Bay Area Air Quality Management District
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Permit Evaluation and Statement of Basis for MAJOR FACILITY REVIEW PERMIT Revision 2, Significant Revision

for

Valero Benicia Asphalt Plant
Facility #A0901

Facility Address:
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Benicia, CA 94510

Mailing Address:
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Benicia, CA 94510

Air Quality Engineer: Art Valla

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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 has reopened the permit and issued Revision 1 on December 16, 2004. This proposed Revision 2 is a Significant Revision incorporating changes from several applications (listed below). 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. The District will respond to comments received on these changes from draft to final. Any changes to the permit that result from comments received will be addressed in a future revision.

This statement of basis concerns only changes to the permit. A comprehensive statement of basis was prepared for the initial issuance of the permit and for the Revision 1 issuance. These documents are considered to be the statement for basis for the entire permit. They are available on request.

The Revision 2 permit would incorporate the following recent Title V revision applications into the permit:

Application Number(s)	Description
10333/10334	Abatement Modifications for S26 & S27
11356	NOx Box Creation for S19, S20 & S21
11815	A4 Operating Temperature

Application Number(s)	Description
12236/12237	S24 Abatement Service Operating Temperature
12421	Tank Operation in Low Vapor Pressure Service
12477/12660	Minor Revisions to NOx Box Condition 21233
12703/12704	A-31 Operating Temperature
12869	Correction of Test Method
12875/13044	S-19 Source Test Minor Revision
13010/13011	Minor Revision to S-19 NOx Box
13206/13207	NSPS Subpart J 60.104(a)(1)
13812/13867	Kerosene Blending into Asphalt
13941/13977	Emergency Diesel Air Compressor

The incorporation of these applications would not significantly increase emissions. There are no emission changes for Applications 11356, 11815, 12236/12237, 12421, 12477/12660, 12703/12704, 12869, 12875/13044, 13010/13011 and 13206/13207. The following table summarizes the emissions for the remaining applications:

	NOx	POC	CO	SO2	PM10	Comments
10333/10334, Ton/yr		0.241				Offsets provided
13812/13867, Ton/yr		0.010				Included in NMHC Bubble (1)
13941/13977, Ton/yr	0.0240	0.0001	0.0003	0.0055	0.0002	POC, NOx and SO2 included in Bubbles (1), PM10 offset
Emissions in Bubble, Ton/yr	-0.0240	-0.0101		-0.0055		See Note 1
Emissions offset, Ton/yr		-0.241			-0.0002	
Total Net emissions, Ton/yr	0.00	0.00	0.0003	0.00	0.00	

Note 1): Bubbles are from Permit Condition 1240, Part I.14 that limits total facility emissions to 49.345 ton/yr Non-Methane Hydrocarbon (NMHC), 28.049 ton/yr SO2, and 40.047 ton/yr NOx.

Details of significant proposed permit changes are listed in Section F of this document.

B. Facility Description

The Valero Benicia Asphalt Plant is a small-scale petroleum refinery that primarily produces asphalt from crude oil. The by-products (naphtha, kerosene, and gas oil) are transferred to the adjacent Valero fuel refinery or sold to other companies for the production of other petroleum products.

The processes used at the facility are: distillation, vacuum distillation, blending, organic liquid storage, asphalt storage, organic liquid loading, and asphalt loading.

A detailed description of petroleum refinery processes and the resulting air emissions may be found in Chapter 5 of EPA's publication AP-42, Compilation of Air Pollutant Emission Factors. This document may be found at:

http://www.epa.gov/ttn/chief/ap42

This document contains descriptions of tank and their emissions and combustion units and their emissions.

The principal sources of air emissions from this refinery are:

- Combustion units (furnaces, boilers, and incinerators)
- Storage tanks
- Fugitive emissions from pipe fittings, pumps, and compressors
- Wastewater treatment facilities

Combustion unit emissions are generally controlled through the use of burner technology. Storage tank emissions are controlled through the use of add-on control and or fitting loss control. Fugitive emissions have been controlled through the use of inspection and maintenance. Wastewater treatment facilities are controlled by covering units, gasketing covers, and add on controls, such as carbon canisters. Caustic scrubbers control the H2S in the refinery gas from the crude distillation.

C. Permit Content

The legal and factual basis for the permit revision follows. The permit sections are described in the order that they are presented in the permit. Generally, this statement of basis/permit evaluation addresses only the proposed revisions to the permit. A comprehensive statement of basis was prepared for the previous issues of the permit and are available on request.

I. Standard Conditions

There are no changes to this section of the proposed permit. The following description is included for information.

This section contains administrative requirements and conditions that apply to all facilities. If the Title IV (Acid Rain) requirements for certain fossil-fuel fired electrical generating facilities or the accidental release (40 CFR § 68) programs apply, the section will contain a standard condition pertaining to these programs. 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.

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.

This facility has no sources that are significant but do not require District permits pursuant to BAAQMD Rule 2-1-302.

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 the permit in this revision:

Added S71, Emergency Diesel Air Compressor, 108 HP, abated by A71, Catalyzed Diesel Particulate Filter

Removed Carbon Canisters A21, A22, A23 and A24 because they are no longer in service.

The following sources are no longer owned by Valero Benicia Asphalt Plant:

S1	Crude Storage Tank 1A	External Floating Roof	3,419,000 gal
S2	Crude Storage Tank 1B	External Floating Roof	3,419,000 gal
S4	Crude Oil Storage Tank, TK-10A	External Floating Roof	1,382,000 gal

S23	Crude Storage Tank 10B	External Floating Roof	1,382,000 gal

The removal of these sources from the permit is still pending the issuance of a Title V permit to the current owner of these sources. A change in ownership Administrative Amendment application 8915 has been submitted for Facility B5574 Valero Logistic Operations, L.P. and the permit for the new owner has been prepared. Currently this permit is in review for final transmittal to EPA. In the event the new permit is approved, these sources will be removed from this A0901 permit.

III. Generally Applicable Requirements

There are no changes to this section of the proposed permit. The following description is included for information.

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.

Unpermitted 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 significant sources pursuant to the definition in BAAQMD Rule 2-6-239.

IV. Source-Specific Applicable Requirements

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

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

- Federal permit conditions. The text of Federal permit conditions, if any, is found in Section VI of the permit.

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

Changes to the permit in this revision:

Table IV – A, General Asphalt Plant Requirements
Table IV – H, S14-Truck Loading Racks, Naphtha
Table IV – I, S15, Truck Loading Rack-Gas Oil
Table IV – K, S17, Truck Loading Racks-Asphalt
Table IV – R, S26, Wastewater Tank, Abated By PV Valve
Table IV – S, S27, Recovered Oil Tank-TK-12A Abated By PV Valve
Table IV – AC, S54, Asphalt Loading Rack
Table IV – AO, A4- Thermal Oxidizer

Additions to the permit in this revision:

Table IV – AQ, S71 Emergency Diesel Powered Air Compressor

V. Schedule of Compliance

There are no changes to this section of the proposed permit. The following description is included for information.

A schedule of compliance is required in all Title V permits pursuant to BAAQMD Regulation 2-6-409.10 which 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."

Since the District has not determined that the facility is out of compliance with an applicable requirement, the schedule of compliance for this permit only contains elements 2-6-409.10.1 and 2-6-409.10.2.

VI. Permit Conditions

As part of the Title V permit reopening, the District is proposing changes made to several permit conditions, these include: Regulation 9-10 requirements, and, as appropriate, revised conditions for clarity and enforceability. The Title V permit is being updated to accurately reflect these applicable requirements. All changes to existing permit conditions are clearly shown in "strike-out/underline" format in the proposed permit. When the permit is issued, all 'strikeout" language will be deleted; all "underline" language will be retained, subject to consideration of comments received.

Conditions that are obsolete or that have no regulatory basis have been deleted from this permit.

The regulatory basis has been referenced following each condition. The regulatory basis may be a rule or regulation. The District is also using the following codes for regulatory basis:

- BACT: This code is used for a condition imposed by the Air Pollution Control Officer (APCO) to ensure compliance with the Best Available Control Technology in Regulation 2-2-301.
- Cumulative Increase: This code is used for a condition imposed by the APCO that limits a source's operation to the operation described in the permit application pursuant to BAAQMD Regulation 2-1-403.
- Offsets: This code is used for a condition imposed by the APCO to ensure compliance with the use of offsets for the permitting of a source or with the banking of emissions from a source pursuant to Regulation 2, Rules 2 and 4.
- PSD: This code is used for a condition imposed by the APCO to ensure compliance with a Prevention of Significant Deterioration permit issued pursuant to Regulation 2, Rule 2.
- TRMP: This code is used for a condition imposed by the APCO to ensure compliance with limits that arise from the District's Toxic Risk Management Policy.

Changes to the permit in this revision:

Condition 1240, Part I.6.
Condition 1240, Part I.11.
Condition 1240, Part I.16a.
Condition 1240, Part I.18g.
Condition 1240, Part I.19.
Condition 1240, Part II.58b.
Condition 1240, Part II.71.
Condition 18796, Part 1.
Condition 21233, Parts 1, 1B2, 5A, 7A1, 7A3 and 8.

Additions to the permit in this revision:

Condition 20762, Storage Tanks exempt from Regulation 8, Rule 5,

Condition 22928, S-71, Diesel Emergency Air Compressor

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.

An analysis of instances of limits where the District has imposed new monitoring or decided that no monitoring is necessary to assure compliance is contained in the statement of basis/permit evaluation for initial issuance.

Changes to the permit in this revision:

Table VII – A, General Asphalt Plant Requirements
Table VII – K, S17, Truck Loading Racks-Asphalt
Table– VII – M, S19, Vacuum Heater
Table– VII – P, S24, Hot Oil Heater
Table VII – R, S26, Wastewater Tank, Abated By PV Valve
Table VII – S, S27, Recovered Oil Tank-TK-12A Abated By PV Valve
Table VII – AB, S54, Asphalt Loading Rack
Table VII – AM, A4- Thermal Oxidizer
Table VII – AN, A31, Thermal Oxidizer

Additions to the permit in this revision:

Table VII – AQ, S71 Emergency Diesel Powered Air Compressor

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 the permit in this revision:

The test procedure for BAAQMD 8-5-328.1.2 Tank Degassing Organic Concentration was changed to EPA Reference Method 21.

