Bay Area Air Quality Management District

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

for

ConocoPhillips – San Francisco Refinery
Facility #A0016

Facility Address:
1380 San Pablo Avenue
Rodeo, CA 94572

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May 2006

Application 12433

Application Engineer: Brenda Cabral
Site Engineer: Brenda Cabral

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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, Rule 10 requirements, corrected errors, and incorporated some new sources and permit conditions on December 16, 2004.

Previously, on October 8, 2004, EPA sent a letter containing two objections to the permit; EPA also provided various comments that did not rise to the level of an objection. The letter is attached in Appendix B. The objection issues are the subjects of a reopening to the permit that was proposed on February 1, 2005. The revised permit was issued on April 12, 2005**.**

This reopening addresses the comments in the letter related to this facility. (Note that EPA commented on five refineries in this letter. Not all comments concern this facility.) In particular, the results of Application 10349 for Authority to Construct for the facility cooling towers are being proposed in this action. The facility submitted Application 14112 on December 27, 2005 to modify the monitoring requirements for the cooling towers added in Application 10349. The permit was issued on April 28, 2006, and those changes are also being proposed in this action.

In addition, some issues raised in the refinery's appeal to the December 16, 2004 permit and some refinery comments on that permit are 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 District is soliciting public comment on the proposed revisions.

This statement of basis concerns only changes to the permit. Comprehensive statements of basis were prepared for the initial issuance of the permit and for the reopening issued on December 16, 2004. These are available on request.

B. Facility Description

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

C. Permit Content

Additional information concerning the legal and factual basis of the Title V permit conditions is presented below. The information is organized by the relevant section of the Title V permit. All changes to the permit are shown in strikeout/underline format.

I. Standard Conditions

This section contains administrative requirements and conditions that apply to all facilities. Many of these conditions derive from 40 CFR § 70.6, Permit Content, which dictates certain standard conditions that must be placed in the permit. The language that the District has developed for many of these requirements has been adopted into the BAAQMD Manual of Procedures, Volume II, Part 3, Section 4, and therefore must appear in the permit.

The standard conditions also contain references to BAAQMD Regulation 1 and Regulation 2. These are the District's General Provisions and Permitting rules.

Changes to permit
The dates of adoption of Regulation 2, Rules 1, 2, 4, and 6 have been updated.

The EPA approval dates for SIP Regulation 1, SIP Regulation 2, Rules 1, 2, and 4 have been corrected.

The following language was added to Standard Condition I.B.1: "If the permit renewal has not been issued by [ ], but a complete application for renewal has been submitted in accordance with the above deadlines, the existing permit will continue in force until the District takes final action on the renewal application." This is the "application shield" pursuant to BAAQMD Regulation 2-6-407.

The following language was added as Standard Condition I.B.12: "The permit holder is responsible for compliance, and certification of compliance, with all conditions of the permit, regardless whether it acts through employees, agents, contractors, or subcontractors. (Regulation 2-6-307)." The purpose is to reiterate that the Permit Holder is responsible for ensuring that all activities at the facility comply with all applicable requirements.

Regulation 3, Fees, has been removed from the basis for Standard Conditions I.E.2 and I.F because it is an incorrect basis for these conditions.

The initial deadlines for monitoring reports and compliance certifications in Standard Conditions I.F and I.G have been deleted because they are obsolete.

Miscellaneous conditions I.J.5-I.J.8 were deleted because the information required has been submitted to the District.

Standard Condition I.J.8 has been deleted because the facility has supplied information to determine applicability of 40 CFR 61, Subpart FF.

II. Equipment

This section of the permit lists all permitted or significant sources. Each source is identified by an S and a number (e.g., S24 or S-24).

Permitted sources are those sources that require a BAAQMD operating permit pursuant to BAAQMD Rule 2-1-302.

Significant sources are those sources that have a potential to emit of more than 2 tons of a "regulated air pollutant," as defined in BAAQMD Rule 2-6-222, per year or 400 pounds of a "hazardous air pollutant," as defined in BAAQMD Rule 2-6-210, per year.

All abatement (control) devices that control permitted or significant sources are listed. Each abatement device whose primary function is to reduce emissions is identified by an A and a number (e.g., A-24). If a source is also an abatement device, such as when an engine controls VOC emissions, it will be listed in this table but will have an "S" number. An abatement device that is also a source (such as a thermal oxidizer that burns fuel) will have an "A" number.

The equipment section is considered to be part of the facility description. It contains information that is necessary for applicability determinations, such as fuel types, contents or sizes of tanks, etc. This information is part of the factual basis of the permit.

Each of the permitted sources has previously been issued a permit to operate pursuant to the requirements of BAAQMD Regulation 2, Permits. These permits are issued in accordance with state law and the District's regulations. The capacities in this table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-403.

Changes to permit

Cooling towers

EPA commented in its letter of August 2, 2004, that the permit for Conoco did not list all cooling towers in the permit.

The District subsequently informed Conoco of the need to submit an application for the cooling towers to determine whether the sources were subject to permits in accordance with BAAQMD Regulation 2-1-319 or were significant sources in accordance with BAAQMD Regulation 2-6-239.

Conoco submitted some information with Application 10349. Complete calculations were submitted by January 31, 2005. Following is a table identifying the eight cooling towers, their capacities in gpm, and the estimated emissions:

Source #	Capacity, gpm	PM10, tpy	VOC, tpy
452	13,800	3.19	2.54
453	5,500	12.92	1.01
454	8,000	18.80	1.47
455	30,000	56.51	5.52
456	750	0.25	0.14
457	7,639	0.09	1.41
458	1,150	0.40	0.21
500	2,500	1.45	0.46
Total		93.21	12.55

Based on this information the District determined that three cooling towers (S452, S453 and S454) require District permits pursuant to BAAQMD Regulation 2-1-319 because they emit more than 5 tons particulate per year. All particulate is assumed to be PM10. Another cooling tower (S452) emits more than 2 tons particulate and more than 2 tons VOC per year, so it is significant pursuant to BAAQMD Regulation 2-6-239. The remaining four cooling towers are considered exempt, non-significant sources. They require conditions to ensure that they remain exempt and non-significant.

All of these sources have been exempt since the date of construction, so there is no emissions increase. However, the emissions inventory will be corrected.

Stormwater Basins

The capacity of the stormwater basins, S1008 and S1009, has been corrected from 7000 gpm to 2.3 MMgal and 7.2 MMgal, respectively. The capacity for storage of water is more appropriately expressed in volume, not rate.

Changes after public notice

Sources S453 and S454 are actually the same source. Therefore, S454 will be deleted and the capacity of S454 will be increased to reflect the total assigned to both source numbers.

Table II A - Permitted Sources

Each of the following sources has been issued a permit to operate pursuant to the requirements of BAAQMD Regulation 2, Permits. The capacities in this table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-301.

S#	Description	Make or Type	Model	Capacity
453	U236 Cooling Tower	Induced draft	Unknown	~~5,500~~ 13,500 gpm
~~454~~	~~U238 Cooling Tower~~	~~Induced draft~~	~~Unknown~~	~~8,000 gpm~~

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.

Some sources are exempt from normal District permits pursuant to an exemption in BAAQMD Regulation 2, Rule 1. They may, however, be specifically described in a Title V permit if they are considered a significant source pursuant to the definition in BAAQMD Regulation 2-6-239.

Changes to permit

Language has been added to Section III to clarify that this section contains requirements that may apply to temporary sources. This provision allows contractors that have "portable" equipment permits that require them to comply with all applicable requirements to work at the facility on a temporary basis, even if the permit does not specifically list the temporary source. Examples are temporary sand-blasting or soil-vapor extraction equipment.

Section III has been modified to say that SIP standards are now found on EPA's website and are not included as part of the permit.

Table III has been updated by adding the following rules and standards to conform to current practice:

- BAAQMD Regulation 8, Rule 4, General Solvent and Surface Coating Operations
- BAAQMD Regulation 8, Rule 47, Air Stripping and Soil Vapor Extraction Operations
- SIP Regulation 8, Rule 51, Adhesive and Sealant Products
- BAAQMD Regulation 9, Rule 1, Sulfur Dioxide
- SIP Regulation 9, Rule 1, Sulfur Dioxide
- BAAQMD Regulation 11, Rule 2, Asbestos Demolition, Renovation and Manufacturing
- California Health and Safety Code Section 41750 et seq., Portable Equipment

- California Health and Safety Code Section 44300 et seq., Air Toxics "Hot Spots" Information and Assessment Act of 1987

The dates of amendment of several standards have been updated.

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 (unless they have been assigned a District permit condition number, in which case they are included as BAAQMD 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.

<u>Complex Applicability Determinations</u>
<u>BAAQMD Regulation 8, Rule 2, Miscellaneous Operations</u>
This draft statement of basis contained a discussion of the applicability of BAAQMD Regulation 8, Rule 2, to flares. This discussion has been moved to the statement of basis for Application 12601 (Revision 3).

<u>40 CFR 61, Subpart FF, National Emission Standard for Benzene Waste Operations</u>
The applicability of 40 CFR 61, Subpart FF, National Emission Standard for Benzene Waste Operations, was not discussed in the original statement of basis that was finalized on December 1, 2003.

This standard was discussed in the engineering evaluation for Application 5814, which was included in the statement of basis for the reopening that was completed on December 16, 2004. Following is the discussion for this issue, which is found on page 45 of the evaluation:

61.340(a)	Applicability
61.340(c)	Applicability: Exempt Waste
61.342	Standards: General
61.342(a)	Exemption for facilities with less than 10 Mg/yr of benzene in waste
61.355	Test methods, procedures and compliance provisions
61.355(b)(1)	Quantification of annual waste quantity at sour water strippers (This section will be deleted and 61.355(b) will be added, since the whole section applies.)
61.355(c)(1)(i)(A)	Quantification of flow-weighted annual average benzene concentration (This section will be deleted and 61.355(c) will be added, since the whole section applies.)
61.356	Recordkeeping requirements
61.356(a)	Recordkeeping and retention requirements
61.356(b)	Waste stream records
61.357	Reporting requirements
61.357(c)	Reporting requirements for facilities with less than 10 Mg/yr total benzene in waste

The following additional requirements will be added to the table for the reasons in the parentheses (unless the reason is obvious):

61.340(b)	Applicability: Hazardous waste (This section applies because the refinery has a RCRA subpart C permit.)
61.340(d)	Exemption for gaseous streams routed to fuel gas systems (Any streams routed to fuel gas systems are not included in the total benzene waste.)
61.342(g)	Compliance with this part using methods in Section 61.355
61.355(a)	Determination of total annual benzene quantity from facility waste (This determination is required of all refineries.)
61.355(b)	Determination at point of waste generation (This determination is required of all refineries.)
61.355(c)	Determination of flow-weighted annual average benzene concentration (This determination is required of all refineries.)
61.357(a)	Reports after startup (This report is necessary if the facility adds a new source.)

<u>MACT Subpart CC applicability for flares</u>

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 non-routine 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." Process gas collected by the gas recovery system at this facility 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 non-routine releases such as those associated with startup, shutdown, malfunction, maintenance, depressurizing, and catalyst transfer operations are, by definition, not miscellaneous process vents, and are not subject to Subpart CC.

