 K Gallons, Storing: Gasoline
Tesoro will refurbish tanks S-613 and S-696. Tesoro will install double bottoms on the tanks, replace the floating roof seal on S-696, and upgrade instrumentation and fire protection. Capacity of the tanks will not change. Refurbishment of the tanks are considered ‘alterations’ since there will be no associated increases in emissions.

EMISSIONS SUMMARY

Annual Emissions:
S-1025 Bulk Plant Bottom Loading Facilities: Gasoline, Naphtha, Kerosene, Diesel, Fuel Oil, Ethanol
As described in the “Background” section, emissions from the modernization of S-1025 are all fugitive precursor organic compounds. All fugitive emissions associated with this application are calculated below.

S-1504 Bulk Plant Unloading Rack: Ethyl Alcohol
As described in the “Background” section, precursor organic emissions from unloading the ethanol tank trucks are accounted for in the working losses from the filling and draining of S-612 Tank A-612 Ethanol Tank. All other precursor organic compounds are fugitive. All fugitive emissions associated with this application are calculated below.

PM10 emissions are associated with the new tank truck delivery of ethanol. Tesoro has calculated the PM10 from the truck traffic using the equations from AP-42 Chapter 3.2.1 Paved Roads. The calculations have been verified and are found in Appendix B. Annual PM10 emissions are 0.78 tons per year from ethanol delivery trucks.

S-613 Vapor Recovery Tank A-613; Fixed Roof Tank, Capacity 420 K Gallons, Storing: Organic Liquid
S-696 Tank A-696; Internal Floating Roof Tank, Capacity 630 K Gallons, Storing: Gasoline
There will be no increase in emissions from the maintenance on S-613 and S-696.

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 (S-1025, S-613, S-696, and S-1504).

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	33	0.0505	18.4144
Valves in liquid service	0.0014736	460	0.6779	247.4174
Pumps	0.028872	4	0.1155	42.1531
Compressors	0.00804	0	0	0
PRV's in gas service	0.00972	1	0.00972	3.5478
PRV's in liquid service	0.006312	10	0.0631	23.0388
Connectors & flanges	0.004	1630	6.52	2379.80
Total Emissions			**7.436**	**2714.372**

Total Loading Rack Modernization Project Emissions
POC Emissions from fugitive components = 7.436 lb/day = 2714.372 lb/yr = 1.3572 tpy
PM10 Emissions from S-1504 Ethanol Unloading Rack Truck Traffic = 0.78 tpy

Maximum Daily Emissions:

Maximum daily POC emissions from the fugitive components are 7.436 lb/day for the project.

Maximum daily PM10 emissions are 4.274 lb/day for the project.

Toxic Risk Screening:

For a conservative estimate of toxic air contaminants, it was assumed that gasoline is the only material being loaded at the S-1025 loading rack. Emissions of benzene of 158 lb/yr exceed the District trigger of 6.7 lb/yr and a risk screening analysis is required.

Based on 2714.37 lb/yr of fugitive emissions from loading gasoline.

Toxic Pollutant	% by volume in gasoline	Emissions (lb/yr)	Risk Screening Trigger (lb/yr)
Benzene	up to 5%	**58.70**	**6.7**
Toluene	up to 35%	1095.72	39000
Xylenes	up to 25%	782.65	58000
n-Hexane	up to 8%	190.45	83000
Naphthalene	up to 1.1%	45.32	270
Styrene	up to 4%	130.78	140000

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
4597	1484 and 775	Oil Water Separator & Tank A-849
6674	1485	Tank A-870
6945	1487 & 1488	Fire Water Pump Diesel Engines
9129	871	Tank A-871
9259	1489	Portable Tank
9259	1490	Portable Tank
9260	1491	Portable Tank
9728	1496	Tank A-876
10668 (current appl.)	1025	Bulk Plant Bottom Loading Facilities

The cumulative impacts from the Loading Rack Modernization Project and all related projects results in a maximum increased cancer risk of less than one in a million or 0.4 in a million for nearby residences. The maximum increased cancer risk is less than one in a million or 0.7 in a million for off-site workers. The level of risk is considered acceptable under the district's Risk Management Policy. (See memo from Toxics Group, October 28, 2004.)

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 has also stated that they will meet the BACT emission limit of 0.02 lbs of POC per 1000 gallons of liquid transferred, which is below the limit of 0.08 lbs of VOC per 1000 gallons 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 0.02 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 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.

S-1504 Bulk Plant Unloading Rack: Ethyl Alcohol
The owner/operator of S-1504 shall comply with Regulation 8, Rule 6: Organic Liquid Bulk Terminals and Bulk Plants. The storage tank S-696 Tank A-696 is equipped with an internal floating roof which the District considers a vapor loss control system as required by Regulation 8-6-304 Deliveries to Storage Tanks. The owner/operator is

also subject to Regulations 8-6-306 Equipment Maintenance,8-6-307 Good Operating Practices, and the recordkeeping requirements of Regulation 8-6-501.