IX. Permit Shield:

There are no changes to this section of the proposed permit. The following description is included for information.

The District rules allow two types of permit shields. The permit shield types are defined as follows: (1) A provision in a major facility review permit that identifies and justifies specific federally enforceable regulations and standards which the APCO has confirmed are not applicable to a source or group of sources, or (2) A provision in a major facility review permit that identifies and justifies specific federally enforceable applicable requirements for monitoring, recordkeeping and/or reporting which are subsumed because other applicable requirements for monitoring, recordkeeping, and reporting in the permit will assure compliance with all emission limits.

The second type of permit shield is allowed by EPA's White Paper 2 for Improved Implementation of the Part 70 Operating Permits Program. The District uses the second type of permit shield for all streamlining of monitoring, recordkeeping, and reporting requirements in Title V permits. The District's program does not allow other types of streamlining in Title V permits.

Compliance with the applicable requirement contained in the permit automatically results in compliance with any subsumed (= less stringent) requirement.

This facility has the first and second types of permit shield.

D. Alternate Operating Scenarios:

No alternate operating scenario has been requested for this facility.

E. Compliance Status:

None of the applications incorporated into this significant revision impact the compliance status of this facility.

F. Permit Changes since the Final Revision 1 Permit issued December 16, 2004

Application 10333/10334 Abatement Modifications for S26 & S27
Revisions to Table IIB, IV-R & S and VII-R & S
Application 11356 NOx Box Creation for S19, S20 & S21.
Change in NOx Box Condition 21233 in Section VI
Application 11815 A4 Operating Temperature
Condition 1240, part I.19 in Section VI and Table VII – AM
Application 12703/12704 A-31 Operating Temperature
Change in Condition 1240.II.58b in Section VI and Table VII – P
Application 12421 Tank Operation in Low Vapor Pressure Service

Addition of Condition 20762, changes to Tables IV-A and VII – A
Application 12477/12660 Minor Revisions to NOx Box Condition 21233
Miscellaneous clarifications including Part 7.A.1 in Section VI.
Application 12236/12237 S24 Abatement Service Operating Temperature
Change in Condition 1240.II.58b and Table VII – AN
Application 12869, Correction of Test Methods
Revision to Table VIII, BAAQMD 8-5-328.1.2
Application 12875/13044 S-19 Source Test Minor Revision
Change in Condition 1240.I.16a in Section VI.
Application 13010/13011 Minor Revision to S-19 NOx Box
Revision to Condition 21233 Part 5.A in Section VI
Application 13206/13207 NSPS Subpart J 60.104(a)(1)
Change in Condition 1240.I.11 in Section VI and Table VII-M
Application 13812/13867 Kerosene Blending into Asphalt
Change in Condition 1240.II.71 in Section VI
Revision to Tables VII-K (S17) and VII-AB (S54)
Application 13941/13977 Emergency Diesel Air Compressor
Addition of Condition 22928 in Section VI
Revision of Conditions 1240.I.6, I.18g & I.18i, and 18796 in Section VI
Addition of Tables IV-AQ and VII-AQ
Additions of S71 and A71 to Tables IIA and IIB

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APPENDIX A Permit Evaluations

EVALUATION REPORT
VALERO BENICIA ASPHALT PLANT
APPLICATION 10334, ABATEMENT MODIFICATION FOR TANKS S-26 AND S-27

BACKGROUND

The Valero Benicia Asphalt Plant (Valero) operates a wastewater system in support of its asphalt manufacturing process. Two sources in this system,

S-26 Fixed Roof Wastewater Tank TK-4613, 3800 gal
S-27 Fixed Roof Recovered Oil Tank TK-4612A, 1260 gal

were abated by carbon canisters A-21, A-22, A-23 and A-24. The carbon canisters were becoming saturated often requiring frequent replacement. This expense generated interest in finding an alternative means to abate S-26 and S-27. The option selected was to route the tank vapors to Thermal Oxidizer A-31 or Hot Oil Heater S-24 when A-31 was not operating.

Independent from this application, A-31 was part of extensive discussion regarding the applicability of NSPS 40 CFR 60 subpart J to thermal oxidizers. The applicant does not support the position that subpart J is applicable, and presents its case based on the original intent of subpart J applicability. The applicant owns other thermal oxidizers where the applicability of subpart J may be of minor impact. However, in the case of A-31, it is likely that a new scrubbing system will be required for A-31 to comply with the H_2S limitations of subpart J.

This application could not be approved without the requirements of subpart J being met. The applicant would not accept the approval of the application with any requirements to comply with subpart J. Under normal circumstances, this would mean the application would be denied and the S-26 and S-27 abatement would continue via A-21, A-22, A-23 and A-24. Unfortunately, the application was not timely. The owner had already made the modification, and it was considered irreversible due to demolished piping and the removal of the carbon system.

This application is for a modification to replace the carbon canisters with pressure vacuum valves:

S-26 Fixed Roof Wastewater Tank TK-4613, 3800 gal, Equipped with a Pressure Vacuum Valve
S-27 Fixed Roof Recovered Oil Tank TK-4612A, 1260 gal, Equipped with a Pressure Vacuum Valve

The application was suitably amended to reflect this change to pressure vacuum valves and a temporary permit to operate was issued under the Regulation 2-1-106 Limited Exemption, Accelerated Permitting Program.

Sister application 10333 is for a significant revision to the facilities Title V permit.

EMISSIONS CALCULATIONS

The VOC emissions can be calculated based on the formulas in AP-42, Chapter 7 for Liquid Storage Tanks.

There are two contributions to tank emissions: Standing Losses (L_S) and Working Losses (L_W).

$L_S = 365\ V_V W_V K_E K_S$ (AP-42 equation 1-2, page 7.1-10)

L_S = standing storage loss, lb/yr
V_V = vapor space volume, ft3
W_V = vapor density, lb/ft3
K_E = vapor space expansion factor, dimensionless
K_S = vented vapor saturation factor, dimensionless
365 = constant, d/yr

$L_W = 0.0010\ M_V P_{VA} Q K_N K_P$ (AP-42 equation 1-23, page 7.1-18)

L_W = working loss, lb/yr
M_V = vapor molecular weight, lb/lb-mole;
P_{VA} = vapor pressure at daily average liquid surface temperature, psia;
Q = annual net throughput (tank capacity [bbl] times annual turnover rate), bbl/yr
K_N = turnover factor, dimensionless;
K_P = working loss product factor, dimensionless, 0.75 for crude oils.

The applicant has provided the following tank and process data:

Description	S-26 data	S-27 data
Tank Diameter, feet	9	6
Tank Height, feet	8	6
Tank Color	Brown	Brown
Vapor MW, lb/lb-mole	50	50
Vapor Pressure, psia	0.1245	2.1
Vapor Space Height, feet	4	3
Storage Temperature, ºF (ºR)	71.2 (531)	71.2 (531)
Temperature Range ºF	41.5 to 73.4	41.5 to 73.4
Throughput, Bbl/yr (gal/yr)	238,095 (10,000,000)	12,500 (525,000)
Pressure/Vacuum Valve Set Points, inches water (psig)	12.0/-1.0 (0.43/-0.036)	12.0/-1.0 (0.43/-0.036)

Design Pressure, inches water	20.0	12.0

EMISSIONS CALCULATIONS (Continued)

The calculations are shown in the following tables:

Description	**S-26**	**S-27**
Process Data Calculations		
P_A = Ambient pressure, psia	14.7	14.7
Vapor Pressure at Min ºF	0.1318	0.7
Vapor Pressure at Max ºF	0.055	0.3
ΔP_V = Vapor Pressure Range	0.0768	0.4
Reid Vapor Pressure, psia	0.25	1.5
H_{VO} = Vapor Space Outage, ft (estimated dome dimensions)	6	4
Storage Temperature, ºF	71.2	71.2
T_{LA} = Storage Temperature, ºR	531.2	531.2
Minimum Storage ºF	41.5	41.5
Minimum Storage ºR	501.5	501.5
Maximum Storage ºF	73.4	73.4
Maximum Storage ºR	533.4	533.4
P_{BP} = PV pressure set point (assume .03 psig per AP-42 Equn 1-20)	0.43	0.43
P_{BV} = PV vacuum set point (assume .03 psig per AP-42 Equn 1-20)	-0.036	-0.036
$\Delta P_B = P_{BP} - P_{BV}$ psig (AP-42 Equn 1-10)	0.466	0.466
Look-up Values		
Paint Factor (α) from AP-42 Table 7.1-6	0.89	0.89
T_{AX} = Daily Maximun Ambient ºF, AP-42 Table 7.1-7 (SF AP)	64.9	64.9
T_{AN} = Daily Maximun Ambient ºF, AP-42 Table 7.1-7 (SF AP)	48.3	48.3

I = Total Solar Insolation Factor Btu/ft^2-d, AP-42 Table 7.1-7(SF AP)	1608	1608
K_N = Turnover factor (AP42 Fig 7.1-18)	0.2	0.23
K_P = Working Loss Product Factor (Crude = .75, rest = 1.0)	0.75	0.75

EMISSIONS CALCULATIONS (Continued)

Description	**S-26**	**S-27**
Calculated Values		
Tank Capacity gallons (=D^2xHxπ/4x7.48)	3807	1269
N = Turnovers (=Throughput/Capacity)	2627	414
K_N = Turnover factor (=(180+N)/6N if N>36) (=1 if N <= 36)	0.178	0.239
W_V = Vapor Density (=VPxMW/RT)	0.00137	0.0184
ΔT_A = Daily Ambient Temp Range ºF	16.6	16.6
ΔT_V = Daily Vapor Temp Range ºF (= 0.72ΔT_A + 0.028αI)	52.0	52.0
V_V = Vapor Space Volume ft3 (= $D^2H_{VO}\pi$/4)	382	113
B = Vapor Pressure Constant (= 7261-1216lnRVP AP-42 Figure 7.1-16)	8947	6768
ΔP_V = Vapor Pressure Range (from Applicant Information above)	0.0768	0.4
K_E = Vapor Space Expansion Factor (= $\Delta T_V/T_{LA}$ + (ΔP_V - ΔP_B)/(P_A-P_{VA}) AP-42 Equn 1-16))	0.0712	0.0927
Ks = Vented Vapor Saturation Factor (= 1/(1+0.053$P_{VA}H_{VO}$) AP-42 Equn 1-22)	0.962	0.692