<u>Cooling towers</u>
EPA commented in their letter of August 2, 2004, that the permit for Conoco did not have applicable requirements for their cooling towers. This assertion is not entirely accurate; Regulation 6 and Regulation 8, Rule 2, are in Section III, Generally Applicable Requirements. Section III includes requirements for exempt sources, including the cooling towers.

All cooling towers will be subject to similar conditions because they are subject to the same regulatory requirements, regardless of their permitting status. Cooling towers are subject to BAAQMD Regulation 6, Particulate Matter and Visible Emissions. While they may be subject to BAAQMD Regulation 8, Rule 2, Miscellaneous Operations, Section 8-2-114 exempts cooling towers, provided that "best modern practices" are used.

The District has determined that "best modern practices" for operation of refinery cooling towers 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, Rule 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. Permit conditions 22121 and 22122 have been added to ensure that the facility continues to use these practices. Tables IV-CC.1 and IV-CC.2 for the cooling towers have also been added.

The engineering evaluation for Application 10349 is attached in Appendix C and is incorporated by reference in this statement of basis.
[See discussion below in "Changes to statement of basis after public notice" regarding a change in the discussion above for S456, Cooling Tower, and a change in the requirements that apply to all of the facility's cooling towers under BAAQMD Regulation 8, Rule 2.]

Compliance with BAAQMD 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 BAAQMD Regulation 9-1-313.2. Regulation 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. ConocoPhillips has 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 this permit was established pursuant to BAAQMD Regulation 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 BAAQMD Regulation 2, Rule 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 same provisions are included in the permits for all five Bay Area refineries. 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 BAAQMD Regulation 9-1-313.2, the District now believes that compliance with 9-1-313.2 is sufficiently assured at this facility 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 BAAQMD Regulation 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. Regulation 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.

Regulation 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 BAAQMD Regulation 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 BAAQMD Regulation 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, there are regulatory and operational reasons for the facility to maintain H2S concentrations at very low levels in the SRU. 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, BAAQMD Regulation 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 BAAQMD Regulation 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.

Other Changes to permit

Section IV has been modified to say that SIP standards are now found on EPA's website and are not included as part of the permit.

The date of amendment of Regulation 2, Rule 1, has been updated.

The citation of BAAQMD Condition 20620 in Table IV-N has been corrected to say "applicable to S306 and S308 only" instead of S307 and S308. The requirement for an application for 40 CFR 63, Subpart UUU applies to the platforming and reforming units, not the unicracking unit.

BAAQMD Regulation 8, Rule 9, Vacuum Producing Systems, has been deleted from Table IV-N because the District has determined, based on information provided by the refinery, that none of the sources—S304-S309, S318, S319, S322, S435-S437, and S460—have vacuum producing systems.

The description of 40 CFR 60, Subpart VV, Section 482-8, in Table IV-AB, Components, was expanded.

The names of all the tank tables were changed from "B" series to "BB" series.

Changes to statement of basis after public notice:

Cooling Towers

The discussion of BAAQMD Regulation 8, Rule 2, for cooling towers does not apply to S456, Cooling Tower, because no chlorine is added and no analyses of chlorine are performed. This is fully explained in the evaluation for Application 10349, attached, which forms part of this Statement of Basis.

The facility submitted Application 14112 on December 27, 2005 to modify the monitoring requirements for the cooling towers. The permit was issued on April 28, 2006, and the changes are being proposed in this action. The facility proposed a decrease in the frequency of chlorine

content monitoring at S452, S453, S455, S457, S458, and S500 from 2 times/day to 3 times per week together with a monthly analysis for VOC content of the water even when there is no indication of a leak. Because this reduction in monitoring frequency would not comply with the District's determination of "best modern practices" for the purposes of BAAQMD Regulation 8-2-114, the facility has agreed that BAAQMD Regulation 8, Rule 2, will apply to all cooling towers. These requirements have been added to Table IV-CC.1

40 CFR 61, Subpart FF, National Emission Standard for Benzene Waste Operations
On November 29, 2005, the facility submitted a report to EPA that stated that the facility generates more than 10 Mg of benzene per year in waste streams and is not entitled to the exemption in 40 CFR 61.342(a). The facility is required to submit a plan for compliance to EPA by May 31, 2006.

Therefore, the permit that was issued on March 2, 2006 contains a schedule of compliance for this requirement. After the facility submits a plan to EPA that has details of the compliance options chosen, the District will reopen the Major Facility Review permit to include the requirements.

Nonetheless, addition of the sections that are proposed in this action is appropriate.

V. Schedule of Compliance

A schedule of compliance is required in all Title V permits pursuant to BAAQMD Regulation 2-6-409.10 that provides that a major facility review permit shall contain the following information and provisions:

"409.10 A schedule of compliance containing the following elements:

- 10.1 A statement that the facility shall continue to comply with all applicable requirements with which it is currently in compliance;
- 10.2 A statement that the facility shall meet all applicable requirements on a timely basis as requirements become effective during the permit term; and
- 10.3 If the facility is out of compliance with an applicable requirement at the time of issuance, revision, or reopening, the schedule of compliance shall contain a plan by which the facility will achieve compliance. The plan shall contain deadlines for each item in the plan. The schedule of compliance shall also contain a requirement for submission of progress reports by the facility at least every six months. The progress reports shall contain the dates by which each item in the plan was achieved and an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted."

A Schedule of Compliance is included in the permit for marine wharfs S-425 and S-426 because no monitoring exists to comply with the requirements of 40 CFR 60 Subpart J 60.105(a)(4) to verify the H2S concentration in gas combusted at the A-420 oxidizer that abates emissions from S-425 and S-426.

An addition to the schedule of compliance will be proposed as a minor revision in Application 11626.

Changes to permit and statement of basis after public notice:

The schedule of compliance mentioned above was added to the permit issued on March 2, 2006.

VI. Permit Conditions

The following permit condition has been deleted:

CONDITION 20620

1. By October 11, 2004, the owner/operator shall submit a complete application for a significant revision to the Major Facility Review permit to incorporate the limits, compliance options, and monitoring requirements in 40 CFR 63, Subpart UUU, National Emission Standards for Hazardous Air Pollutants for Petroleum Refineries: Catalytic Cracking Units, Catalytic Reforming Units, and Sulfur Recovery Units. [Basis: 40 CFR 63, Subpart UUU]

2. By April 11, 2005, the owner/operator shall submit an Operation, Maintenance and Monitoring Plan for District review in accordance with 40 CFR 63.1574(f). The plan shall be submitted to the Director of Enforcement. [Basis: 40 CFR 63.1574(f)]

The facility has submitted an application in accordance with part 1; therefore part 1 is obsolete. Part 2 has been deleted because EPA has changed the deadline for submittal of the OMM plan. Since 40 CFR 63, Subpart UUU is cited in the permit, the permit will rely on that citation for compliance instead of a permit condition.

Permit conditions 22121 and 22122 have been added for the cooling towers. The text is in the Engineering Evaluation for Application 10349, which is attached in Appendix C.

The permit conditions ensure that "best modern practices" are used, that accurate information will be available for the emissions inventory and fees, and add additional monitoring when there is a hydrocarbon leak.

Changes to permit and statement of basis after public notice:
As explained in Section C.IV of this statement of basis and in the attached engineering evaluation for Application 14112, BAAQMD Condition 22121 has been amended as follows:

CONDITION 22121
For Sources S452, S453, -S455, S457, S458, S500, Cooling Towers (Application 10349)

2. The owner/operator shall take a sample of the cooling tower water ~~every shift (twice per day)~~ 3 times per week at each cooling tower above and analyze for chlorine content as an indicator of hydrocarbon leakage into the cooling water. On a monthly basis, the owner/operator shall sample the water in the inlet line and in the return line of each cooling tower and determine the VOC content in each line using EPA laboratory method 8015. (Regulation 2-6-503)

8. The owner/operator shall maintain the following records for five years from the date of record:

a. Records of daily visual inspection
b. Records of chlorine content every shift ~~(twice/day)~~3 times per week
c. Records of ~~daily~~ monthly usage of sodium hypochlorite
d. Records of monthly determination of total dissolved solids
e. Records of any indications of hydrocarbon leaks
f. Records of any analyses of VOC content in cooling tower inlet and outlet

(Regulation 2-6-501)

VII. Applicable Limits and Compliance Monitoring Requirements

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

PM Sources

S# & Description	Federally Enforceable Limit Citation	Federally Enforceable Limit	Monitoring
S452-S458, S500	BAAQMD 6-301	Ringelmann 1 for more than 3 minutes in any hour	None
S452-S458, S500	BAAQMD 6-310	0.15 grain/dscf	None.
S452-S458, S500	BAAQMD 6-311	40 lb particulate/hr	None

As discussed in the Engineering Evaluation for Application 10349, which is attached in Appendix C, there is no possibility that the cooling towers will not comply with BAAQMD Regulation 6. Because the margin of compliance is high, no monitoring has been imposed for compliance with this regulation.

Monthly monitoring of total dissolved solids has been imposed so that the facility can accurately estimate particulate emissions for fees. There is no limit associated with this monitoring.

VOC Sources

S# & Description	Federally Enforceable Limit Citation	Federally Enforceable Limit	Monitoring
S452-S458, S500	None	None	Daily visual inspection
S452-S455, S457, S458, S500	None	None	Analysis of chlorine content twice per day
S452-S455, S457, S458, S500	None	None	Daily records of NaOCl usage
S452-S458, S500	None	None	Daily estimate of VOC loss after 4 weeks of indication of hydrocarbon leak
S456	BAAQMD 8-2-301	300 ppm as carbon and 15 lb organic compounds/day	Daily visual inspection

Although Cooling Towers, S452-S455, S457, S458, and S500, are small sources of VOC, they are not subject to any limit. Therefore, no monitoring has been imposed to ensure compliance with any limit. Monitoring has been imposed to ensure that the facility uses "best modern practices" for the sources.

S456 is subject to BAAQMD Regulation 8-2-301. As shown in the draft Engineering Evaluation for Application 10349, attached, the cooling tower is small and the margin of compliance is approximately 1000 to 1. Therefore, the only monitoring for VOC is a daily visual inspection.

Changes to permit and statement of basis after public notice:
As explained in Section C.IV of this statement of basis and in the attached engineering evaluation for Application 14112, the VOC monitoring and the applicable requirements have been amended as follows:

VOC Sources

S# & Description	Federally Enforceable Limit Citation	Federally Enforceable Limit	Monitoring
S452, S453, S455, S457, S458, S500	BAAQMD 8-2-301	300 ppm carbon and 15 lb/day	Daily visual inspection
S452, S453, S455, S457, S458, S500	BAAQMD 8-2-301	300 ppm carbon and 15 lb/day	Analysis of chlorine content 3 times per week
S452, S453, S455, S457, S458, S500	BAAQMD 8-2-301	300 ppm carbon and 15 lb/day	Monthly analysis of VOC content using EPA Method 8015
~~S452, S453, S455, S457, S458, S500~~	~~None~~	~~None~~	~~records of NaOCl usage~~
S452, S453, S455, S457, - S458, S500	BAAQMD 8-2-301	300 ppm carbon and 15 lb/day	Weekly estimate of VOC loss after 4 weeks of indication of hydrocarbon leak
S456	BAAQMD 8-2-301	300 ppm as carbon and 15 lb organic compounds/day	Daily visual inspection

The monitoring for chlorine usage was intended to estimate how much chloroform is emitted from the cooling towers due to use of chlorine. The "Type of Limit" in Table VII.CC.1 has been changed from "Organic compounds" to "Chloroform." The frequency has been corrected to the frequency in the permit condition.