S-613 Vapor Recovery Tank A-613; Fixed Roof Tank, Capacity 420 K Gallons, Storing: Organic Liquid
S-696 Tank A-696; Internal Floating Roof Tank, Capacity 630 K Gallons, Storing: Gasoline
The owner/operator of organic liquid tank S-696 shall comply with Regulation 8, Rule 5: Organic Compounds, Storage of Organic Liquids. For S-696, the owner/operator is in compliance with Regulation 8-5-301 since the tank is equipped with an internal floating roof.

Tank S-613 is a bladder tank. The vapors from the loading rack are normally vented to A-14 Vapor Recovery. Tank S-613 sends the vapors from S-1025 to the A-14 Vapor Recovery system and is in effect itself abated by the A-14 Vapor Recovery System. Any condensed vapors from the S-613 Bladder Tank are sent to the recovered oil system (S-601 Tank A-601). For the bladder tank S-613, the owner/operator is subject to Regulation 8-33-308 which requires that diaphragms used in vapor storage tanks shall be maintained such that organic compound emissions from the airspace above the diaphragm do not exceed a concentration of 3,000 parts per million (as methane) and 15 pounds per day.

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 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 pump and compressor seals, the BACT 2 emission limit is 500 ppm expressed as methane measured at 1 centimeter 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.

For fugitive organic emissions from emergency pressure relief valves, BACT requires venting to the refinery fuel gas system or an abatement device with a recovery and destruction efficiency greater than 98%.

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.

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_2 or PM_{10}. PM10 emissions from the new S-1504 Ethanol Unloading Rack are less than 10 lb/day and BACT is not triggered. Other emissions from the loading rack modernization 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 measured at 1 centimeter (cm). 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 measured at 1 centimeter (cm). 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 measured at 1 centimeter (cm). 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.

Tesoro has stated that the loading rack will comply with the BACT 2 standards of 0.02 pounds of POC emitted per 1000 gallons of material loaded. As described in the "Statement of Compliance", the vapors from S-1025 are abated by the A-14 Vapor Recovery System. The vapor is compressed and is burned in the refinery process heaters, which have been shown to have a 99.9% POC destruction efficiency and the 0.02 lb POC per 1000 gallon BACT 2 limit should be met. (Tesoro has supported through source tests a 99.9% POC destruction efficiency for the A-14 Vapor Recovery System and process heaters in Application #6201.) BACT 1 has not been determined.

Offsets: Offsets are required because Tesoro emits more than 50 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:

POC offsets = 2714.372 lb/yr (1.15) = 3,121.528 lb/yr = 1.561 tpy

Tesoro has supplied Banking Certificate #932 to provide the required offsets.

Banking Certificate #	POC Banking Credits
932	35.002 tpy (Application Number 10880)

Balance of Banking Certificate #932 = 35.002 – 1.561 = 33.441 tpy

Offsets of PM10 are not required from the owner/operator for the installation of S-1504 Ethanol Unloading Rack. As per Regulation 2-2-303, offsets for PM10 are only required if the increase in PM10 emissions are in excess of 1.0 ton per year. The emissions of PM10 from the increased truck traffic associated with S-1504 are 0.78 tons per year and will be added to Tesoro's cumulative increase for PM10.

Cumulative Increase for PM10 for Tesoro = current cumulative increase in Databank
+ loading rack project PM10
= 0 + 0.78 = 0.78

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 Appendix C.

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. 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. In addition, Tesoro will comply with the more stringent BACT 2 emission limit of 0.02 lb of organic compounds per 1000 gallons of organic liquid loaded. The District Source Test Division 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 Appendix C. 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".

NESHAPS and PSD
NESHAPS and PSD do not apply.

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

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 Bottom Loading Facilities: Gasoline, Naphtha, Kerosene, Diesel, Fuel Oil, Ethanol

S-1504 Bulk Plant 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-6961, 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 is 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)

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)

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

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 per day
18,615,000 barrels 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 greater than 0.02 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. 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
- 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:

j. California Air Resources Board approval of A-14.
k. On a daily basis, type and amount of liquids transferred.
l. The throughput of material shall be added and recorded in the log for each month and for each rolling consecutive 12-month period.
m. 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)

<u>S-1504 Bulk Plant Unloading Rack: Ethanol</u>

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)

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 an Authority to Construct to Tesoro Refining and Marketing Company for modification of the following sources for the Loading Rack Modernization Project:

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

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

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

S-1504 Bulk Plant Unloading Rack: Ethyl Alcohol

EXEMPTIONS
none

By:_____

Pamela J. Leong
Air Quality Engineer II
November 4, 2004

Appendix A

Truck Loading Capacity Calculations

1) Absolute Total Possible Gasoline/Diesel Truck Rack Loading Capacity (based solely on equipment capacity)
2) Capacity based on logistics of truck loading

See Application Folder 10668

Appendix B

PM10 Calculations from Truck Traffic

See Application Folder 10668

Appendix C

Loading Rack Cost Calculations

See Application Folder 10668

ENGINEERING EVALUATION
Tesoro Refining and Marketing Company
PLANT NO. 14628
APPLICATION NO. 12404

BACKGROUND

This application is to amend a permit condition to the Permit to Operate for the Tesoro Refining and Marketing Company (Tesoro) for the following equipment:

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

In 1992, the owner of the refinery, Tosco, received the Authority to Construct to install new seals at S-612. The authority to construct authorized only storage of gasoline. During the issuance of the Permit to Operate, the condition was administratively changed to allow storage of other materials, subject to review and approval by the District.

Tosco explicitly requested approval to store ethyl alcohol (ethanol) in February 1992. Although there is no District document indicating approval, Ken Lim recalls the discussion between the District and Tosco, which alos involved Bill DeBoisblanc. At that time, the criteria applied by the District in reviewion material substitutions were volatility and toxicity. Ethanol is less volatile and less toxic than gasoline, and would have been approved without further review under the criteria then being applied.

After 1992, the Permits to Operate allow for "multi-liquid" storage and Tosco has stored ethanol at S-612 since that time. The language of condition 6740 part 4 was never updated to reflect this usage. It is being updated as part of the current application.

In condition 6740 part 4, Tesoro is allowed to store up to 243,000 barrels per year gasoline. The permit condition will be amended to explicitly state that ethyl alcohol is also allowed to be stored 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 243,000 barrels of ethanol are tabulated below. The Tanks 4.0 results are attached to the engineering evaluation report.

	Capacity (Gallons)	Throughput (Gallons)	Vapor Pressure (Psia)	Total POC
Ethanol	420,000	10,206,000	0.72 @ 60F	176.38 lb/yr = 0.088 tpy
Gasoline	420,000	10,206,000	7.58 @ 60F	2679.33 lb/yr = 1.340 tpy

Change in POC emissions = 176.38 – 2679.33 = -2502.59 lb/yr = - 1.251 typ

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 2-1-216 of the District's list of "Toxic Air Contaminant Trigger Levels". The ethanol or fuel ethanol can contain up to 5% gasoline. If ethanol is stored in S-612, it will be replacing the storage of gasoline and there will be a decrease in toxic air contaminants 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 m3 (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.

Per Section 2-1-311 of the District's rules and regulations, a permit application for a proposed new or modified source will be classified as ministerial and will accordingly be exempt from the CEQA requirement of Section 2-1-310 if the District's engineering evaluation and basis for approval of the permit application for the project is limited to the criteria set forth in Section 2-1-428 and to the procedures, fixed standards and objective measurements set forth in the District's Permit Handbook and BACT/TBACT Workbook. The method for determining whether a given permit application will be classified as ministerial is set forth in Section 2-1-427.

Per Section 2-1-427, if the District determines that its evaluation of the permit application is covered by the specific procedures, fixed standards and objective measurements set forth in the District's Permit Handbook and BACT/TBACT Workbook, the District's evaluation of the permit application is classified as ministerial and the engineering evaluation of the permit application by the District will be limited to the use of said specific procedures, fixed standards and objective measurements. For such projects, the District will merely apply the law to the facts as presented in the permit application, and the District's decision

regarding whether to issue the permit will be based only on the criteria set forth in Section 2-1-428 and in the District's Permit Handbook and BACT/TBACT Workbook.

For this permit application, the District determined that its evaluation of the permit application is covered by the specific procedures, fixed standards and objective measurements set forth in the District's Permit Handbook chapter 4.2 and BACT/TBACT Workbook. Since the District classified this permit application as ministerial pursuant to Section 2-1-427, and as a result of its evaluation of the permit application, the District determined that all of the criteria for approval of ministerial permit applications pursuant to Section 2-1-428 were met, the issuance by the District of an Authority to Construct and Permit to Operate for the proposed project is a mandatory ministerial duty and is accordingly exempt from the CEQA requirement of Section 2-1-310.