Description	**S-26**	**S-27**
Summary of Emissions Calculations		

L_S = Standing Storage Loss, lb/yr $(=365V_VW_VK_EK_S)$	13.1	48.7
L_W = Working Loss, lb/yr $(=0.0010M_VP_{VA}QK_NK_P)$	198.0	235.4
L_T = Total Annual Losses, lb/yr $(=L_S + L_W)$	211.0	284.2
Total Emissions Ton/yr	0.105	0.142
Total Emissions Ton/yr	0.247	

EMISSIONS CALCULATIONS (Continued)

These emissions need to be compared to the carbon canister system formerly in place. Currently Databank shows the actual organic emissions as follows:

	Unabated lb/day	Abated lb/day	Abated lb/yr	Ton/yr
S-26	1.7476	0.0262	9.563	0.005
S-27	0.205	0.0031	1.132	0.001
Total				0.006

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  MAY  9, 2005   DATA BANK EMISSIONS AND EMISSION FACTORS

                   Organic Liquid Storage/Loading Source

Plant No.: 13193
Source No.: 26  Desc.: Skimmed Oil Tank, TK-13
Tank Type: Fixed Roof
Downstream Train: S26 --> A31 --> P6
Emission Equations:

   Breathing Loss =
   0.0226*Mw*(P1)^0.68*D^1.73*Hv^0.51*T^0.5*Fp*C*(Kc1)  lb/yr

   Working Loss = 0.024*Mv*P*Kn*(Kc2)*Q  lb/yr

(Breathing Loss + Working Loss) X (Conversion Factor) = (Unabated Emission)

Variables specific to storage tank:
   V  Tank Vol. thou gal       3.80  T  Delta Temp. F      15.000
   D  Tank Dia.       ft       9.00  Fp Paint Factor        1.300
   H  Tank Height     ft       8.00  C  Small Tank Factor    .450
   Hv Vapor Space Ht. ft       4.00     Paint Condition   Good
      Tank Paint Color        brown


Variables specific to stored material:
       Material Stored  (T4H3?502)   Water/organics mixture
   Kc1 Breathing Prod. Factor  1.00  Mv Molecular Weight lbs     66.00
   Kc2 Working Product Factor  1.00  P  Vapor Pressure psia   2.00E-01
   Kn  Turnover Factor          .17  P1 = (P/(14.7-P))        1.38E-02
```

```
       Ave. Liq. Temp. F     120.00
   Q   Throughput thou gal/yr  -   11372.0  Effective Date    12-31-04

Emission Calculation Results:
Fraction of Emissions to Downstream Train: 100%

  Equation  Matl  Convert  Pollutant              Unabated  Abate      Abated
   Totals   Code  Factor   Name             Code  Emission  Factor     Emission
   lb/day                                       lb/day               lb/day
  --------  ---- --------  -----------      ----  -------- --------   --------
    1.7476   502 1.00E+00  Water/organics m  502     1.7476 1.50E-02      .0262


   PONSCO Split     Part     Org     POC     NOx     SOx      CO   Other

     Unabated         .0     1.7     1.7      .0      .0      .0      .0
     Abated           .0      .0      .0      .0      .0      .0      .0
```

EMISSIONS CALCULATIONS (Continued)

```
         Source# : 27

Plant No.  13193
Valero Benicia Asphalt Plant
3001 Park Road
Benicia, CA  94510

  MAY  9, 2005   DATA BANK EMISSIONS AND EMISSION FACTORS

                  Organic Liquid Storage/Loading Source

Plant No.: 13193
Source No.: 27  Desc.: Recovered Oil Tank, TK-12
Tank Type: Fixed Roof
Downstream Train: S27 --> A31 --> P6
Emission Equations:

   Breathing Loss =
   0.0226*Mw*(P1)^0.68*D^1.73*Hv^0.51*T^0.5*Fp*C*(Kc1)  lb/yr

   Working Loss = 0.024*Mv*P*Kn*(Kc2)*Q  lb/yr

(Breathing Loss + Working Loss) X (Conversion Factor) = (Unabated Emission)

Variables specific to storage tank:
   V  Tank Vol. thou gal       1.25  T  Delta Temp. F      15.000
   D  Tank Dia.       ft       6.00  Fp Paint Factor        1.300
   H  Tank Height     ft       6.00  C  Small Tank Factor    .300
   Hv Vapor Space Ht. ft       3.00     Paint Condition   Good
      Tank Paint Color        brown

Variables specific to stored material:
       Material Stored  (T421?089)   Crude oil
   Kc1 Breathing Prod. Factor  1.00  Mv Molecular Weight lbs     50.00
   Kc2 Working Product Factor   .84  P  Vapor Pressure psia   1.50E+00
   Kn  Turnover Factor         1.00  P1 = (P/(14.7-P))        1.14E-01
       Ave. Liq. Temp. F      80.00
   Q   Throughput thou gal/yr         43.0  Effective Date    12-31-03