Chloroform Sources

S# & Description	Federally Enforceable Limit Citation	Federally Enforceable Limit	Monitoring
S452, S453, - S455, S457, S458, S500	None	None	Monthly records of NaOCl usage

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.

Changes to permit
The leak inspection procedures and visual inspection procedures from 40 CFR 61, Subpart FF, have been deleted because they do not apply, as discussed in Section C.IV above.

Changes to permit and statement of basis after public notice:
The above changes have been reversed since 40 CFR 61, Subpart FF does apply as discussed in Section C.IV.

IX. Permit Shield:

No changes to permit shields are proposed in this revision. However, the introductory language has been standardized.

X. Revision History
The revision history will be updated.

XI. Glossary
The term "NaOCl" was added.

XII. State Implementation Plan
This section was deleted because the web address for EPA's website containing the SIP is now found in the introduction to Sections III and IV of the permit.

D. Alternate Operating Scenarios

No alternate operating scenario has been requested for this facility.

E. Compliance Status:

As discussed in Section C.IV, the facility is out of compliance with the Benzene Waste NESHAPS, 40 CFR 61, Subpart F. A schedule of compliance was added to the permit that was issued on March 2, 2006.

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APPENDIX A

GLOSSARY

ACT
Federal Clean Air Act

APCO
Air Pollution Control Officer

ARB
Air Resources Board

BAAQMD
Bay Area Air Quality Management District

BACT
Best Available Control Technology

Basis
The underlying authority that allows the District to impose requirements

CAA
The federal Clean Air Act

CEQA
California Environmental Quality Act

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.

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.

District
The Bay Area Air Quality Management District

dscf
Dry Standard Cubic Feet

dscm
Dry Standard Cubic Meter

EPA
The federal Environmental Protection Agency

Excluded
Not subject to any District Regulations

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

grains
7000 grains per pound

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.

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.

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.

MOP
The District's Manual of Procedures

NA
Not Applicable

NAAQS
National Ambient Air Quality Standards

NaOCl
Sodium Hypochlorite

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

NOx
Oxides of nitrogen.

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.)

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.

POC
Precursor Organic Compounds

PM
Total Particulate Matter

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

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.

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.

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.

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

tpy
tons per year

TRMP
Toxic Risk Management Plan

TSP
Total Suspended Particulate

VOC
Volatile Organic Compounds

Units of Measure:

bbl	=	barrel of liquid (42 gallons)
bhp	=	brake-horsepower
btu	=	British Thermal Unit
C	=	degrees Celcius
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
MMBtu	=	million btu
mm	=	millimeter
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 then
>	=	greater then
≤	=	less then or equal to
≥	=	greater then or equal to

APPENDIX B
EPA'S LETTER OF OCTOBER 8, 2004

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

October 8, 2004

Mr. Jack Broadbent
Air Pollution Control Officer
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

Re: EPA Review of Proposed Title V/ Major Facility Review Permits:
Chevron Products Company (Richmond) #A0010,
ConocoPhillips Company #A0016 (Rodeo),
Shell Oil Products US #A0011 (Martinez),
Tesoro Refining and Marketing Company (Martinez) #B2758 & B2759,
Valero Refining Company #B2626 (Benicia)

Dear Mr. Broadbent:

We are enclosing with this letter the results of our review of the proposed permits the District submitted to EPA on August 25th, 2004 for Chevron Products Company; ConocoPhillips Company; Shell Oil Products US, Tesoro Refining and Marketing Company; and Valero Refining Company. Please note the following attachments to this letter: Attachment 1, "List of Objection and Reopening Issues;" Attachment 2, "List of Applicability and Monitoring Determinations;" Attachment 3, "List of Issues Addressed by BAAQMD by Letters dated October 6 and 8, 2004;" and Attachment 4, "List of Comments."

With respect to the issues identified in Attachment 1, EPA formally objects to the issuance of the proposed permits, pursuant to our authority under Clean Air Act ("CAA") section 505(b)(1) and the implementing regulations at 40 CFR § 70.8(c) (see also, BAAQMD Rule 2-6-411). Under CAA section 505(b)(1) and 40 CFR § 70.8(c), EPA may object to a proposed Part 70 permit that is determined not to be in compliance with applicable requirements or the requirements of Part 70. After EPA objects to a permit, the permitting authority has 90 days to revise and submit a proposed permit in response to the objection.

For the reasons set forth in our letter to you dated February 4, 2004, EPA is also invoking its reopening authority under section 505(e) of the Act and 40 CFR §70.7(g)(1). Pursuant to those authorities, EPA is notifying the District that cause exists to reopen the permit for the first issue identified in Attachment 1 ("Monitoring Required by 40 CFR NSPS VV, NSPS QQQ, and NESHAP V"). According to 40 C.F.R. §70.7(g)(2), BAAQMD has 90 days to submit to EPA a proposed determination in response to this notification. We believe that 90 days is a reasonable time frame for BAAQMD to submit revised permits to EPA in response to this notification.

With respect to the issues identified in Attachment 2, the District has agreed to submit applicability determinations to EPA by February 15, 2005 and to publish a notice to include any necessary revisions to the permits by April 15, 2005. This process will ensure that any unresolved applicability issues are addressed in a timely manner. The issues identified in Attachment 3 are those for which the District has agreed to make certain changes to the permits before issuing them. EPA appreciates the District's efforts to address EPA's concerns in these areas.

We are committed to working with you to resolve the issues we have identified as expeditiously as possible. If you have any questions concerning these issues, please contact me at (415) 947-8715 or have your staff contact Gerardo Rios, Chief of the Permits Office, at (415) 972-3974.

Sincerely,

Signed by

Deborah Jordan
Director, Air Division

Attachments

cc: See attached list

cc:
Adams, Broadwell, Joseph & Cardozo - Daniel Cardozo, et. al.
California Air Resources Board - Mike Tollstrup
Chevron Products Company - Jim Whiteside
Communities for a Better Environment - Will Rostov
Conoco-Phillips Company - Willie W. C. Chiang
Golden Gate University - Marcie Keever, et al
Shell Martinez Refinery - Aamir Farid
Tesoro Refining and Marketing Company - J. W. Haywood
Valero Refining Company - John U. Roach

Attachment 1
List of Objection and Reopening Issues

1. Monitoring Required by 40 CFR NSPS VV, NSPS QQQ, and NESHAP V
All Refineries

The permits lack monitoring to assure compliance with the following standards: 40 CFR 60.482-10(c), 60.692-5(a), and 61.242-11(c). These standards require that enclosed combustion devices be designed and operated to reduce VOC emissions by 95% or to provide a minimum residence time at a specified temperature.

The permits do not contain any way to show compliance with the residence time requirement, nor has the District indicated an intent to add a compliance method. We understand that residence time is to some degree a design specification in that the combustion chamber is designed to a specified volume to provide a target residence time for a given throughput. However, throughput to enclosed combustion control devices such as thermal oxidizers can vary, altering the residence time even for properly designed devices.

The standards cited above specifically require that enclosed combustion devices be designed *and operated* to provide a minimum residence time at a minimum temperature. Unless the District is able to adequately demonstrate that the control devices subject to these standards were designed to achieve the required residence time at the maximum anticipated flow rate, and that appropriate parameters are being monitored to assure compliance pursuant to 40 CFR 60.486(d), 60.697(d), and 61.246(d), flow rate monitors must be installed and operated.

2. Federal Enforceability of Permit Terms
Conoco-Phillips

The District has changed the designation for fuel limits that apply to many combustion sources from federally enforceable to not federally enforceable. For example, see Condition #1694 in Table IV - A.2 for Source S-3, and similar conditions that are listed for all of the combustion units other than gas turbines, flares, emergency engines, and newly added heater S-26. Limits created through prior NSR permits are federally enforceable Title V permit requirements. Please see March 31, 1999 letter from John Seitz, Director of EPA's Office of Air Quality Planning and Standards, to Doug Allard, CAPCOA President.

Please note also that the statement of basis states that Conoco-Phillips has relied on throughput limits in this condition to determine that New Source Review does not apply in at least several cases, as noted in Application 5814, attachment F. For instance, section

2.7.1 states that due to the condition 1694 “existing permit conditions limiting fuel use ... increased production of steam will not be considered a modification and increase will not be quantified.”

Attachment 2
List of Applicability and Monitoring Determinations

The District has agreed to review the following applicability and monitoring determinations by February 15, 2005 and to publish a public notice of any necessary revisions to the permits by April 15, 2005.

1. 40 CFR Part 63 (MACT), Subpart CC applicability for Flares
All Refineries

The Refinery MACT (40 CFR Part 63, Subpart CC) is not included in the applicable requirements tables for flares in any of the refinery Title V permits. Subpart CC contains an exemption from testing, monitoring, recordkeeping, and reporting (TMRR) requirements for refinery fuel gas systems or emission points routed to refinery fuel gas systems (40 CFR 63.640(d)(5)). The revised statements of basis for the Chevron, Shell, and Valero permits indicate that the District considers all emissions from emission points connected to a vapor recovery system the fuel gas system to be exempt, even if the vapor recovery system is not operated and the emissions are flare instead. (See, for instance, p20 of the Valero Statement of Basis) The District therefore proposes to exempt all flares from Subpart CC's testing, monitoring, recordkeeping, and reporting (TMRR) requirements. (The statements of basis for Conoco-Phillips and Tesoro do not contain any applicability determination for flares.)

The District's position that flares are categorically exempt from Subpart CC when used as a alternative to a fuel gas system (see Valero p20) is incorrect. Gases directed to a flare instead of the fuel gas system are not part of the fuel gas system, even if there is common piping between where gases are released from a unit and where the system branches off to either the flare, or the fuel gas system. While the statements of basis for the five refineries generally do not contain enough information to determine applicability, the information in the Valero permit and Statement of Basis indicate that Valero flares S-18 and S-19 are examples of incorrect applicability determinations.[1]

The District has agreed to review the applicability determinations regarding flares and MACT Subpart CC. For all flares subject to MACT Subpart CC, the Title V permit for any such flare must include the applicable requirements of MACT CC, such as 40 CFR 63.643(a)(1), 63.644(a)(2), and 63.653(a)(1), and Subpart A (note that the Tesoro permit

[1]Table II A of the Valero permit states that four permitted flares S-16, S-17, S-18, and S-19 burn refinery waste gas. The District requires that Valero use S-18 and S-19 as a routine emissions control device (p. 413 of Table IV and pp 432-3 of section VI), as opposed to other units (p 485 in Section VI of the permit) that are required to vent to the refinery fuel gas system or a boiler.

contains citations to 63.11 but not the other requirements in Tables IV-U, IV-Xb, IV-Xc, and Xd).

2. Unit-specific NESHAP Subpart FF Requirements
Tesoro

Although the requirements of 40 CFR Part 61, Subpart FF are applicable to the Tesoro refinery, the District did not identify the subpart as an applicable requirement in any unit-specific tables in the permit. The complexity of the regulation, coupled with the lack of specificity in the permit, make the compliance obligations of the facility unclear.