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, SO2 or PM10. 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 amendment of the permit conditions for S-612 to allow the throughput of 243,000 barrels per of gasoline to 243,000 barrels per year of ethanol does not result in an increase in emissions and 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. In an effort to streamline conditions, part 1 of the condition will be removed. The owner/operator is already subject to Regulation 8-5: Organic Compounds, Storage of Organic Liquids. Part 2 of the condition will also be removed to streamline the condition. Regulation 8-5-402.1 requires that "the entire circumference of each primary and secondary seal (shall) be inspected for compliance with the requirements of Sections 8-5-321 and 8-5-322. The time between inspections shall not exceed 10 years. If a new primary or secondary seal is installed, or if a primary or secondary seal is repaired, both seals shall be inspected at the time of the seal installation or repair." Monitoring and recordkeeping requirements of 8-5-501.2 require "For internal and external floating roof tanks, a person 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. Effective January 1, 2003, these records shall be kept for at least 10 years." If both the primary and secondary seals are to be replaced, a permit application must be sent to the District. Therefore all requirements of parts 1 and 2 of condition 6740 are contained in Regulation 8-5.

Part 4 of the condition will be amended to explicitly allow the storage of ethyl alcohol (ethanol). In 1992, when Tosco received the Authority to Construct to install new seals, the tank was permitted for gasoline only. During the issuance of the Permit to Operate, the condition was changed to allow storage of other materials, pending review and approval by the District. As memorialized in Tosco letters, which are available for review in the permit application folder, the review was limited to toxicity and volatility. Tosco explicitly requested approval to store ethanol in February 1992. Although there is no document indicating approval, ethanol is less volatile and less toxic than gasoline, and would have been approved without further review under the criteria being applied. Permits to operate prior to 1992 allow for the storage of "gasoline". After 1992, the Permits to Operate allowed for "multi-liquid" storage. Copies of these Permits to Operate are also available for review in the permit application folder. The language of Condition 6740 was never updated to reflect this change.

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.

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

Permit conditions for S-612, internal floating roof storage tank.

~~1. Permittee/Owner/Operator shall ensure that the floating roof and primary and secondary seals installed on storage tank S-612 meet the design specifications and seal gap requirements of District Regulation 8, Rule 5 for an internal floating roof tank with welded shell and metallic shoe primary seal and secondary wiper seal. (basis: Regulation 8-5, cumulative increase)~~

~~2. To verify compliance with Condition #1 above, Permittee/Owner/Operator of S-612 shall submit to the District, within 30 days of installation or replacement of the primary and secondary seals, a written report of the seal condition and gap allowances of the primary and secondary seals, including certification of the actual gap measurements between the tank shell and seal surface. For each seal, Permittee/Owner/Operator shall ensure that the time interval between such certifications does not exceed 10 years.~~

1. ~~3. Permittee/~~Owner/Operator shall ensure that the total liquid throughput for storage tank S-612 does not exceed 243,000 barrels during any consecutive 12 month period.

(basis: cumulative increase)

2.~~4.~~ ~~Permittee/~~Owner/Operator shall ensure that only gasoline and ethyl alchol is 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.~~5.~~ -In order to demonstrate compliance with the above conditions, the ~~Permittee/~~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.
~~Permittee/~~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: Gasoline *and Ethyl Alcohol*

EXEMPTIONS
none

By:_____
Pamela J. Leong
Air Quality Engineer II
April 8, 2005

Appendix A
Federal NESHAPS

S612 – Tank A-612

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

S612 – Tank A-612

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

S612 – Tank A-612

Applicable Requirement	Regulation Title or Description of Requirement		Federally Enforceable (Y/N)	Future Effective Date
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) **REQUIRED**	***Y***	
	IFR rim space vents to remain closed except when the pressure setting is exceeded?	63.646(f)(2) **REQUIRED**	***Y***	
	IFR auto. bleeder vent (vacuum breaker) to be closed except when the deck is landed?	63.646(f)(3) **REQUIRED**	***Y***	
63.646(g)	**This notes that the failure to perform inspections and required monitoring is a violation of the application standard.**		***Y***	
63.646(l)	**Notification of Inspections:** Is the State or local authority allowed to waive the notification requirements?	63.646(l) 63.654(h)(2)(i)(C)&(ii) **YES**	***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) **begin Sept 13, 1999 then semiannual**	***Y***	
	Periodic Reports: Report of IFR/CFR inspections that find out-of-compliance?	63.654(g)(2) - (4) **Required within 60 days after each semiannual period**	***Y***	
	Periodic Reports: Report of IFR/CFR inspection failures to include:	63.654(g)(2) - (4) **date of inspec, identification of tank, description of failure, & date of repair or emptying**	***Y***	
	Periodic Reports: IFR/CFR report to include prior request for 30-day extension, w/ documentation of need?	63.654(g)(2) - (4) **prior request is not required**	***Y***	
	Periodic Reports: Additional information to be included if an extension is utilized for an IFR/CFR:	63.654(g)(2)(i) 63.654(g)(3)(ii) **document the reason for the extension**	***Y***	

S612 – Tank A-612

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

APPENDIX C

EPA Letter of October 8, 2004