Emission Calculation Results:
Fraction of Emissions to Downstream Train: 100%
```

Equation Totals lb/day	Matl Code	Convert Factor	Pollutant Name	Code	Unabated Emission lb/day	Abate Factor	Abated Emission lb/day
.2050	89	1.00E+00	Crude oil	89	.2050	1.50E-02	.0031

PONSCO Split	Part	Org	POC	NOx	SOx	CO	Other
Unabated	.0	.2	.2	.0	.0	.0	.0
Abated	.0	.0	.0	.0	.0	.0	.0

PLANT CUMULATIVE INCREASE

	S-26 & 27 Emissions with Carbon Abatement	S-26 & 27 Emissions with Pressure/Vacuum Valves Abatement	Net Project Increase
Pollutant	Ton/year	Ton/year	Ton/year
POC	0.006	0.247	0.241

OFFSETS

The POC offset required is 0.241 TPY * 1.15 = 0.277 TPY

The plant has elected to use the offset deferral provision allowed in Regulation 2-2-421. The facility has valid Banking Certificates to cover this small increase and the facility's cumulative increase is less than 15 tons/year (presently at 0.051). As discussed with the applicant, offsets will be provided at least 30 days prior to the date of the annual permit renewal (i.e., no later than July 1, 2005).

TOXIC RISK SCREEN

This proposed change would not emit toxic compounds that exceed the trigger levels in Regulation 2-1-316. Therefore, a toxic risk screen is not required.

BEST AVAILABLE CONTROL TECHNOLOGY

BACT is triggered for new or modified sources that emit criteria pollutants in excess of 10 lbs/day. For this application, POC emissions do not exceed 10 lb/day. Therefore, BACT does not apply.

PLANT LOCATION

According to the SCHOOL program, the closest school is Semple Elementary, which is 0.60 miles from the facility.

COMPLIANCE

The emission control change to pressure vacuum valves will not change the compliance for S-26 and S-27, including Regulation 8, Rule 5, Storage of Organic Liquids, 40 CFR 61 Subpart FF, National Emission Standards for Benzene Waste Operations, and 40 CFR 63, Subpart CC, National Emission Standards for Hazardous Pollutants for Petroleum Refineries.

S-26 qualifies for the 8-5-117 low vapor pressure limited exemption. For S-27, the new abatement device complies with Regulation 8-5-301 for tanks less than 9906 gallons and vapor pressure less than 11 psia. In addition, the S-27 new abatement device is in compliance with Regulation 8-5-303, Requirements for Pressure Vacuum Valves.

Since the new pressure vacuum valves discharge direct to atmosphere, the tanks will have additional requirements to comply with Regulation 7, Odorous Substances and Regulation 9-2, Hydrogen Sulfide. Compliance with these regulations is expected. This modification has been installed since last summer and there have not been any odor complaints. In addition, the three ground level monitors have not detected any increase in H2S concentration.

The closest school is over 1000 feet from the facility, so the Public Notice requirements of Regulation 2-1-214 do not apply.

Toxics, NESHAPS, CEQA and BACT do not apply.

CONDITIONS

Existing Condition 1240 (Parts I.14 and 18e) applies to S-26 and S-27. No changes are proposed to this condition for this application.

14. Total asphalt plant emissions (excluding marine emissions) shall not exceed the limits listed below:
a. Non-Methane Hydrocarbons..... 49.345 tons/yr
b. Sulfur Dioxide, SO2..... .. 28.049 tons/yr
c. Nitrogen Oxides, as NO2..... 40.047 tons/yr
(Cumulative Increase)

18. To assure compliance with part I.14 of Condition 1240, the permit holder shall perform the following monitoring on a semi-annual basis, starting on January 1 of each year.
18e. The permit holder shall estimate NMHC emissions from the following wastewater sources using the most recent version of EPA's "Water" program: S12, S25-S28, S41, S66, S67. The permit holder may use maximum potential to emit in place of measured throughput.

RECOMMENDATION

It is recommended that an Authority to Construct be granted to Valero for:

S-26 Fixed Roof Wastewater Tank TK-4613, 3800 gal, Equipped with a Pressure Vacuum Valve
S-27 Fixed Roof Recovered Oil Tank TK-4612A, 1260 gal, Equipped with a Pressure Vacuum Valve

_____ _____
Arthur P. Valla Date
Air Quality Engineer

EVALUATION REPORT
VALERO BENICIA ASPHALT PLANT

APPLICATION 11356, NOx BOX ESTABLISHMENT

BACKGROUND

The Valero Benicia Asphalt Plant (BAP) operates several furnaces and boilers that are subject to Regulation 9-10-301 that limits the refinery wide NOx limit to 0.033 lb/MMBtu of fired duty. Regulation 9-10-502 requires the installation of a NOx, CO and O2 CEM to demonstrate compliance with Regulation 9-10-301. Regulation 9-10-502 also allows a CEM equivalent verification system to determine compliance with Regulation 9-10-301. The District and Valero has worked hard to produce the CEM equivalent verification system. This system is called the "NOx Box". The NOx Box is an operating window for the unit, expressed in terms of fired duty and oxygen content in the flue gas. The operating window is established by source tests for various operating conditions. The source tests demonstrate the NOx emissions are equal to or less than a specified emission factor. As long as the fired unit duty and oxygen content are in this NOx Box operating window, the specified emission factor is used to determine compliance with the 0.033 lb/MMBtu limit of Regulation 9-10-301. The Permit Condition that contains the details of the NOx Box is #21233. (Condition 21233 applies to heaters and furnaces at both this facility and the refinery Plant 12626. This application engineering evaluation covers only the Asphalt Plant sources. Similar Application 11307 covers the refinery sources.)

Condition 21233, Part 4 required Valero to submit the initial NOx Box for the affected sources by December 1, 2004. Valero met this requirement with this Application 11356, a Minor Revision to the Title V permit, for the following sources:

S-19 Vacuum Heater, 40 MMBtu/hr
S-20 Steam Boiler, 14.7 MMBtu/hr
S-21 Steam Boiler H-2B, 14.7 MMBtu/hr

Since Valero submitted this application, there have been several subsequent applications regarding NOx Box Permit Condition 21233 (note that the BAP is known both by the Title V facility number A0901 and the District databank plant number 13193):

Application 12660, BAP Administrative Change in Conditions granted September 13, 2005
Application 12477, A0901 Title V minor revision associated with NSR Application 12660
Application 13011, NOx Box Revision for S-19, currently complete, evaluation due 12/28/05.
Application 13010, A0901 Title V minor revision associated with NSR Application 13011

In addition, the following applications are also applicable to NOx Box Condition 21233 since this condition also applies to sources at the Valero Benicia Refinery B2626 (plant number 12626):

Application 12659, Administrative Change in Conditions for Refinery granted 9/13/05
Application 12478, B2626 Title V minor revision associated with NSR Application 12659
Application 12701, Revised NOx Box for Refinery S-20, granted September 12, 2005

Application 12434, B2626 Title V minor revision associated with NSR Application 12701

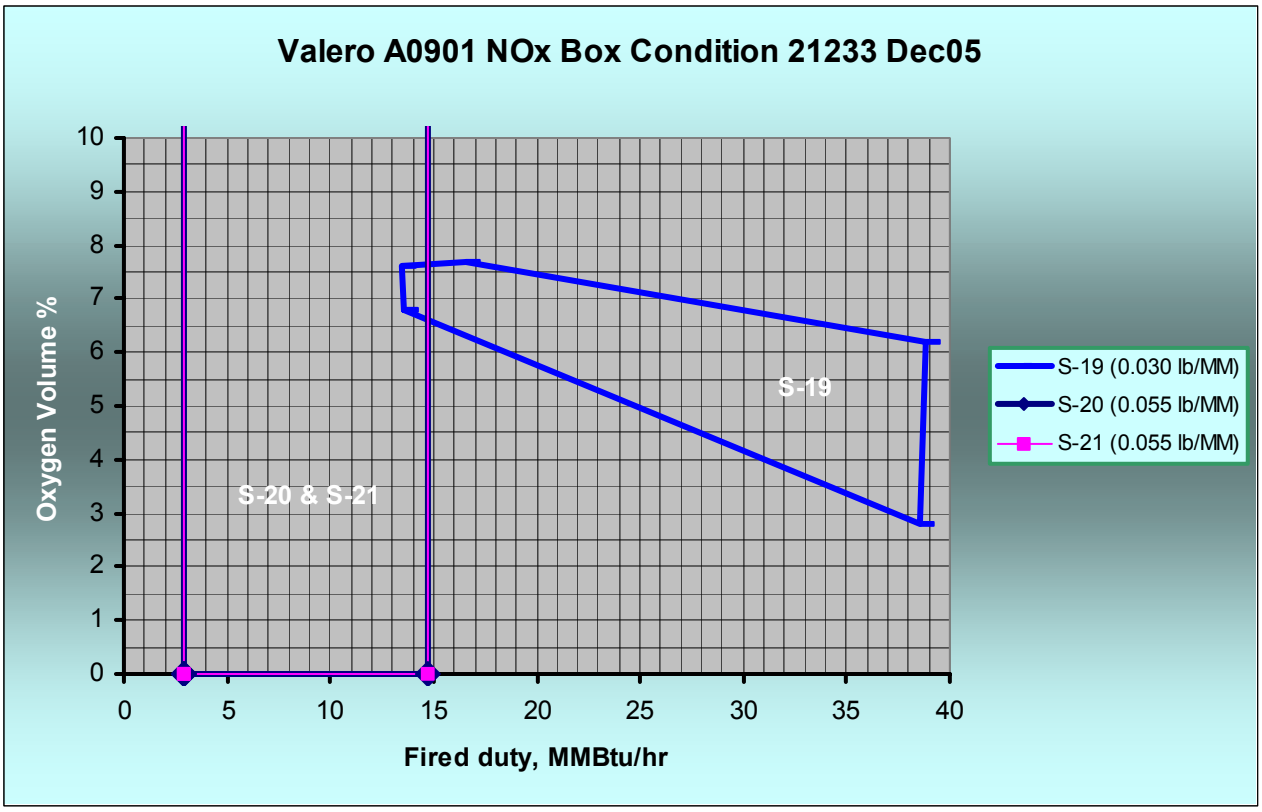
The proposed NOx Box for these sources covered by this application is as follows:

Source No.	Emission Factor (lb/MMBtu)	Min O_2 at Low Firing (O2% , MMBtu/hr)	Max O_2 at Low Firing (O2% , MMBtu/hr)	Min O_2 at High Firing (O2% , MMBtu/hr)	Mid O_2 at Mid/High Firing (polygon) (O2% , MMBtu/hr)	Max O_2 at High Firing (O2% , MMBtu/hr)
S-19	0.030	6.8, 13.6	7.6, 13.5	2.8, 38.5	7.7, 16.6	6.2, 38.8
S-20	0.055	(Note 1), 2.9	(Note 1), 2.9	(Note 1), 14.7	N/A	(Note 1), 14.7
S-21	0.055	(Note 1), 2.9	(Note 1), 2.9	(Note 1), 14.7	N/A	(Note 1), 14.7

Note 1: Per Part 3B, Oxygen limits do not apply to sources with maximum firing rates less than 25 MMBtu/hr.

The proposed NOx Boxes are supported by source tests reviewed by the Source Test Section. All of the proposed operating ranges shown above are included in Rev. 3 of the B2626 Title V Permit.

The following drawing summarizes the proposed NOx Boxes for the sources covered by this application:



EMISSIONS SUMMARY

There are no changes in emissions due to this application. The NOx Box emissions factors for the sources remain the same and are not changed by this application.

PLANT CUMULATIVE INCREASE

There are no net changes to the plant cumulative emissions.

TOXIC RISK SCREEN

This proposed NOx Box change would not emit toxic compounds in amounts different that previously emitted. Therefore, a toxic risk screen is not required.

BEST AVAILABLE CONTROL TECHNOLOGY

BACT is triggered for new or modified sources that emit criteria pollutants in excess of 10 lbs/day. However, Regulation 2-1-234 defines a modified source as one that results in an increase in daily or annual emissions of a regulated air pollutant. For this application, there is no change in emissions. Therefore, BACT does not apply.

PLANT LOCATION

According to the SCHOOL program, the closest school is Semple Elementary, which is just over one mile from the facility.

COMPLIANCE

The NOx Box establishment will not change the compliance of the sources. Emissions will comply with Regulation 2-9-303 (Alternative Compliance Plan using IERC's), Regulations 6 and Regulation 9, Rule 10 as before the NOx Box establishment.

The closest school is over a mile from the facility, so the Public Notice requirements of Regulation 2-1-214 do not apply.

Toxics, CEQA, NESHAPS, BACT, Offsets and NSPS do not apply.

CONDITIONS

As explained in the Background section, the NOx Box Condition 21233 has been the subject of several applications. The permit condition below reflects all approved changes, including the administrative change of conditions. The Condition 21233 shown below is identical to the version shown in the proposed Revision 3 of the B2626 Title V Permit. The primary impact of this application 11356 will be the NOx Box operating parameters shown in Part 5A.

Valero Refining Company – California

3400 E. Second Street
Benicia, Ca 94510
Application 11307
S-20 (B2626) Modified by Application 12701
Plant B2626 and A0901
Regulation 9-10 Refinery-Wide Compliance

*1. The following sources are subject to the refinery-wide NOx emission rate and CO concentration limits in Regulation 9-10: (Basis: Regulation 9-10-301 & 305)

Facility No. B2626, Valero Refining Company

S#	Description	NOx CEM
7	F-103 Jet Fuel HF, 53 MMBtu/hr	No
20	F-104 Naphtha HF, 62 MMBtu/hr	No
21	F-301 Hydrogen, 614 MMBtu/hr	Yes
22	F-351 Hydrogen, 614 MMBtu/hr	Yes
23	F-401 Gas Oil HC, 200 MMBtu/hr	Yes
24	F-601 Cat Feed HF, 33 MMBtu/hr	No
25	F-701 Cat Feed, 230 MMBtu/hr	Yes
26	F-801 HCN HF, 33 MMBtu/hr	No
30	F-2901 PFR Preheat, 463 MMBtu/hr total	Yes
31	F-2902 PFR Preheat, 463 MMBtu/hr total	Yes
32	F-2903 PFR Preheat, 463 MMBtu/hr total	Yes
33	F-2904 PFR Preheat, 463 MMBtu/hr total	Yes
34	F-2905 PFR Regen Gas, 74 MMBtu/hr	No