3. Regulation 8-2 and Hydrogen Plant Vents
Shell and Tesoro

The Shell and Tesoro permits fail to include Regulation 8-2, Miscellaneous Operations, as an applicable requirement for CO_2 vents (also called "dearator") or other vents at Shell Hydrogen Plants 1, 2 and 3 and Tesoro Hydrogen Plant 1. CO_2 generation is an inherent part of the steam-methane reforming process of generating hydrogen at refineries, which also results in volatile organic compound and/or Hazardous Air Pollutant byproducts that are controlled at all of the three other refineries.[2] Thus, the Statement of Basis will need to explain any decision that the rule does not apply; and the permits must contain all conditions, including all control devices and compliance requirements, necessary to assure compliance with Rule 8-2 limits. See for example Shell Proposed Table IV-B, Table IV-AL, Table IV-CR, Table VII-A, Table VII-AE, and Table VII-CA

4. Cooling Tower Monitoring
All Refineries

The District has requested information from the refineries regarding the current operation and maintenance practices for their cooling towers. This information will be used to make an applicability determination and include all conditions necessary to assure compliance with Regulation 8-2.

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[2]Shreve's Chemical Process Industries Fifth Edition confirms that the products of the hydrogen plant are hydrogen and CO2 (p.107). Chevron permits includes scrubbers and scrubber monitoring (see p.40 of Table II-B, on-line version); Conoco-Phillips has installed a scrubber as noted in our prior comments; and the Valero permit (Table IV-D4, Section VI, and Table IV-D4) requires incineration of all hydrogen plant unit # S1010 dearator vent emissions in a boilers. In addition, refineries have installed reformulated catalysts.

Attachment 2
List of Applicability and Monitoring Determinations

5. Unpermitted Cooling Towers
ConocoPhillips

The ConocoPhillips permit does not contain any requirements for the facility's cooling towers nor does it identify the cooling towers as emission units. The refinery has submitted permit applications for these units and the District is in the process of issuing Authority to Construct permits for the cooling towers and will also add amend the Title V permit.

6. Slop Oil Vessels and Sludge De-watering Operations
Tesoro

In response to a comment (# 118) requesting that the District determine if the Tesoro refinery contains any slop oil vessels or sludge de-watering operations, the District will conduct a thorough review to determine if they are present at the facility.

7. NSPS QQQ Requirements for Oil-Water Separators
Shell

The Shell permit is missing NSPS Subpart QQQ requirements for the facility's oil-water separators and slop oil vessels.

8. NSPS Subpart QQQ and Reg. 8-8 Wastewater Requirements for Slop Oil Vessels
Chevron

The District has previously taken the position that NSPS Subpart QQQ and Reg 8-8 requirements do not apply to the slop oil vessels at the Chevron refinery on the basis that the facility uses controlled tanks - not vessels - for slop oil accumulation. NSPS Subpart QQQ and Reg 8-8, however, do not appear to distinguish between tanks and vessels. Beyond this question of interpretation, however, applicability of these regulations to Chevron's slop oil vessels has not been evaluated.

9. NSPS Subpart QQQ Applicability Determination for New Process Units
Valero

The NSPS Subpart QQQ applicability determination for S-161 in the Valero Statement of Basis indicates that two process units have been constructed in the refinery since 1987. It further states that process wastewater from these units is hard-piped to an enclosed system. While the District discussed the applicability of Subpart QQQ for S-161, it did not discuss the applicability of the subpart specifically for the hard piping and enclosed system installed after 1987. The hard piping appears to meet the definition of a "sewer

line" under 60.691 and may be regulated under 60.692- 1(c). Furthermore, it is not clear if the enclosed system that receives the process waste is included in the permit or if it was considered in the applicability determination.

10. NESHAP Subpart FF Requirements for Biotreaters
Shell

The District's position that biotreaters are categorically exempt from NESHAP Subpart FF requirements is inconsistent with Subpart FF's definition of "wastewater treatment systems," which includes biological treatment units. Subpart FF, however, also contains exemptions for biotreaters in some cases. Therefore, applicability of Subpart FF to the biotreaters at the Shell refinery has not been fully evaluated.

11. NESHAP Subpart FF – 10% Annual Average Water Content
Valero, Shell, Chevron

The District's applicability determinations for NESHAP Subpart FF for Valero and Shell and Response to Comment regarding the Chevron permit contain incorrect statements. For example, the District's applicability determination regarding Valero's sewer pipeline and process drains states:

> Valero complies with FF through 61.342(e)(2)(i), which allows the facility 6 Mg/yr of uncontrolled benzene waste. Thus, facilities are allowed to choose whether the benzene waste streams are controlled or uncontrolled as long as the uncontrolled stream quantities total less than 6 Mg/yr...Because the sewer and process drains are uncontrolled, they are not subject to 61.346, the standards for individual drain systems.

While it is true that some waste streams may go uncontrolled under the chosen compliance option, there is a restriction in Subpart FF, which the District did not discuss in its applicability determinations. Section 61.342(e)(1) states that, "the owner or operator shall manage and treat facility waste with a flow-weighted annual average water content of less than 10% in accordance with the requirements of paragraph (c)(1) of this section." As a result, the only waste streams that may go uncontrolled under 61.342(e)(2) are those with an annual average water content greater than 10%. It is not clear from the District's applicability determinations that the waste streams in S-161 and S-32105 meet this requirement. Similar issues arise for the Shell and Chevron permits.

The District's silence on this issue raises a question as to whether the control requirements of 61.342(e)(1) were considered at all for the operations at the refineries. Therefore, the District should verify that all uncontrolled waste streams under the 6BQ

compliance option meet the water content requirement under 61.342(e)(2). If the waste streams do meet the requirement, the District should revise the statements of basis to reflect that finding. If the annual average water content in any of the uncontrolled waste streams is less than 10%, the District should add the appropriate requirements to the permit and revise the applicability determinations and response to comments accordingly.

12. NESHAP Subpart FF– 6BQ

The District stated that facilities are allowed to choose whether the benzene waste streams are controlled or uncontrolled as long as the uncontrolled stream quantities total less than 6 Mg/yr; this statement is not entirely correct. Section 61.342(e)(2) requires all wastes with a water content of 10% or greater (hereafter referred to as "aqueous waste") to comply with the wastewater provisions in the subsequent paragraphs. For the purposes of the 6.0 Mg/yr limit, this compliance option does not distinguish between "treated" and "untreated" aqueous wastes. Therefore, the sum of all aqueous wastes (controlled and uncontrolled) must be equal to or less than 6.0 Mg/yr. It is not clear if, in selecting which waste streams to leave untreated, the refinery applied the misinterpretation of the regulation that is communicated in the District's applicability determination. If that is the case, it is possible that the refinery will need to control additional waste streams so the total benzene quantity in both the controlled and uncontrolled systems is less than the 6 Mg/yr limit. To ensure that the permit assures compliance with the requirements of Subpart FF, the District should verify that the refinery properly meets the 6 Mg/yr limit. In doing so, the District should determine whether or not its previous misinterpretation of the regulation led to inappropriate conclusions regarding what waste streams may go untreated.

13. Electro-Static Precipitator Particulate Monitoring
Chevron, Shell, Tesoro, Valero

The District has committed to working with EPA to analyze the relevant technical data and develop permit conditions that require Shell, Tesoro, and Valero to monitor ESP operating parameters. We anticipate that the District will select appropriate monitoring parameter(s) and specific range(s) and revise the permits accordingly.

Four of the refineries operate electro-static precipitators (ESPs) to control emissions from fluidized catalytic cracking units (FCCU), carbon monoxide boilers (burning FCCU gas), cokers, and at Valero other units as well (Table II-A of permitted sources in the proposed Conoco permit does not list any ESP). These emissions can amount to thousands of tons per year, if they are not controlled. Bay Area SIP rules 6-310 and 6-311 limit the concentration and mass of the particulate emissions from the ESP in each case, but lack monitoring. Therefore the permits must be revised to include periodic monitoring under

70.6(a)(3)(B).

The District has added annual testing to permits that previously lacking PM testing for the FCCU emissions. Annual testing at the ESP outlet, however, is inadequate because there is no way to determine whether the control device is operating at a level that meets the applicable requirements during the rest of the year.[3]

The District has also added opacity monitoring for the opacity limit that is also contained in Rule 6 where the opacity monitoring was lacking in the permit, and in some cases appears to cite it as a monitoring requirement for the particulate limits (for instance, see Tesoro Table VII-V). While we agree that monitoring for the opacity limit is appropriate, no connection has been established in the rule or in the permit between compliance with the opacity limit in the SIP and the particulate limits.

The Chevron permit (see Table VII.C.2.1) requires four source tests per year and parameter monitoring for the applicable New Source Review limit. The District should either demonstrate that it has already conducted a review that shows that the NSR monitoring in the Chevron permit is adequate periodic monitoring for the SIP, or conduct a similar monitoring review for the Chevron permit.

Also, we recommend correcting the monitoring listed in Shell permit Table VII-AG for 63.1654(a)(1)(i), which appears to indicate that meeting the NSPS opacity limit of 30% will satisfy the monitoring requirements for the lb PM/lb coke burn-off emission rates. While opacity could be selected as a monitoring approach for the PM limit, it is incorrect to assume that compliance with the NSPS Subpart J 60.102(a)(2) opacity limit for these units assures compliance with the separate PM limit under 63.1654(a)(1)(i).

[3]We understand that the testing will occur at the outlet of the ESP. We suggest clarifying in the revised permits the relationship between emissions at the FCCUs, as well as other emission units, and the ESPs; and where source testing will occur.

Attachment 3
Issues Addressed in District Letters Dated October 6 and 8, 2004

1. Support Facilities

All refineries

Certain operations at the refineries may qualify as support facilities. Examples of such operations include:

-- loading racks at each of the refineries;
-- hydrogen plants located at the Tesoro and Shell refineries, which are owned and operated by Air Products;
-- the wastewater operation located at the Shell refinery, which is owned and operated by Sierra Processing; and
-- the facility identified as Shell Chemical Lp (ID 12870) in the CARB Emissions Inventory database.

It is currently unclear whether these operations are support facilities. The District has agreed to determine if these operations require Title V permits and to require permits for any operations that are support facilities. Specifically, the District has agreed to meet the following schedule:

November 1, 2004	Provide a list of all permitted facilities adjacent to each refinery.
January 1, 2005	Provide EPA with an analysis of each pairing to determine whether a) a support facility relationship exists, and b) whether the pairing comprises a single facility for Title V purposes.
February 1, 2005	Transmit to each facility determined to be subject to Title V a letter requiring submittal of a title V permit application.

2. Recordkeeping for NSPS QQQ and NESHAP Subpart FF Compliance Options

Chevron

The Benzene Waste Operations NESHAP (Subpart FF) contains several different options that facilities may use to comply with the general standards under 40 CFR 61.342 if the total annual benzene quantity from the facility waste is greater than or equal to 10 Mg/yr; among them are:

-- 61.342(c) - waste management and treatment requirements for facilities at which the total annual benzene quantity from the facility waste is equal to or greater than 10 Mg/yr
-- 61.342(d) - an alternative to the requirements under 61.342(c)
-- 61.342(e) - an alternative to the requirements under 61.342(c) and (d)
-- 61.342(f) - off-site treatment option as an alternative to 61.342(c)(1)(i) (not available to facilities complying under 61.342(e))

The proposed Chevron permit contains all four compliance options (see Table IV.G.1.1). The manner in which the District included all of these requirements in the permit leaves it unclear as to which option the facility has selected and with which requirements it must comply.