35	F-2906 PFR React Gas, 14 MMBtu/hr	No
40	SG-2301 Steam Gen, 218 MMBtu/hr	Yes
41	SG-2302 Steam Gen, 218 MMBtu/hr	Yes
173	F-902 Coker Steam Superheat, 20 MMBtu/hr	No
220	F-4460 MRU Hot Oil, 351 MMBtu/hr	Yes

Facility No. A0901 (13193), Valero Benicia Asphalt Plant

S#	Description	NOx CEM
19	Vacuum Heater, 40 MMBtu/hr	No
20	Steam Boiler, 14.7 MMBtu/hr	No
21	Steam Boiler H-2B, 14.7 MMBtu/hr	No

A. Compliance with the daily refinery wide average NOx emission limit, 0.033 lb NOx/MMBtu fired duty is achieved through the use of an approved Alternate Compliance Plan using NOx IERCs in accordance with the provisions in Regulation 2-9-303.

B. The owner/operator of each source listed in Part 1 above shall determine compliance with Regulation 9-10 as follows:

1) Calculate NOx emissions from each furnace using measured fuel gas rates, and either:

   a. CEM data or

   b. NOx emission factors from Part 5A

2) The daily facility wide average emission rate shall be determined by dividing the combined total emissions from sources listed in Part 1 above by the combined total heat input.

3) Sufficient NOx IERC's will be provided in accordance with the provisions of Regulation 2-9-303 to ensure compliance with the refinery wide average NOx emission limit of 0.033 lb NOx/MMBtu fired duty.

*2. The Owner/Operator of each source with a maximum firing rate greater than 25 MMBtu/hr listed in Part 1 shall properly install, properly maintain, and properly operate an O2 monitor and recorder. (Basis: Regulation 9-10-502)

*3. The Owner/Operator shall operate each source listed in Part 1, which does not have a NOx CEM, within specified ranges of operating conditions (firing rate and oxygen content) as detailed in Part 5. The ranges shall be established by utilizing data from District-approved source tests. (Basis: Regulation 9-10-502)

A. The NOx Box for units with a maximum firing rate of 25 MMBtu/hr or more shall be established using the procedures in Part 4.

B. The NOx Box for units with a maximum firing rate less than 25MMBtu/hr shall be established as follows: High-fire shall be the maximum rated capacity. Low-fire shall be 20% of the maximum rated capacity (except for S-35, for which the low-fire shall be 8% of the maximum rated capacity). There shall be no maximum or minimum O2.

*4. The Owner/Operator shall establish the initial NOx box for each source subject to Part 3 by January 1, 2005. The NOx Box may consist of two operating ranges in order to allow for operating flexibility and to encourage emission minimization during standard operation. (Basis: Regulation 9-10-502) The procedure for establishing the NOx box is

A. Conduct District approved source tests for NOx and CO, while varying the oxygen concentration and firing rate over the desired operating ranges for the furnace;

B. Determine the minimum and maximum oxygen concentrations and firing rates for the desired operating ranges (Note that the minimum O_2 at low-fire may be different than the minimum O_2 at high-fire. The same is true for the maximum O_2). The Owner/Operator shall also verify the accuracy of the O2 monitor on an annual basis.

C. Determine the highest NOx emission factor (lb/MMBtu) over the preferred operating ranges while maintaining CO concentration below 200 ppm; the Owner/Operator may choose to use a higher NOx emission factor than tested.

D. Plot the points representing the desired operating ranges on a graph. The resulting polygon(s) are the NOx Box, which represents the allowable operating range(s) for the furnace under which the NOx emission factor from part 5a is deemed to be valid.

1). The NOx Box can represent/utilize either one or two emission factors.

2) The NOx Box for each emission factor can be represented either as a 4- or 5-sided polygon The NOx box is the area within the 4- or 5-sided polygon formed by connecting the source test parameters that lie about the perimeter of successful approved source tests. The source test parameters forming the corners of the NOx box are listed in Part 5.

E. Upon establishment of each NOx Box, the Owner/Operator shall prepare a graphical representation of the box. The representation shall be made available on-site for APCO review upon request. The box shall also be submitted to the BAAQMD with permit amendments.

*5. Except as provided in part 5B & C, the Owner/Operator shall operate each source within the NOx Box ranges listed below at all times of operation. This part shall not apply to any source that has a properly operated and properly installed NOx CEM. (Basis: Regulation 9-10-502)

A. NOx Box ranges. The limits listed below are based on a calendar day averaging period for both firing rate and O2%.

Source No.	Emission Factor (lb/MMBtu)	Min O_2 at Low Firing (O2% , MMBtu/hr)	Max O_2 at Low Firing (O2% , MMBtu/hr)	Min O_2 at High Firing (O2% , MMBtu/hr)	Mid O_2 at Mid/High Firing (polygon) (O2% , MMBtu/hr)	Max O_2 at High Firing (O2% , MMBtu/hr)
Plant B2626						
7	0.350	3, 16	17, 10	6, 30	N/A	11, 37
20	0.28	2, 19	12, 23	2, 37	2, 50	5, 47
24	0.757	11,7	14, 8	3, 27	6, 12	7, 29
26	0.194	13, 9	17, 7	6, 21	8, 17	12, 24
34	0.250	17, 2	20, 2	4, 26	N/A	7, 38
35	0.200	(Note 1), 1	(Note 1), 1	(Note 1), 14	N/A	(Note 1), 14
173	0.050	(Note 1), 4	(Note 1), 4	(Note 1), 20	N/A	(Note 1), 20
Plant A0901 (13193)						
S-19	0.030	6.8, 13.6	7.6, 13.5	2.8, 38.5	7.7, 16.6	6.2, 38.8

S-20	0.055	(Note 1), 2.9	(Note 1), 2.9	(Note 1), 14.7	N/A	(Note 1), 14.7
S-21	0.055	(Note 1), 2.9	(Note 1), 2.9	(Note 1), 14.7	N/A	(Note 1), 14.7

Note 1: Per Part 3B, Oxygen limits do not apply to sources with maximum firing rates less than 25 MMBtu/hr.

B. Part 5A does not apply to low firing rate conditions (i.e., firing rate less than or equal to 20% of the unit's rated capacity), during startup or shutdown periods, or periods of curtailed operation (ex. during heater idling, refractory dry out, etc.) lasting 5 days or less. During these conditions the means for determining compliance with the refinery wide limit shall be accomplished using the method described in 9-10-301.2 (i.e. units out of service & 30-day averaging data).

C. Part 5A does not apply during any source test required or permitted by this condition. See Part 7 for the consequences of source test results that exceed the emission factors in Part 5.

*6. NOx Box Deviations (Basis: Regulation 9-10-502) .

A. The Owner/Operator may deviate from the NOx Box (either the firing rate or oxygen limit) provided that the Owner/Operator conducts a District approved source test that reasonably represents the past operation outside of the established ranges. The source test representing the new conditions shall be conducted no later than the next regularly scheduled source test period, or within eight months, whichever is sooner. The source test results will establish whether the source was operating outside of the emission factor utilized for the source. The source test results shall be submitted to the District Source Test Manager within 45 days of the test. The Owner/Operator may request, and the APCO may grant, an extension of 15 days for submittal of results. As necessary, a permit amendment shall be submitted.

1) Source Test ≤ Emission Factor

If the results of this source test do not exceed the higher NOx emission factor in Part 5, or the CO limit in Part 9, the unit will not be considered to be in violation during this period for operating out of the "box."

The facility may submit an accelerated permit program permit application to request an administrative change of the permit condition to adjust the NOx Box operating range(s), based on the new test data.

2) Source Test > Emission Factor

If the results of this source test exceed the permitted emission concentrations or emission rates then the actions described below must be followed:

a. Utilizing the measured emission concentration or rate, the Owner/Operator shall perform an assessment of compliance with Regulation 9-10-301 as follows:

1. "Out of Box" Condition – for the day(s) in which the "out of box" condition(s) occurred, the Owner/Operator shall ensure sufficient NOx IERCs are provided to ensure the facility is in compliance with the refinery wide limit. The Owner/Operator will be in violation of Regulation 9-10-301 for each day there are insufficient NOx IERCs provided to bring the refinery wide average into compliance with Regulation 9-10-301.

2. Within the Box – for the case when the source is operated within the "box" but source test results indicate a higher emission factor, the Owner/Operator shall apply the higher emission factor retroactively to the date of the previous source test and provide sufficient NOx IERCs for that time period to ensure the facility is in compliance with the refinery wide limit specified in Regulation 9-10-301. The Owner/Operator will be in violation of Regulation 9-10-301 for each day there are insufficient NOx IERCs provided to bring the refinery wide average into compliance with Regulation 9-10-301.

b. The facility may submit a permit application to request an alteration of the permit condition to change the NOx emission factor and/or adjust the operating range, based on the new test data.

B. Reporting. The Owner/Operator must report conditions outside of box within 96 hours of occurrence.

*7. For each source subject to Part 3, the Owner/Operator shall conduct source tests on the schedule listed below. The source tests are performed in order to measure NOx, CO, and O2 at the as-found firing rate, or at conditions reasonably specified by the APCO. The source test results shall be submitted to the District Source Test Manager within 45 days of the test. The Owner/Operator may request, and the APCO may grant, an extension of 15 days for submittal of results. (Basis: Regulation 9-10-502)

A. Source Testing Schedule

1) Heater < 25 MMBtu/hr

One source test per consecutive 12 month period. The time interval between source tests shall not exceed 16 months. The source test results shall be submitted to the District Source Test Manager within 45 days of the test.

2) Heaters ≥ 25 MMBtu/hr

Two source tests per consecutive 12 month period. The time interval between source tests shall not exceed 8 months and not be less than 5 months apart. The source test results shall be submitted to the District Source Test Manager within 45 days of the test.

3) If a source has been shutdown longer than the period allowed between source testing periods (e.g. <25 MMBtu/hr - > 16 mos or > 25 MMBtu/hr - > 8 mos), the owner/operator shall conduct the required source test within 30 days of start up of the source.

B. Source Test Results > NOx Box Emission Factor

If the results of any source test under this part exceed the permitted concentrations or emission rates the Owner/Operator shall follow the requirements of Part 6A2. If the Owner/Operator chooses not to submit an application to revise the emission factor, the Owner/Operator shall conduct another Part 7 source test, at the same conditions, within 90 days of the initial test.

*8. For each source listed in Part 1 with a NOx CEM installed that does not have a CO CEM installed pursuant to Part 9, the Owner/Operator shall conduct semi-annual District approved CO source tests at as-found conditions. The time interval between source tests shall not exceed 8 months. District conducted CO emission tests associated with District-conducted NOx CEM field accuracy tests may be substituted for the CO semi-annual source tests. (Basis: Regulation 9-10-502)

*9. For any source listed in Part 1 with a maximum firing limit greater than 25 MMBtu/hr for which any two source test results over any consecutive five year period are greater than or equal to 200 ppmv CO at 3% O2, the Owner/Operator shall properly install, properly maintain, and properly operate a CEM to continuously measure CO and O2. The Owner/Operator shall install the CEM within the time period allowed in the District's Manual of Procedures. (Basis: Regulation 9-10-502, 1-522)

*10. In addition to records required by Regulation 9-10-504, the Owner/Operator must maintain records of all source tests conducted to demonstrate compliance with Parts 1 and 5. These records shall be kept on site for at least five years from the date of entry in a District approved log and be made available to District staff upon request. (Basis: Regulation 9-10-504)

RECOMMENDATION

It is recommended that the NOx Boxes be approved for the Valero Benicia Asphalt Plant for:

S-19 Vacuum Heater, 40 MMBtu/hr
S-20 Steam Boiler, 14.7 MMBtu/hr
S-21 Steam Boiler H-2B, 14.7 MMBtu/hr

It is further recommended that this evaluation be included in the next revision of the A0901 Title V permit statement of basis and that this application be closed (Code 389 – Title V Issue).

Arthur P. Valla Air Quality Engineer	Date 14Dec05

EVALUATION REPORT
VALERO BENICIA ASPHALT PLANT, PLANT 13193

APPLICATION 11815, REVISION TO A-4 TEMPERATURE CONDITION 1240

BACKGROUND

The Valero Benicia Asphalt Plant (Valero) operates A-4 Thermal Oxidizer as abatement for several truck loading sources. The primary permit condition for the Asphalt Plant is #1240 covering most of the facility sources. In several locations in Permit Condition 1240 (e.g. Parts II.60, II.63 and II.68), source emissions are required to be collected and abated with an efficiency of 98.5%. Permit Condition 1240 Part I.19 requires Valero to perform a source test on A-4 to confirm the oxidizer complies with the 98.5% destruction efficiency and the grain-loading requirement of Regulation 6-310. This application is to set the minimum operating temperature for:

A-4 Loading Rack Thermal Oxidizer, 6.5 MMbtu/hr

Valero performed the required source test May 20, 2004 and has determined that the minimum operating temperature for A-4 must be 1558ºF to comply with the 98.5% destruction efficiency. In addition, the source test demonstrated that A-4 complies with 6-310. The Source Test Section has reviewed and approved the source test report.

District Policy, based on performance reviews, is to require thermal oxidizers to be operated at 1400F to maintain 98.5% efficiency. An owner/operator may choose to operate a thermal oxidizer at temperatures above 1400F. An owner/operator may also operate a thermal oxidizer at a temperature less than 1400F, and an application for this can be approved if supported by a District approved source test. In the case of A-4, a permit condition was imposed to perform the source test and Valero complied. The average destruction efficiency shown in the source test report is 99.3%.

Permit Condition 1240, part I.19 will be revised to reflect the completed source test and to require A-4 to operate at a minimum temperature of 1400F.

EMISSIONS SUMMARY

There are no changes in emissions due to this application. District emission calculations are based on A-4 at 98.5% efficiency. This application does not change this calculation.

PLANT CUMULATIVE INCREASE

There are no changes to the plant cumulative emissions.

TOXIC RISK SCREEN

This proposed change does not impact toxic emissions. Therefore, a toxic risk screen is not required.

BEST AVAILABLE CONTROL TECHNOLOGY

BACT is triggered for new or modified sources that emit criteria pollutants in excess of 10 lbs/day. However, Regulation 2-1-234 defines a modified source as one that results in an increase in daily or annual emissions of a regulated air pollutant. For this application, there is no change in emissions. Therefore, BACT does not apply.

PLANT LOCATION

According to the SCHOOL program, the closest school is Semple Elementary, which is over three thousand feet from the facility.

COMPLIANCE

The change to Permit Condition 1240 will not change the compliance for the covered sources. Emissions from A-4 will comply with the 98.5% destruction efficiency requirement. In addition, A-4 will comply with Regulations 6-310.

The closest school is over 1000 feet from the facility, so the Public Notice requirements of Regulation 2-1-214 do not apply.

Toxics, CEQA, NESHAPS, BACT, Offsets and NSPS do not apply.

CONDITIONS

The Asphalt Plant Condition 1240 will be modified as shown below, shown in underline/strikeout format. Only Part I.19 is shown since this is the only part modified by this application. The remainder of the permit condition is unchanged.

Condition 2140

I. ASPHALT PLANT CONDITIONS

19. Within 90 days of issuance of the Title V permit, the ~~permit holder~~ Owner/Operator shall install continuous temperature monitoring and recording device for A4, Thermal Oxidizer. ~~Within 180 days of issuance of~~

~~the Title V permit, the permit holder shall perform a source test to determine whether A4 is in compliance with the requirement for 98.5% destruction efficiency, the grain loading limit in BAAQMD Regulation 6-310, and the minimum temperature at which A4 must operate to maintain the destruction efficiency and compliance with the other standards. All source testing shall be done in accordance with the District's Manual of Procedures. The permit holder shall receive approval from the District's Source Test Manager for installation of test ports and source testing procedures. The results shall be delivered to the District no later than 30 days from the date of the source test~~The Owner/Operator shall operate A4 Thermal Oxidizer at a minimum temperature of 1400F. ~~Minor revision procedures in accordance with BAAQMD Regulation 2-6-414 shall be used to add the minimum temperature specification to the Title V permit~~(Source Test requirement completed May 20, 2004 and minimum operating temperature added per Application 11815.-) (2-6-503)

RECOMMENDATION

It is recommended that a Change of Conditions to the Permit to Operate be granted to Valero for:

A-4 Loading Rack Thermal Oxidizer, 6.5 MMbtu/hr

Arthur P. Valla	Date
Air Quality Engineer	15Sep05

EVALUATION REPORT
VALERO BENICIA ASPHALT PLANT

APPLICATION 12237, REVISIONS TO S-24 TEMPERATURE CONDITION 1240

BACKGROUND

The Valero Benicia Asphalt Plant (Valero) operates A-31 Thermal Oxidizer as abatement for several sources. When A-31 malfunctions or requires maintenance, the feed gas is diverted to

S-24 Hot Oil Heater, 9 MMbtu/hr

Normally S-24 is used as a process heater and is not used for emissions abatement.

The primary permit condition for the Asphalt Plant is #1240 covering most of the facility sources. In several locations in Permit Condition 1240 (e.g. Parts II.32a, II.32b and II.32c), source emissions are required to be collected and abated with an efficiency of 98.5%. Permit Condition 1240 Part II.58b requires Valero to perform a source test on S-24 to confirm the heater complies with the 98.5% destruction efficiency and the grain loading requirement of Regulation 6-310, when S-24 is used as an abatement device.

Valero performed the required source test February 28, 2004 and has determined that the minimum operating temperature for S-24 must be 1115ºF to comply with the 98.5% destruction efficiency. In addition, the source test demonstrated that S-24 complies with 6-310 as well as the NOx limit of 30 ppm and CO limit of 50 ppm (Permit Condition 1240, Part V.1). The Source Test Section has reviewed and approved the source test report.

This application is to revise Permit Condition 1240 to reflect the results of this source test.

Permit Condition 1240 Part II.58b also requires Valero to perform a source test on A-31 to confirm that the thermal oxidizer complies with the 98.5% destruction efficiency and the grain-loading requirement of Regulation 6-310. This source test has also been completed resulting in a minimum combustion temperature of 1400F to achieve the 98.5% destruction efficiency. Unfortunately, the application for the change of conditions for A-31 was misplaced when first submitted in April 2004. This problem has been corrected and Applications 12703/12704 have been submitted for A-31. These A-31 applications are currently incomplete.

EMISSIONS SUMMARY

There are no changes in emissions due to this application. District emission calculations are based on the primary abatement device A-31 at 98.5% efficiency. S-24 is a backup abatement device and this application to incorporate the results of the source test required by Condition 1240 Part II.58b will not change the facility emissions.

PLANT CUMULATIVE INCREASE

There are no changes to the plant cumulative emissions.

TOXIC RISK SCREEN

This proposed changes do not impact toxic emissions. Therefore, a toxic risk screen is not required.

BEST AVAILABLE CONTROL TECHNOLOGY

BACT is triggered for new or modified sources that emit criteria pollutants in excess of 10 lbs/day. However, Regulation 2-1-234 defines a modified source as one that results in an increase in daily or annual emissions of a regulated air pollutant. For this application, there is no change in emissions. Therefore, BACT does not apply.

PLANT LOCATION

According to the SCHOOL program, the closest school is Semple Elementary, which is over three thousand feet from the facility.

COMPLIANCE

The change to Permit Condition 1240 will not change the compliance for the covered sources. Emissions from S-24, when used for abatement, operating at a minimum temperature of 1115ºF, will comply with the 98.5% destruction efficiency requirement. In addition, S-24 will comply with Regulations 6 and the NOx and CO limits of Permit Condition 1240 Part V.1.

The closest school is over 1000 feet from the facility, so the Public Notice requirements of Regulation 2-1-214 do not apply.

Toxics, CEQA, NESHAPS, BACT, Offsets and NSPS do not apply.