Similarly, the Wastewater NSPS (40 CFR Subpart QQQ) contains several compliance options. For individual drain systems, a source may comply with the requirements of 60.692-2 or 60.693-1. If a source complies with NSPS Subpart QQQ using the requirements of 60.692-2, pursuant to 60.692-2(a)(3) the source must conduct weekly inspections of all drains out of active service unless the source chooses to comply with 60.692-2(a)(4) which allows the source to tightly seal the drains and conduct semiannual inspections. For oil-water separators the source may comply with the requirements of 60.692-3 or 60.693-2. If a source complies with NSPS Subpart QQQ using the requirements of 60.692-3, pursuant to 60.692-3(b) an oil-water separator with a design capacity to treat more than 16 liters per second must use a closed vent system and control device unless the source meets the requirements of 60.692-3(c)(1), in which case the source may comply with 60.692-3(a) or (c)(2).

The District has agreed to add a federally enforceable condition prior to issuing the permit requiring that Chevron maintain records of the compliance option it is using at any given time.[1]

3. NSPS Subpart A requirements for Flares
Chevron, Shell, and Tesoro

NSPS Subpart A is not included in the permits for all flares subject to the requirements of 40 CFR Part 60, Subpart A (i.e. Subpart J flares, including those used for emergencies and process upsets only). As the District concurred (for instance in the revised Statement of Basis for Shell), Subpart A is an applicable requirement for all flares meeting the applicability criteria of 40 CFR 60.100(a) and (b), including flares that are exempt from the H_2S limit pursuant to 40 CFR 60.104(a)(1).

The District has agreed to review the applicability of Subpart A and to add any applicable requirements prior to issuance.

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[1] For clarity, EPA also recommends that the District remove the citation to 61.342(a), which applies to facilities whose waste benzene quantity is less than10 Mg/yr because the benzene quantity from the facility waste exceeds this threshold.

Attachment 3
Issues Addressed in District Letters Dated October 6 and 8, 2004

4. Valero Permit Shield from Rule 8-2 Not Public Noticed
Valero

Valero's permit contains a shield against Rule 8-2 on the basis that the flares meet the 90% control efficiency exemption criteria of 8-1-110. This permit shield was never public noticed.

The District has agreed to delete this shield. If the District chooses to re-propose Valero's permit with the shield in it, the permit must demonstrate that the flares are meeting the basis for the shield.

5. Tesoro Permit Shield from Rule 8-2
Tesoro

Tesoro's permit contains a shield against Rule 8-2 on the basis that all seven flares at the refinery are subject to Regulation 10, which incorporates the New Source Performance Standards (NSPS) by reference. While the permit indicates in Section IV that all flares are subject to Regulation 10, only three flares appear to be subject to NSPS.

The District has agreed to delete this shield.

6. Assuring Compliance with 40 CFR NSPS VV, NSPS QQQ, and NESHAP V

40 CFR 60.482-10(c), 60.692-5(a), and 61.242-11(c) require that enclosed combustion devices be designed and operated to reduce VOC emissions by 95% or to provide a minimum residence time at a specified temperature. Though the District indicated in its Response to Comments #21 that temperature monitoring would be added to Section VII of the permits, temperature monitoring is missing from Chevron's Table VII.H.2.1 for 60.692-5(a), ConocoPhillip's Table VII-AB for 60.692-5(a) and 60.482-10(c), and Tesoro's Table VII-CF for 60.692-5(a).

The District has agreed to include this temperature monitoring prior to issuing the permits.

7. Facility-Wide Permit Shields
Shell

Section X, Table A-10 of the Shell permit contains 23 facility-wide permit shields, including: shields from six benzene regulations; six SOCMI regulations; NSPS Subpart D, Da, and Dc; the hazardous waste MACT for combustion equipment; two regulations

for gasoline bulk loading terminals; one for chromium water treatment compounds; one regulation (40 CFR part 63 subpart SS) for certain MACT categories; one regulation for sulfuric acid plants; and one sulfur dioxide standard.

As we noted in our letters of October 31, 2003, April 14, 2004, and July 28, 2004, these shields must be appropriately supported and justified. Section 70.6(f)(1) allows the inclusion of a shield provided that the permitting authority "determines in writing that other requirements specifically identified are not applicable to the source, and the permit includes the determination or a concise summary thereof." EPA has determined that the Shell permit does not adequately support 22 of the 23 shields.[2] The permit does not cite a specific regulatory basis, which in many cases is necessary to part of an applicability determination. It also lack facts and analysis, which are generally necessary to explain the District's determination that the source qualifies for an exemption. Conclusory statements that a regulation does not apply do not satisfy the requirement to include an applicability determination in the permit. Thus, the permit lacks an applicability determination as the justification for the shields.

The District has agreed to review these shields and to clarify to EPA's satisfaction, the basis for any shield in the permit prior to issuing the permit, or will delete the shield from the permit.

[2]The shield from 9-1-302 states the regulatory basis for the exemption (fence-line monitoring of SOx in lieu of limits on individual stacks), and we located a corresponding permit condition requiring fence-line SOx monitoring in Section IV of the permit (which we recommend cross-referencing in the permit shield determination).

Attachment 4
EPA Comments on Proposed Bay Area Refinery Permits

1. **New Source Review and Throughput Limits for Shell gas turbine/supplemental steam generators #1 and #2** (unit S-4190/4191, and S-4192/4193)

Shell has requested an increase to throughput limits on the cogeneration plants in condition 18618. They have requested an increase from 470 mmbtu/hr to 548 mmbtu/hr for the turbines and 222 mmtu/hr to 258 mmbtu/hr for the supplemental steam generators (to be expressed as a daily average). We believe that Shell needs to clarify in the Statement of Basis why New Source Review does not apply. Please note that District will need to re-examine the 24-hour start up and shut-down exemptions that currently apply under condition 12271 items #22 and 24 for any new BACT and/or offset review.

Shell permit condition 18618 cross-references local District rule 2-1-234.3 for NSR applicability determinations in some circumstances. Please remove this citation, or replace it with a citation to SIP approved Rule(s) for any discussion of NSR applicability in this section. Please note that the description states that condition 18618 applies to "grandfathered" units that have not undergone NSR, but the condition also includes the gas turbines. As noted below, these units are subject to New Source Review rather than "grandfathered" units.

2. **Clarity of Reg 8-8 requirements in Table IV.G.1.4**

Chevron

Although the requirements of Reg 8-8-301 (wastewater separators greater than 760 liters per day and smaller than 18.9 liters per second) and Reg 8-8-302 (wastewater separators larger than or equal to 18.9 liters per second) apply to separators of different capacities, Table IV.G.1.4 (separator cluster 30c) contains references to both sets of requirements. As a result, it is unclear which requirements apply to each of the three separators in the cluster. To clarify the permit, EPA recommends that the District remove citations to the section of the regulation that does not apply (if they are all in the same capacity range) or divide the units into two separate tables and include the appropriate requirements in each table. Such clarification would be particularly useful for the corresponding table in Section VII (Table VII.G.1.4) because Regs 8-8-301 and 8-8-302 each have alternative compliance options and it is difficult to tell from the permit what requirements apply to each unit. As noted in other comments regarding compliance options, we believe that the District needs to add a permit condition that requires recordkeeping of the compliance option that the refinery is using for each unit at any given time.

3. **Monitoring for Reg 8-8-112**

Chevron

Table IV.G.1.4 of the Chevron permit contains a reference to the exemption under Reg 8-

8-112 for separators with wastes that meet certain organic compound concentration or temperature criteria. However, table VII.G.1.4 is missing the monitoring requirement in Reg 8-8-502, which applies to sources operating under exemption. The District previously indicated that the exemption was included in the permit for informational purposes and operational flexibility even though the refinery may not currently operate under it. While it is true that the Permittee may choose which compliance option it wishes to use, the permit must assure compliance with each option that is included in the permit. As a result, the District should add the monitoring and recordkeeping requirements of Reg 8-8-502 to Table VII.G.1.4. Note that this comment also applies to Process Drain Clusters 20d and 20q. As noted earlier, we believe that the District also needs add a condition that requires the refinery to maintain records of which compliance option it uses.

4. Permit Reformatting

General

We understand that the District intends to reformat the permits. We believe that the consolidation of the applicable emission limits and monitoring into a single section will be very helpful. We have found that having a table of contents for the permit (see Chevron) very helpful. A table of contents for Section VI permit conditions (see Valero) will also be helpful if the District is not able to integrate those conditions into the new, consolidated list of applicable requirements and monitoring.

APPENDIX C
ENGINEERING EVALUATION FOR APPLICATION 10349

FINAL
ENGINEERING EVALUATION
CONOCOPHILLIPS SAN FRANCISCO REFINERY; PLANT 16
APPLICATION 10349

1.0 BACKGROUND

ConocoPhillips has submitted an application for 8 cooling towers at the Rodeo refinery. In the past, the cooling towers were exempt pursuant to the exemption in BAAQMD Regulation 2-1-128.4. However, on May 17, 2000, the District adopted an amendment in Regulation 2-1-319.1 that required any source that emits more than 5 tons/yr of any regulated air pollutant after abatement to obtain a permit to operate. Several cooling towers emit more than 5 tons/yr of PM10 and therefore require permits.

Other cooling towers are significant sources as defined by BAAQMD Regulation 2-6-239, which states that any source that has a potential to emit of a regulated air pollutant that is more than 2 tons/yr is considered significant and must be included in the facility's emission calculations. A table has been added to Section II, Equipment, for significant sources.

This is a minor revision of the Major Facility Review permit for the following reasons:

- The change is not considered a modification since there is no emissions increase.
- There is no significant change or relaxation of monitoring. All proposed monitoring is new.
- No term is established to allow the facility to avoid an applicable requirement.
- No case-by-case determination has been made.
- No facility-specific determination for ambient impacts, visibility analysis, or increment analysis on portable sources has been made.
- No new federal requirement has been imposed.

EMISSION CALCULATIONS

ConocoPhillips has submitted a spreadsheet that shows the emissions of the cooling towers. The spreadsheet is attached as Attachment A. The emission factor for VOC of 0.7 lb/MMgal is the factor for controlled cooling towers from AP-42 Table 5.1-2 (attached).

The particulate emissions are based on AP-42 chapter 13.4, which has methodology to estimate PM10 emissions from cooling towers based on throughput, total dissolved solids (TDS), and drift. The equation is:

Gal/yr x 8.345 lb water/gal x drift x TDS

Drift is the fraction of water that is lost in the air that cools the water. The facility submitted drift in percent, which is divided by 100 to get the weight fraction. TDS was submitted in ppmw, which is divided by 1,000,000 to get the weight fraction. The procedure uses a conservative assumption that all of the dissolved solids become PM10. This assumption overestimates emissions because an unknown amount of the particulate is larger and is deposited near the cooling tower.