CONDITIONS

The Asphalt Plant Condition 1240 will be modified as shown below, shown in underline/strikeout format. Only Part II.58b is shown since this is the only part modified by this application. The remainder of the permit condition is unchanged. Note that the minimum operating temperature of A-31 is also included in the condition change.

Condition 2140

II. TANKAGE AND LOADING RACK CONDITIONS:

58b. The ~~permit holder~~Owner/Operator shall install and properly maintain continuous temperature monitoring and recording devices for A31, Thermal Oxidizer and S24, Hot Oil Heater. ~~By March 1, 2004, the permit holder shall perform a source test to determine whether A31 and S24 are in compliance with the requirement for 98.5% destruction efficiency, the grain loading limit in BAAQMD Regulation 6-310, and the minimum temperature at which A31 and S24 must operate to maintain the destruction efficiency and compliance with the other standards. All source testing shall be done in accordance with the District's Manual of Procedures. The permit holder shall receive approval from the District's Source Test Manager for installation of test ports and source testing procedures. The results shall be delivered to the District no later than 30 days from the date of the source test.~~ The Owner/Operator shall operate A-31 with a minimum combustion zone temperature of 1400F to maintain a 98.5% destruction efficiency. The Owner/Operator shall operate S-24 at a minimum operating temperature of 1115F to maintain a 98.5% destruction efficiency when S-24 is operated in abatement service. (Source Test Requirements demonstrating compliance with the 98.5% abatement destruction efficiency and the Regulation 6-310 grain loading requirements were completed February 28 and 29, 2004.) ~~Minor revision procedures in accordance with BAAQMD Regulation 2-6-414 shall be used to add the minimum temperature specification to the Title V permit.~~ (Applications 12704 for A-31 and Application 12236 for S-24 have been submitted for the Title V permit revisions) (Basis: 40 CFR 60.113bc(1)(ii) and 60.113bc(2); 40 CFR 60.473c; 40 CFR 61.354c(4), 61.356(f)(2)(i)(A), and 61.356(f)(2)(i)c~~, Regulation 2-6-409.2.2, 2-6-414~~)

The ‘clean’ part will read as follows:

58b. The Owner/Operator shall install and properly maintain continuous temperature monitoring and recording devices for A31, Thermal Oxidizer and S24, Hot Oil Heater. The Owner/Operator shall operate A-31 with a minimum combustion zone temperature of 1400F to maintain a 98.5% destruction efficiency. The Owner/Operator shall operate S-24 at a minimum operating temperature of 1115F to maintain a 98.5% destruction efficiency when S-24 is operated in abatement service. (Source Test Requirements demonstrating compliance with the 98.5% abatement destruction efficiency and the Regulation 6-310 grain loading requirements were completed February 28 and 29, 2004.) (Applications 12704 for A-31 and Application 12236 for S-

24 have been submitted for the Title V permit revisions) (Basis: 40 CFR 60.113bc(1)(ii) and 60.113bc(2); 40 CFR 60.473c; 40 CFR 61.354c(4), 61.356(f)(2)(i)(A), and 61.356(f)(2)(i)c)

RECOMMENDATION

It is recommended that a Change of Conditions to the Permit to Operate be granted to Valero for:

S-24 Hot Oil Heater, 9 MMbtu/hr

Arthur P. Valla	Date
Air Quality Engineer	15Sep05

EVALUATION REPORT
VALERO BENICIA ASPHALT PLANT
TITLE V ADMINISTRATIVE AMENDMENT

APPLICATION 12421, TANK EXEMPTIONS, 8-5-117 AND SUBPART Kb 60.110b(b)

BACKGROUND

The Valero Benicia Asphalt Plant (Valero) operates a variety of storage tanks that are subject to Regulation 8, Rule 5, and NSPS Subpart Kb. Both Rule 8-5 and Subpart Kb have provisions that reduce the applicable requirements if the tank is storing liquid that contains a low vapor pressure:

> **8-5-117 Exemption, Low Vapor Pressure:** The provisions of this Rule, except for Section
> 8-5-307, shall not apply to tanks storing organic liquids with a true vapor pressure of
> less than or equal to 25.8 mm Hg (0.5 psia) as determined by Sections 8-5-602 or 604.
> *(Adopted 1/20/93; Amended 11/27/02)*

> § 60.110b Applicability and designation of affected facility.
> (a) Except as provided in paragraph (b) of this section, the affected facility to which this subpart applies is each storage vessel with a capacity greater than or equal to 75 cubic meters (m^3) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984.
> (b) This subpart does not apply to storage vessels with a capacity greater than or equal to 151 m^3 storing a liquid with a maximum true vapor pressure less than 3.5 kilopascals (kPa) or with a capacity greater than or equal to 75 m^3 but less than 151 m^3 storing a liquid with a maximum true vapor pressure less than 15.0 kPa.

In English, Subpart Kb does not apply for 1), small tanks (less than 19,813 gallons capacity), 2), medium tanks (between 19,813 gallons and 39,890 gallons capacity) if the stored liquid vapor pressure is less than 2.1756 psia, and 3), large tanks (over 39,890 gallons capacity) if the vapor pressure is less than 0.5076 psia.

The Valero Revision 1 Title V permit has the tanks qualifying for the 8-5-117 low vapor pressure limited exemption listed in the following tables:

Table IV-C for S-3
Table IV-D for S-5, 6, 7, 8, 37 and 38
Table IV-F for S-12
Table IV-Q for S-25
Table IV-R for S-26
Table IV-T for S-28
Table IV-Y for S-39
Table IV-Z for S-40
Table IV-AB for S-51, 52, 53 and 60

Table IV-AE for S-61 and 62
Table IV-AG for S-65
Table IV-AL for S-70

For Subpart Kb, the Revision 1 permit shows no 60.110b(b) low vapor pressure citations.

For all the sources above, the tanks are expected to be in "exempt service" at all times. For all the tables above, 8-5-117 is the only citation shown for the Regulation 8-5 section. The remaining 8-5 citations are shown in Table IV-A, General Asphalt Plant Requirements. Permit Condition 20762, or a similar condition that applies to exempt tanks that change the material stored, is not included in Revision 1 of the Title V permit.

Some of the remaining Valero tanks are not exempt and the Title V tables show multiple requirements including those from Regulation 8, Rule 5, and those from Subpart Kb. Intermittently, Valero may operate these tanks in a service that qualifies for the low vapor pressure limited exemption (aka "exempt service"). When this happens, Valero is not obligated to comply with the requirements of high vapor pressure ("non-exempt") service, such as the periodic seal inspections. The Valero Enviance tracking software reports this as a deviation, and Valero is sensitive to any item including on the deviation reports.

Valero has submitted this application for an administrative amendment to clarify the permit showing that when a vapor pressure criterion is met, 8-5-117 and/or 60.110b(b) allow different requirements to be applicable. Valero has identified the following sources for potential exempt service:

Source	TK-	Title V Table	Capacity kgal	Capacity Barrels	Service
9	7	E	571	13595	Naphtha
13	8	G	88	2095	Kerosene
27	12	S	1.25	30	Recovered Oil
59	5	AD	1050	25000	Gas Oil
63	31	AF	1218	29000	Kerosene/LVGO/ HVGO/Asphalt
67	12B	AI	5.9	140	Floc

This application requests that Regulation 8-5-117 be added to the requirements of the sources listed above. In addition, of the sources listed above, Valero has identified S-9, 13, 59 and 63 as potential Subpart Kb 60.110b(b) low vapor pressure service.

Consistent with Valero's opinion that this application corrects a deficiency in the title V permit, there is no NSR permit related to this Title V administrative amendment application.

It is understood that Valero needs some flexibility to manage the facility operation. The Legal Division opinion has been expressed that Valero has the option to state that certain requirements

are not applicable, such as when a source is out of service. In such a case, Valero is required to keep records supporting why a particular regulation is not applicable. If the tracking software reports this as a deviation then this is a feature of the software, not necessarily a problem with the permit. Nevertheless, Valero believes the missing exemption citations are a deficiency because Valero "may not be afforded the protection of the exemption". District internal discussions have resulted in a general conclusion that something will be done to address the concerns Valero raises in this application.

In-house District discussion identified concerns over this service switching issue. The primary concern is ensuring emissions are minimized during any transition. For example, if a particular tank were switched from gasoline to Diesel service, it would be prudent to remove all the gasoline from the tank before starting the exempt Diesel service (to prevent the high vapor pressure gasoline emissions). While it is likely this will be done to maximize product, without detailed procedures, an owner/operator could designate a tank "exempt" anytime the supply valve lineup is changed regardless of tank contents. An abusive owner/operator could make programmed changes just prior to the required seal inspections and craft an inspection avoidance program. These are extreme situations that are likely to never be experienced (and have never been experienced at Valero). However, when considering that tanks are never 100% cleaned (unless there is a confined space entry required), there will be a mixture of exempt and non-exempt material in a tank during the transition period. Among the questions remaining to be answered: when does a tank become "exempt", what is required during the transition period, and what tests and records are required to demonstrate the end of the transition period.

There have been several alternatives associated with the issue of operating tanks in and out of exempt service:

1. Add a general condition in Section I of the permit that allows the owner/operator to determine which applicable requirements are applicable and which are exempt.
2. Add the specific tank exemptions 8-5-117 and 60.110b(b) to the site wide general table.
3. Add the specific tank exemptions 8-5-117 and 60.110b(b) to each tank table.
4. Generate a new permit condition that details the steps and tests required to change from nonexempt to exempt service.
5. Defining the different operating scenarios that change the service of the tanks per Regulation 2-6-409.11.
6. Address the requirements for switching in and out of exempt service in the next revision of Regulation 8, Rule 5.
7. Do nothing. The Title V permit is intended to list all applicable requirements, not applicable exemptions. The owner/operator has the responsibility to certify compliance. If a particular source is in abnormal service, the owner/operator needs to include the associated requirement changes in the compliance certification. This option would place the exempt service in the same category as start-up, shutdown, and out-of-service scenarios.