Following is the data submitted:

Source #	Gal/min	Drift, wt %	Av TDS, ppm	Max TDS, ppm	Construction Date
452	13800	0.008	1320	2270	1971
453	5500	0.08	1340	2870	1970
454	8000	0.08	1340	2870	1974
455	30000	0.07	1230	1790	1970
456	750	0.02	750	750	1995
457	2500	0.02	1320	2270	1986
458	1150	0.02	800	2990	1966
500	7639	0.0005	1120	1120	2005

The annual emissions are estimated at:

Source #	PM10, tpy	VOC, tpy	Permitting requirements
452	3.19	2.54	Exempt
453	12.92	1.01	Lost exemption on 5/17/00
454	18.80	1.47	Lost exemption on 5/17/00
455	56.51	5.52	Lost exemption on 5/17/00
456	0.25	0.14	Exempt
457	0.09	1.41	Exempt
458	0.40	0.21	Exempt
500	1.45	0.46	Exempt
Total	93.61	12.76	

The annual particulate emissions are based on average TDS, not maximum TDS. Based on these estimates, Sources S453, S454, and S455 require District permits. Source S452 is considered a significant source as defined by BAAQMD Regulation 2-6-239. All sources will have monitoring conditions because this potential to emit determination is based on the "controlled" emission factor for VOC. Without monitoring, the emissions could be much higher.

Since the facility is required to pay major stationary source fees for the VOC and particulate even if sources are not permitted, the exempt sources will be added to the District's databank and reports of estimated emissions will be required each year.

Hexavalent chrome is not used at the cooling towers. However, bleach (sodium hypochlorite) is used at the following cooling towers: S452-S455, S457, S458 and S500. An emission factor for chloroform emissions from chlorine use at cooling towers is given in the 1990 ARB publication "Proposed Identification of Chloroform as a Toxic Air Contaminant, Part A, Exposure Assessment." It is 0.0034 lb chloroform per lb of chlorine used to chlorinate the water.

The sodium hypochlorite (NaOCl) solution is 12.5 wt% NaOCl. The specific gravity of the solution is 1.2 at 20^{o}C; therefore, the density is 10.01 lb/gal. The solution contains

1.25 lb NaOCl/gal; and 0.60 lb Cl/gal. Therefore, about 0.002 lb chloroform is emitted per gal of NaOCl solution used. The risk screen trigger for chloroform is 36 lb/yr. At the rate above, the facility would exceed the chloroform trigger if it uses more than 18,000 gal NaOCl solution/year.

Following are the chloroform estimates submitted by the facility:

Source #	Estimated Bleach Usage gal/yr	Estimated Chlorine Usage lb/yr	Estimated Chloroform Emissions Lb/yr
452	36,294	10,888	37.0
453	14,465	4,340	14.8
454	21,040	6,312	21.5
455	78,900	23,670	80.5
457	6,575	1,973	6.7
458	550	165	.6
500	20,090	6,027	20.5
Total	177,914	53,375	182

The facility made a calculation error in preparing the estimates and underestimated the emissions by a factor of 2. Following are more correct emissions estimates:

Source #	Estimated Bleach Usage gal/yr	Estimated Chlorine Usage lb/yr	Estimated Chloroform Emissions Lb/yr
452	36,294	10,888	74.0
453	14,465	4,340	29.5
454	21,040	6,312	42.9
455	78,900	23,670	161.0
457	6,575	1,973	13.4
458	550	165	1.1
500	20,090	6,027	41.0
Total	177,914	53,375	363

Glutaraldehyde, a toxic air contaminant, is a biocide used in S456 and S458.

The facility has estimated the glutaraldehyde emissions in the following manner. The glutaraldehyde concentration in the water is 50 ppmw. The water flow for both towers combined is 1,900 gpm. The drift rate is 0.02%.

1,900 gpm x 60 min/hr x 8,760 hr/yr x 8.34 lb water/gal x 0.02/100 x
50 lb glutaraldehyde/MMlb water = 83.3 lb/yr

CUMULATIVE INCREASE

Sources S452, S453, S454, S455, S456, S457 and S458 have been in place since before May 17, 2000. No cumulative increase is charged for these sources because no cumulative increase is charged for sources that lose an exemption pursuant to BAAQMD Regulation 2-2-212.

S500 is starting up in March 2005. This source was considered in Application 5814. Since it was exempt from District permits, it was not considered for cumulative increase. This source is still exempt from District permit because emissions of PM10 and VOC are both below 5 tpy. Exempt sources are not included in the cumulative increase under Regulation 2-2-212.

OFFSETS

Offsets are not required for exempt equipment or equipment that loses an exemption under Regulation 2-2-213.

TOXIC RISK MANAGEMENT

Chloroform emissions were estimated to be 182 lb/yr and glutaraldehyde emissions are estimated to be 83.3 lb/year. The trigger levels for chloroform and glutaraldehyde are 36 lb/yr and 330 lb/yr, respectively. A risk screen was required because these sources were subject to BAAQMD Regulation 2-1-109 when use of sodium hypochlorite commenced after 1990. When the use of glutaraldehyde commenced is unknown, but is unimportant because the glutaraldehyde emissions are below the toxic triggers.

The District prepared a risk screen for these sources. For non-residential exposure, the cancer risk was 0.003 in a million and the chronic hazard index was 2 E-06. The residential risk is lower.

The risk screen was prepared based on the facility's estimates of the chloroform emissions. During final review of the application, it was noted that the chloroform emissions were actually 363 lb/yr, not 182 lb/yr. Since the calculation of risk is linear, however, the project still passes the risk screen. The cancer risk is now calculated at 0.006 in a million and the chronic hazard index is calculated at 4 E-06.

Since the cancer risk is less than one in a million and the chronic hazard index is less than one, the risks are considered to be acceptable. No throughput limits have been imposed since the risk is so low.

NEW SOURCE REVIEW

S453, S454, and S455 are considered "loss of exemption" sources; they are not new or modified sources that require an authority to construct. The other sources do not require District permits. Therefore, these sources are not subject to NSR under Regulation 2-2-101.

CEQA

S453, S454, and S455 are not subject to CEQA because this action is the permitting of sources that lost a previously valid exemption from the District's permitting requirements in accordance with BAAQMD Regulation 2-1-312.4.

The other sources are not subject to CEQA because they do not require to District permits.

REGULATION 8, RULE 2

With one exception, discussed below, the cooling towers are exempt from BAAQMD Regulation 8, Rule 2, Miscellaneous Operations, pursuant to Section 8-2-114, which exempts sources that use "best modern practices."

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, Rule 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 for all cooling towers except S456. Permit conditions have been added to ensure compliance with the monitoring above.

Monitoring has been required to ensure that all cooling towers except S456 comply with "best modern practices." In particular, a daily visual inspection has been required and a chlorine content analysis has been required every shift. Records of chlorine addition have been required. If the monitoring indicates hydrocarbon leaks into the cooling water, the facility must send weekly reports to the District. If the leaks continue for four weeks or more, the facility must analyze the inlet and outlet on a weekly basis and estimate the VOC emissions.

Should the leak continue for an extended period of time, the District would consider that the facility was not using "best modern practices" and would impose Regulation 8, Rule 2, via permit conditions and in the Title V permit. An extended leak would not necessarily be considered a violation of the standard in Section 8-2-301 of the regulation because the source must be out of compliance with <u>both</u> the 15 lb/day and the 300 ppm carbon limits at the same time. Because the air flow in cooling towers is very high, it is unlikely that the concentration in air could exceed 300 ppm.

The EPA factor for controlled cooling towers is 0.7 lb VOC/MMgal water flow; the factor for uncontrolled cooling towers is 6.0 lb VOC/MMgal water flow. EPA has given these factors a "D" rating.

Following is a calculation of the emissions required to exceed the 300 ppm carbon limit:

> S452 has a water flow of 13,800 gal/min and an air flow of 1,900,000 dscfm. If the concentration of organic compounds is 300 ppm carbon, it is assumed that 570 scfm of carbon is emitted every minute. The gas law shows that this is

equivalent to 17.7 lb organic compounds/min and that the emissions are equivalent to 1286 lb/MMgal.

1,900,000 dscfm x 0.0003 = 570 scfm

PV=nRT
(1 atm) (570 scfm) / (0.7302) (528^{o}R) = 1.47 moles
1.47 moles x 12 lb carbon/mole = 17.64 lb carbon/min
(17.64 lb carbon/min) / (0.0138 MMgal) = 1286 lb organic compounds/MMgal

Therefore, the level at which the cooling tower would exceed the limit in Regulation 8, Rule 2, would be 1000 times higher than the emission factor.

The other cooling towers have ratios of air to water that are lower than this one, around 103:1. The emissions necessary to exceed 300 ppm are about 963 lb organic compounds/MMgal. The calculations for all cooling towers are in Attachment B.

The facility does not use one of the components of "best modern practices" at S456. Specifically, daily monitoring that would indicate the presence of hydrocarbons is conducted. The facility has indicated that the water circulated in S456 does not cool a hydrocarbon stream. It cools a non-hydrocarbon stream in the hydrogen plant. However, the facility has not provided any information to confirm this statement. Therefore, Regulation 8, Rule 2, has been cited for this cooling tower. If the facility submits sufficient corroboration of this statement in the future, the applicability determination may be revised. A daily visual inspection has been imposed as monitoring for this cooling tower. This is considered sufficient, because the margin of compliance with the limit in Section 8-2-301 is high, as shown in the calculation above, and because the capacity of the cooling tower is very small—750 gpm.

REGULATION 6

The cooling towers will comply with Regulation 6. The drift, dissolved solids, and water flow for these sources is known and can be used to calculate hourly emissions. The hourly emissions are converted to grains (7000 grains/lb) and divided by the airflow to determine gr/dscf. Following are the results:

Source #	Gal/min	Airflow dscfm	Particulate tpy	Particulate grains/min	Particulate grains/dscf
452	13800	1,900,000	3.19	85.0	0.000045
453	5500	567,700	12.92	344.1	0.000606
454	8000	825,800	18.80	500.8	0.000606
455	30000	3,096,500	56.51	1505.2	0.000486
456	750	77,500	0.25	6.7	0.000086
457	2500	258,100	0.09	2.4	0.000009
458	1,150	118,700	0.4	10.7	0.000090
500	7639	788,500	1.45	38.6	0.000049

The sources will comply with the 0.15 gr/dscf standard in Regulation 6-310 easily. Monitoring of total dissolved solids will be imposed to obtain an accurate emissions inventory for fees. No monitoring will be imposed for opacity, since sources with such low grain loading are expected to comply with the opacity standard in Regulation 6-301.

The cooling towers will also comply with Regulation 6-311, General Operations. For processes with a process weight over 57320 lb/hr, the limit is 40 lb particulate per hour. All of the cooling towers process more than 57320 lb water/hr. The largest cooling tower, S455, emits 12.9 lb/hr; therefore, S455 and all of the small cooling towers will comply easily with Regulation 6-311.

STATEMENT OF COMPLIANCE

As shown in the discussion above, the cooling towers will comply with Regulation 6. No other regulations apply to S452-S455, S457, S458, S500.

S456 is subject to Regulation 8, Rule 2, and will comply with the limit as shown in the discussion above.

PERMIT CONDITIONS

CONDITION 22121
For Sources S452-S455, S457, S458, S500, Cooling Towers (Application 10349)

1. The owner/operator shall take a sample and perform a visual inspection of the cooling tower water at each cooling tower above on a daily basis to check for signs of hydrocarbon in the cooling water. (Regulation 2-6-503)

2. The owner/operator shall take a sample of the cooling tower water every shift (twice per day) at each cooling tower above and analyze for chlorine content as an indicator of hydrocarbon leakage into the cooling water. (Regulation 2-6-503)

3. The owner/operator shall maintain monthly records of sodium hypochlorite usage at each cooling tower above. (Regulation 2-6-501)

4. The owner/operator shall sample the cooling tower water at each cooling tower at least once per month and subject the sample to a District approved laboratory analysis to determine its total dissolved solids content. (Regulations 2-6-503, Regulation 3)

5. If the monitoring in part 1 or part 2 indicates that there is a hydrocarbon leak into the cooling water, the owner/operator shall submit a report to the Enforcement and the Engineering divisions at the District. The owner/operator shall submit reports on a weekly basis until the monitoring indicates that no hydrocarbon leaks into the cooling water. (Regulation 1-441)

6. If the monitoring in part 1 or part 2 indicates a hydrocarbon leak for longer than 4 weeks, the owner/operator shall estimate the daily amount of VOC emitted using the following procedure. The owner/operator shall sample the water in the inlet line and in the return line and determine the VOC content in each line using EPA laboratory

method 8015. This analysis shall be performed each week until VOC levels return to normal. The owner/operator shall report the VOC estimates to the Enforcement and the Engineering divisions at the District on a monthly basis. If a hydrocarbon leak occurs at Sources S452, S457, S458, or S500, the owner/operator shall use the VOC estimates to confirm that no more than 5 tons VOC per year was emitted at any source. If more than 5 tons VOC per year is emitted at S452, S457, S458, or S500, the facility shall submit an application for a District permit within 90 days of determining that the source is subject to District permits. (Regulations 1-441, 2-1-424, 2-6-416.2, 2-6-501, 2-6-503)

7. The owner/operator shall use the total dissolved solids monitoring to estimate annual emissions of particulate from the cooling towers. The estimated annual emissions shall be reported to the Engineering Divisions by June 30th of each year as part of the annual update. The owner/operator shall use this estimate to confirm that S452 has not emitted more than 5 tons particulate per year. (Regulations 1-441, 2-6-416.2, 2-6-501, 3)

8. The owner/operator shall maintain the following records for five years from the date of record:
   a. Records of daily visual inspection
   b. Records of chlorine content every shift (twice/day)
   c. Records of daily usage of sodium hypochlorite
   d. Records of monthly determination of total dissolved solids
   e. Records of any indications of hydrocarbon leaks
   f. Records of any analyses of VOC content in cooling tower inlet and outlet (Regulation 2-6-501)

CONDITION 22122
For Source S456, Cooling Tower (Application 10349)

1. The owner/operator shall take a sample and perform a visual inspection of the cooling tower water on a daily basis to check for signs of hydrocarbon in the cooling water. (Regulation 2-6-503)

2. The owner/operator shall sample the cooling tower water at least once per month and subject the samples to a District approved laboratory analysis to determine its total dissolved solids content. (Regulations 2-6-503, Regulation 3)

3. If the monitoring in part 1 indicates that there is a hydrocarbon leak into the cooling water, the owner/operator shall submit a report to the Enforcement and the Engineering divisions at the District. The owner/operator shall submit reports on a weekly basis until the monitoring indicates that no hydrocarbon leaks into the cooling water. (Regulation 1-441)

4. If the monitoring in part 1 indicates a hydrocarbon leak for longer than 4 weeks, the owner/operator shall estimate the daily amount of VOC emitted using the following procedure. The owner/operator shall sample the water in the inlet line and in the return line and determine the VOC content in each line using EPA laboratory method 8015. This analysis shall be performed each week until VOC levels return to normal. The owner/operator shall report the VOC estimates to the Enforcement and the Engineering divisions at the District on a monthly basis. If a hydrocarbon leak occurs, the owner/operator shall use the VOC estimates to confirm that no more than 5 tons VOC per year was emitted at the source. If more than 5 tons VOC

per year is emitted at the source, the facility shall submit an application for a District permit within 90 days of determining that the source is subject to District permits. (Regulations 1-441, 2-1-424, 2-6-416.2, 2-6-501, 2-6-503)

5. The owner/operator shall use the total dissolved solids monitoring to estimate annual emissions of particulate from the cooling tower. The estimated annual emissions shall be reported to the Engineering Divisions by June 30th of each year as part of the annual update. The owner/operator shall use this estimate to confirm that the cooling tower has not emitted more than 5 tons particulate per year. (Regulation 1-441, 2-6-416.2, 2-6-501)

6. The owner/operator shall maintain the following records for five years from the date of record:
   a. Records of daily visual inspection
   b. Records of monthly determination of total dissolved solids
   c. Records of any indications of hydrocarbon leaks
   d. Records of any analyses of VOC content in cooling tower inlet and outlet (Regulation 2-6-501)

RECOMMENDATION

Issue a permit to operate for the following sources:

S453, Cooling Tower, 5,500 gpm
S454, Cooling Tower, 8,000 gpm
S455, Cooling Tower, 30,000 gpm

Issue an exemption letter for the following sources:

S452, Cooling Tower, 13,800 gpm
S456, Cooling Tower, 750 gpm
S457, Cooling Tower, 2,500 gpm
S458, Cooling Tower, 1,150 gpm

Impose the permit conditions above on the following sources:

S452, Cooling Tower, 13,800 gpm
S453, Cooling Tower, 5,500 gpm
S454, Cooling Tower, 8,000 gpm
S455, Cooling Tower, 30,000 gpm
S456, Cooling Tower, 750 gpm
S457, Cooling Tower, 2,500 gpm
S458, Cooling Tower, 1,150 gpm
S500, Cooling Tower, 7,650 gpm

By: _____ April 26, 2005 _____

Brenda Cabral **Date**
Senior Air Quality Engineer

ATTACHMENT A

ORIGINAL APPLICATION SUBMITTIAL - Cooling Tower Emission Estimates

BAAQMD Source No.	ConocoPhillips Unit	Circulation Rate [4] (gpm)	Drift rate (%)[1]	TDS [2] Average (ppm)	TDS [2] Max Daily (ppm)	VOC Emission Factor [3] (lb/10^6 gal)	Emissions PM10 [2] (lb/day)	Emissions PM10 [2] (tons/year)	VOC (ton/year)
452	230	13,800	0.02	1320	2270	0.7	75	7.98	2.54
453	236	5,500	0.02	1340	2870	0.7	38	3.23	1.01
454	238	8,000	0.02	1340	2870	0.7	55	4.70	1.47
455	240	30,000	0.02	1230	1790	0.7	129	16.18	5.52

UPDATED SUMBMITTAL

Cooling Tower Emission Estimates - With Updated Drift Factors & Exempt Towers

BAAQMD Source No.	ConocoPhillips Unit	Circulation Rate [4] (gpm)	**UPDATED** Drift Rate (%)[1]	TDS [2] Average (ppm)	TDS [2] Max Daily (ppm)	VOC Emission Factor [3] (lb/10^6 gal)	Emissions PM10 [2] (lb/day)	Emissions PM10 [2] (tons/year)	VOC Emissions (ton/year)	VOC Emissions (lb/hr)	VOC Emissions (ft^3/min)	Chlorine Emissions[5] (lb/day)	Chlorine Emissions[5] (tons/year)	Air Flow (dscfm)	VOC as C (ppm)
~~452~~	~~230~~	~~13,800~~	~~0.008~~	~~1320~~	~~2270~~	~~0.7~~	~~30~~	~~3.19~~	~~2.54~~						
453	236	5,500	0.08	1340	2870	0.7	152	12.92	1.01	0.23	0.12	2.6E-02	4.8E-03	567,700	0.219
454	238	8,000	0.08	1340	2870	0.7	221	18.80	1.47	0.34	0.18	3.8E-02	7.0E-03	825,800	0.219
455	240	30,000	0.07	1230	1790	0.7	451	56.61	5.52	1.26	0.68	1.3E-01	2.3E-02	3,096,500	0.219
New Source Review Exempt Sources															
NSR - Exempt	230	13,800	0.008	1320	2270	0.7	30	3.19	2.54	0.58	0.31	6.6E-03	1.2E-03	1,900,000	0.164
NSR - Exempt	110	750	0.02	750	1672	0.7	3	0.25	0.14	0.03	0.02	9.0E-04	1.6E-04	77,500	0.218
NSR - Exempt	200	1,150	0.02	800	2990	0.7	8	0.40	0.21	0.05	0.03	1.4E-03	2.5E-04	118,700	0.219
NSR - Exempt	220/250	7,639	0.0005	1120	1120	0.7	1	0.09	1.41	0.32	0.17	2.3E-04	4.2E-05	788,500	0.219
NSR - Exempt	228	2,500	0.02	1320	2270	0.7	14	1.45	0.46	0.11	0.06	3.0E-03	5.5E-04	258,100	0.219

[2] TDS / PM10 - Avg TDS & PM10 (tons/year) emissions based on average TDS values for 2 year period. Max Daily TDS & PM10 (lb/day) based on max TDS + 1 Standard Deviation.

[3] VOC emission factor from AP-42 Table 5.1-2 for controlled emissions. Checks for leaks are performed a number of ways. Examples of monitoring includes daily visual checks and residual chlorine (leak indicator) sampling.

[4] The circulation rate for S-453 and S-454 is a combined maximum of 13,500 gpm. The rates used in the table are the typical working rates for each tower, although the combined maximum is 13,500 gpm.

[5] Chlorine emissions are estimated based on a residual chlorine concentration of 0.5 ppmw and assuming that all chlorine in the drift is emitted to the atmosphere.

ATTACHMENT B

CALCULATION OF VOC EMISSIONS REQUIRED TO EXCEED LIMITS IN REGULATION 8, RULE 2

Source #	Water	Airflow	300 ppm	P/RT	n, VOC	lb carbon	Lb VOC/MMgal	
	Gal/min	dscfm	V, VOC			(moles x 12)		Ratio air/water
			scfm	atm/(gas constant)(Rankine)	lb-moles			dscfm/gpm
452	13800	1,900,000	570	0.002594	1.48	17.7	1286	138
453	5500	567,700	170	0.002594	0.44	5.3	964	103
454	8000	825,800	248	0.002594	0.64	7.7	964	103
455	30000	3,096,500	929	0.002594	2.41	28.9	964	103
456	750	77,500	23	0.002594	0.06	0.7	965	103
457	2500	258,100	77	0.002594	0.20	2.4	964	103
458	1,150	118,700	36	0.002594	0.09	1.1	964	103
500	7639	788,500	237	0.002594	0.61	7.4	964	103

APPENDIX D
ENGINEERING EVALUATION FOR APPLICATION 14112

ENGINEERING EVALUATION
CONOCOPHILLIPS SAN FRANCISCO REFINERY; PLANT 16
APPLICATION 14112

BACKGROUND

ConocoPhillips has submitted an application to amend the permit conditions for the cooling towers at the Rodeo refinery. The cooling towers were permitted as loss of exemption sources in Application 13049. Conoco has asked for the following changes:

1. Increase capacity of S453 and delete source S454 because S453 and S454 are actually one cooling tower.
2. Reduce chlorine content monitoring at sources S452, S453, S455, S456, S457, S458, and S500 from 2 times/day to 3 times/week and add monthly determination of VOC emissions using EPA method 8015.
3. Use automatic ORP (oxidation-reduction potential) monitoring and monthly EPA Method 8015 testing instead of chlorine content monitoring.
4. Use conductivity to determined TDS (total dissolved solids) monitoring.
5. Delete the provision in BAAQMD Condition 22121, part 6, and BAAQMD Condition 22122, part 4, to submit an application for a permit to operate an exempt cooling tower if the emissions of VOC are over 5 tons in any year.

Following are the responses to each item:

1. The capacity of S453 will be increased and S454 will be deleted.
2. The chlorine content monitoring at sources S452, S453, S455, S456, S457, S458, and S500 will be reduced from 2 times/day to 3 times/week and monthly determination of VOC emissions using EPA method 8015 will be added. This reduction in monitoring means that the Conoco cooling towers no longer conform to "Best Modern Practices" as proposed by the District in Application 12433. Therefore, the cooling towers will be subject to BAAQMD Regulation 8, Rule 2, Miscellaneous Operations. Monitoring for chlorine content 3 times per week will still be adequate monitoring. As shown in the evaluation for Application 13049, the margin of compliance is high, and the facility will be able to detect VOC leaks in a timely manner even with a reduced level of monitoring. In addition, the VOC emissions will be estimated monthly even when no leaks are detected.
3. The use of automatic ORP (oxidation-reduction potential) monitoring and monthly EPA Method 8015 testing instead of chlorine content monitoring will not be approved. Conoco has not shown a correlation between ORP and chlorine content. In addition, the District understands that ORP changes seasonally and may change if the source of water (city water, well water, surface water) changes.
4. The use of conductivity to determine TDS (total dissolved solids) monitoring will not be formalized at this time.
5. The provision in BAAQMD Condition 22121, part 6, and BAAQMD Condition 22122, part 4, to submit an application for a permit to operate an exempt cooling tower if the emissions of VOC are over 5 tons in any year will not be deleted. These provisions are a restatement of the requirement in BAAQMD Regulation 2-1-319. The District may include such a provision in permit conditions as a reminder of permitting requirements at its discretion. In fact, the District understands that Conoco is intending to submit an application for a permit to operate for exempt source S452 due to a leak detected on February 27, 2006.

This will be a minor revision of the Major Facility Review permit for the following reasons:

- The change is not considered a modification since there is no emissions increase.
- There is no significant change or relaxation of monitoring in the Major Facility Review permit since the previous provisions have not been incorporated into the permit. All proposed monitoring is new.
- No term is established to allow the facility to avoid an applicable requirement.
- No case-by-case determination has been made.
- No facility-specific determination for ambient impacts, visibility analysis, or increment analysis on portable sources has been made.
- No new federal requirement has been imposed.

EMISSION CALCULATIONS, CUMULATIVE INCREASE, OFFSETS, TOXIC RISK MANAGEMENT

The change in conditions will not cause any change in emissions.

Since there is no change in emissions, there will be no change in cumulative increase and offsets are not required; and BAAQMD Regulation 2, Rule 5, New Source Review of Toxic Air Contaminants, does not apply.

NEW SOURCE REVIEW

Since there is no change in emissions, New Source Review, does not apply and the sources are not subject to BACT.

CEQA

The application is not subject to CEQA because it is an " Application to modify permit conditions for existing or permitted sources or facilities that does not involve any increases in emissions or physical modifications" in accordance with BAAQMD Regulation 2-1-312.1.

REGULATION 8, RULE 2

With the exception of S456, the cooling towers have been considered to be exempt from BAAQMD Regulation 8, Rule 2, Miscellaneous Operations, pursuant to Section 8-2-114, which exempts sources that use "best modern practices."

The District reviewed the current practice of Bay Area refineries, and determined that daily visual inspection, plus water sampling and analysis for indicators of hydrocarbon leaks (chlorine content) once per shift, was the best modern practice. A cooling tower that is maintained using best modern practices is exempt from Regulation 8, Rule 2. The facility has the burden of keeping records necessary to demonstrate that it qualifies for the exemption. The District had determined that this facility was using best modern practice to monitor cooling tower water for indications of heat exchanger leaks for all

cooling towers except S456, where chlorine is not used. Permit conditions had been added to ensure compliance with the monitoring above.

Conoco has submitted this application to change the frequency of the water sampling from twice per day to 3 times per week, because they have found this frequency to be burdensome. The District agrees that 3 times per week is adequate and that Regulation 8, Rule 2 now applies to all of the Conoco cooling towers. In addition, Conoco has proposed to measure VOC emissions at each cooling tower once per month using EPA Method 8015.

In any case, a leak would not necessarily be considered a violation of the limit in Section 8-2-301 of the regulation because the source must be out of compliance with both the 15 lb/day and the 300 ppm carbon limits at the same time. Because the air flow in cooling towers is very high, it is unlikely that the concentration in air could ever exceed 300 ppm.

The facility is expected to comply with Regulation 8, Rule 2 because the 300 ppm standard could not be exceeded unless the emissions were about 1000 times the "uncontrolled" emission factor in AP-42, Table 5.1-2, Fugitive Emission Factors for Oil Refineries, as shown in the evaluation for Application 13049, attached as Appendix A.

REGULATION 6

The analysis in the engineering evaluation for Application 13049, attached, shows that the cooling towers comply with Regulation 6, Particulate Matter and Visible Emissions.

The facility is subject to conditions requiring determination of dissolved solids to calculate emissions to calculate fees and to determine if S452, the largest exempt cooling tower, has exceeded 5 tpy of particulate emissions. The permit conditions currently state:

> The owner/operator shall sample the cooling tower water at each [the] cooling tower at least once per month and subject the sample to a District approved laboratory analysis to determine its total dissolved solids content.

Conoco is free to use conductivity to determine dissolved solids at this time. The condition will not be modified at this time because the methodology is also being considered pursuant to Conoco's banking application 13580 for S455 and may be modified in that application.

STATEMENT OF COMPLIANCE

The cooling towers will comply with Regulation 6 and Regulation 8, Rule 2. No other regulations apply.

PERMIT CONDITIONS

CONDITION 22121

For Sources S452, S453, -S455, S457, S458, S500, Cooling Towers (Application 10349)

1. The owner/operator shall take a sample and perform a visual inspection of the cooling tower water at each cooling tower above on a daily basis to check for signs of hydrocarbon in the cooling water. (Regulation 2-6-503)

2. The owner/operator shall take a sample of the cooling tower water ~~every shift (twice per day)~~ 3 times per week at each cooling tower above and analyze for chlorine content as an indicator of hydrocarbon leakage into the cooling water. On a monthly basis, the owner/operator shall sample the water in the inlet line and in the return line of each cooling tower and determine the VOC content in each line using EPA laboratory method 8015. (Regulation 2-6-503)

3. The owner/operator shall maintain monthly records of sodium hypochlorite usage at each cooling tower above. (Regulation 2-6-501)

4. The owner/operator shall sample the cooling tower water at each cooling tower at least once per month and subject the sample to a District approved laboratory analysis to determine its total dissolved solids content. (Regulations 2-6-503, Regulation 3)

5. If the monitoring in part 1 or part 2 indicates that there is a hydrocarbon leak into the cooling water, the owner/operator shall submit a report to the Enforcement and the Engineering divisions at the District. The owner/operator shall submit reports on a weekly basis until the monitoring indicates that no hydrocarbon leaks into the cooling water. (Regulation 1-441)

6. If the monitoring in part 1 or part 2 indicates a hydrocarbon leak for longer than 4 weeks, the owner/operator shall estimate the daily amount of VOC emitted using the following procedure. The owner/operator shall sample the water in the inlet line and in the return line and determine the VOC content in each line using EPA laboratory method 8015. This analysis shall be performed each week until VOC levels return to normal. The owner/operator shall report the VOC estimates to the Enforcement and the Engineering divisions at the District on a monthly basis. If a hydrocarbon leak occurs at Sources S452, S457, S458, or S500, the owner/operator shall use the VOC estimates to confirm that no more than 5 tons VOC per year was emitted at any source. If more than 5 tons VOC per year is emitted at S452, S457, S458, or S500, the facility shall submit an application for a District permit within 90 days of determining that the source is subject to District permits. (Regulations 1-441, 2-1-424, 2-6-416.2, 2-6-501, 2-6-503)

7. The owner/operator shall use the total dissolved solids monitoring to estimate annual emissions of particulate from the cooling towers. The estimated annual emissions shall be reported to the Engineering Divisions by June 30th of each year as part of the annual update. The owner/operator shall use this estimate to confirm that S452 has not emitted more than 5 tons particulate per year. (Regulations 1-441, 2-6-416.2, 2-6-501, 3)

8. The owner/operator shall maintain the following records for five years from the date of record:
   a. Records of daily visual inspection
   b. Records of chlorine content ~~every shift (twice/day)~~3 times per week
   c. Records of ~~daily~~ monthly usage of sodium hypochlorite
   d. Records of monthly determination of total dissolved solids
   e. Records of any indications of hydrocarbon leaks
   f. Records of any analyses of VOC content in cooling tower inlet and outlet

(Regulation 2-6-501)

Condition 22122 is shown for information only. No change is proposed.

CONDITION 22122
For Source S456, Cooling Tower (Application 10349)

1. The owner/operator shall take a sample and perform a visual inspection of the cooling tower water on a daily basis to check for signs of hydrocarbon in the cooling water. (Regulation 2-6-503)

2. The owner/operator shall sample the cooling tower water at least once per month and subject the samples to a District approved laboratory analysis to determine its total dissolved solids content. (Regulations 2-6-503, Regulation 3)

3. If the monitoring in part 1 indicates that there is a hydrocarbon leak into the cooling water, the owner/operator shall submit a report to the Enforcement and the Engineering divisions at the District. The owner/operator shall submit reports on a weekly basis until the monitoring indicates that no hydrocarbon leaks into the cooling water. (Regulation 1-441)

4. If the monitoring in part 1 indicates a hydrocarbon leak for longer than 4 weeks, the owner/operator shall estimate the daily amount of VOC emitted using the following procedure. The owner/operator shall sample the water in the inlet line and in the return line and determine the VOC content in each line using EPA laboratory method 8015. This analysis shall be performed each week until VOC levels return to normal. The owner/operator shall report the VOC estimates to the Enforcement and the Engineering divisions at the District on a monthly basis. If a hydrocarbon leak occurs, the owner/operator shall use the VOC estimates to confirm that no more than 5 tons VOC per year was emitted at the source. If more than 5 tons VOC per year is emitted at the source, the facility shall submit an application for a District permit within 90 days of determining that the source is subject to District permits. (Regulations 1-441, 2-1-424, 2-6-416.2, 2-6-501, 2-6-503)

5. The owner/operator shall use the total dissolved solids monitoring to estimate annual emissions of particulate from the cooling tower. The estimated annual emissions shall be reported to the Engineering Divisions by June 30th of each year as part of the annual update. The owner/operator shall use this estimate to confirm that the cooling tower has not emitted more than 5 tons particulate per year. (Regulation 1-441, 2-6-416.2, 2-6-501)

6. The owner/operator shall maintain the following records for five years from the date of record:
   a. Records of daily visual inspection
   b. Records of monthly determination of total dissolved solids
   c. Records of any indications of hydrocarbon leaks
   d. Records of any analyses of VOC content in cooling tower inlet and outlet
   (Regulation 2-6-501)

RECOMMENDATION

Modify the permit conditions on the following sources:

S452, Cooling Tower, 13,800 gpm
S453, Cooling Tower, 13,500 gpm
S455, Cooling Tower, 30,000 gpm
S457, Cooling Tower, 2,500 gpm
S458, Cooling Tower, 1,150 gpm
S500, Cooling Tower, 7,650 gpm

By: _____ _____

Brenda Cabral **Date**
Senior Air Quality Engineer