The general consensus is that Item #6 above is the best solution. All of the other solutions leave out sufficient detail that interpretation will lead to future disputes. However, rulemaking is a comprehensive and lengthy process. After consulting with the Legal Division, District Staff

selected a combination of Item # 2 and # 4 as the most suitable option to resolve the disposition of this application.

EMISSIONS SUMMARY

There are no changes in emissions due to this application. Allowing tanks to operate in exempt service is inherent in the existing permit and this clarification does not change emissions.

PLANT CUMULATIVE INCREASE

There are no net changes to the plant cumulative emissions.

TOXIC RISK SCREEN

This proposed administrative amendment would not emit toxic compounds in amounts different that previously emitted. Therefore, a toxic risk screen is not required.

BEST AVAILABLE CONTROL TECHNOLOGY

BACT is triggered for new or modified sources that emit criteria pollutants in excess of 10 lbs/day. However, Regulation 2-1-234 defines a modified source as one that results in an increase in daily or annual emissions of a regulated air pollutant. For this application, there is no change in emissions. Therefore, BACT does not apply.

PLANT LOCATION

According to the SCHOOL program, the closest school is Semple Elementary, which is about 0.60 of a mile from the facility.

COMPLIANCE

This application will not change the compliance for the affected sources. Specifically, compliance with NSPS Subpart Kb and Regulation 8-5 will remain unchanged.

The closest school is over a mile from the facility, so the Public Notice requirements of Regulation 2-1-214 do not apply.

Toxics, CEQA, NESHAPS, BACT, and Offsets do not apply.

CONDITIONS

Permit Condition 20762 was previously added to the Title V permit to address concerns over tanks in exempt service. Part 2 of the condition shown below was inserted in response to this application. An underline/strikeout version is appended to this evaluation.

Condition 20762
For Refinery and Asphalt Plant:

This condition applies to tanks that are exempt from Regulation 8, Rule 5, Storage of Organic Liquids, due to the exemption in Regulation 8-5-117 for storage of organic liquids with a true vapor pressure of less than or equal to 25.8 mm Hg (0.5 psia).

1. Whenever the type of organic liquid in the tank is changed, the owner/operator shall verify that the true vapor pressure at the storage temperature is less than or equal to 25.8 mm Hg (0.5 psia). The owner/operator shall use Lab Method 28 from Volume III of the District's Manual of Procedures, Determination of the Vapor Pressure of Organic Liquids from Storage Tanks. For materials listed in Table 1 of Regulation 8 Rule 5, the owner/operator may use Table 1 to determine vapor pressure, rather than Lab Method 28. If the results are above 25.8 mm Hg (0.5 psia), the owner/operator shall report non-compliance in accordance with Standard Condition I.F and shall submit an application to the District for a new permit to operate for the tank as quickly as possible. (Basis: Regulation 8-5-117)

2. Whenever the type of organic liquid in the tank is changed to a liquid with the true vapor pressure at the storage temperature greater than 25.8 mm Hg (0.5 psia), the owner/operator shall comply with all the requirements of Regulation 8-5 prior to making the change. (Basis: Regulation 8, Rule 5)

3. The results of the testing shall be maintained in a District-approved log for at least five years from the date of the record, and shall be made available to District staff upon request. (Basis: 8-5-117)

RECOMMENDATION

It is recommended that this Administrative Amendment to the Valero A0901 (plant 13193) Title V permit be granted.

_____ _____

Arthur P. Valla 07Feb06
Air Quality Engineer

EVALUATION REPORT
VALERO BENICIA ASPHALT PLANT

APPLICATION 12660, REVISIONS TO NOx BOX CONDITION 21233

BACKGROUND

The Valero Benicia Asphalt Plant (Valero) operates several furnaces and boilers that are subject to Regulation 9-10-301 that limits the refinery wide NOx limit (including the Asphalt Plant) to 0.033 lb/MMBtu of fired duty. Regulation 9-10-502 requires the installation of a NOx, CO and O2 CEM to demonstrate compliance with Regulation 9-10-301. Regulation 9-10-502 also allows a CEM equivalent verification system to determine compliance with Regulation 9-10-301. The District and Valero have worked hard to produce the CEM equivalent verification system. This system is called the "NOx Box". The NOx Box is an operating window for the unit, expressed in terms of fired duty and oxygen content in the flue gas. The operating window is established by source tests for various operating conditions. The source tests demonstrate the NOx emissions are equal to or less than a specified emission factor. As long as the fired unit duty and oxygen content are in this NOx Box operating window, the specified emission factor is used to determine compliance with the 0.033 lb/MMBtu limit of Regulation 9-10-301. The Permit Condition that contains the details of the NOx Box is #21233.

This application proposes administrative changes to Condition 21233, which covers the following sources:

S-19 Vacuum Heater, 40 MMBtu/hr
S-20 Steam Boiler, 14.7 MMBtu/hr
S-21 Steam Boiler H-2B, 14.7 MMBtu/hr

Most of the proposed revisions are insignificant and have been incorporated into the condition as part of the Title V response to comments process. There remain two of the requested changes still to be approved.

1. Proposed revision #1: Delete reference to plant number 13193 to eliminate confusion with Facility number A0901. This proposal is not recommended. A0901 is the Title V Facility Designator. Plant 13193 is used in the District's Data Bank and while apparently redundant, is not without value.
2. Proposed revision #2: Modify Part 7A1 as follows:

   *7. For each source subject to Part 3, the Owner/Operator shall conduct source tests on the schedule listed below. The source tests are performed in order to measure NOx, CO, and O2 at the as-found firing rate, or at conditions reasonably specified by the APCO. The source test results shall be submitted to the District Source Test Manager within 45 days of the test. The Owner/Operator may request, and the APCO may grant, an extension of 15 days for submittal of results. (Basis: Regulation 9-10-502)

   A. Source Testing Schedule

   1) Heater < 25 MMBtu/hr

   ~~One~~ Annual source test ~~per consecutive 12 month period~~. The time interval between source tests shall not exceed 16 months. The source test results shall be submitted to the District Source Test Manager within 45 days of the test.

   This change does not materially change the condition so the revision is recommended.

EMISSIONS SUMMARY

There are no changes in emissions due to this application. The specified NOx Box emission factors and operating windows are not changed by this application.

PLANT CUMULATIVE INCREASE

There are no net changes to the plant cumulative emissions.

TOXIC RISK SCREEN

This proposed NOx Box change would not emit toxic compounds in amounts different that previously emitted. Therefore, a toxic risk screen is not required.

BEST AVAILABLE CONTROL TECHNOLOGY

BACT is triggered for new or modified sources that emit criteria pollutants in excess of 10 lbs/day. However, Regulation 2-1-234 defines a modified source as one that results in an increase in daily or annual emissions of a regulated air pollutant. For this application, there is no change in emissions. Therefore, BACT does not apply.

PLANT LOCATION

According to the SCHOOL program, the closest school is Semple Elementary, which is just over one mile from the facility.

COMPLIANCE

The change to the NOx Box will not change the compliance for the covered sources. Emissions will comply with Regulation 2-9-303 (Alternative Compliance Plan using IERC's), Regulations 6 and Regulation 9, Rule 10 as before the change.

The closest school is over a mile from the facility, so the Public Notice requirements of Regulation 2-1-214 do not apply.

Toxics, CEQA, NESHAPS, BACT, Offsets and NSPS do not apply.

CONDITIONS

The NOx Box Condition 21233 will be modified as shown below, shown in underline/strikeout format in large font. The other changes are proposed in Application 12701 which modifies the operating window for S-20 (B2626). Only Part 7A1 (page 7) has changes due to this application.

Condition 21233

Valero Refining Company – California
3400 E. Second Street
Benicia, Ca 94510
Application ~~8028~~ 11307
S-20 (B2626) Modified by Application 12701
Plant B2626 and A0901
Regulation 9-10 Refinery-Wide Compliance

*1. The following sources are subject to the refinery-wide NOx emission rate and CO concentration limits in Regulation 9-10: (Basis: Regulation 9-10-301 & 305)

Facility No. B2626, Valero Refining Company

S#	Description	NOx CEM
7	F-103 Jet Fuel HF, 53 MMBtu/hr	No
20	F-104 Naphtha HF, 62 MMBtu/hr	No
21	F-301 Hydrogen, 614 MMBtu/hr	Yes
22	F-351 Hydrogen, 614 MMBtu/hr	Yes
23	F-401 Gas Oil HC, 200 MMBtu/hr	Yes
24	F-601 Cat Feed HF, 33 MMBtu/hr	No
25	F-701 Cat Feed, 230 MMBtu/hr	Yes
26	F-801 HCN HF, 33 MMBtu/hr	No
30	F-2901 PFR Preheat, 463 MMBtu/hr total	Yes
31	F-2902 PFR Preheat, 463 MMBtu/hr total	Yes
32	F-2903 PFR Preheat, 463 MMBtu/hr total	Yes
33	F-2904 PFR Preheat, 463 MMBtu/hr total	Yes
34	F-2905 PFR Regen Gas, 74 MMBtu/hr	No
35	F-2906 PFR React Gas, 14 MMBtu/hr	No
40	SG-2301 Steam Gen, 218 MMBtu/hr	Yes
41	SG-2302 Steam Gen, 218 MMBtu/hr	Yes
173	F-902 Coker Steam Superheat, 20 MMBtu/hr	No
220	F-4460 MRU Hot Oil, 351 MMBtu/hr	Yes

Facility No. A0901 (13193), Valero Benicia Asphalt Plant

S#	Description	NOx CEM
19	Vacuum Heater, 40 MMBtu/hr	No
20	Steam Boiler, 14.7 MMBtu/hr	No
21	Steam Boiler H-2B, 14.7 MMBtu/hr	No

A. Compliance with the daily refinery wide average NOx emission limit, 0.033 lb NOx/MMBtu fired duty is achieved through the use of an approved Alternate Compliance Plan using NOx IERCs in accordance with the provisions in Regulation 2-9-303.

B. The owner/operator of each source listed in Part 1 above shall determine compliance with Regulation 9-10 as follows:

4) Calculate NOx emissions from each furnace using measured fuel gas rates, and either:

c. CEM data or

d. NOx emission factors from Part 5A

5) The daily facility wide average emission rate shall be determined by dividing the combined total emissions from sources listed in Part 1 above by the combined total heat input.

6) Sufficient NOx IERC's will be provided in accordance with the provisions of Regulation 2-9-303 to ensure compliance with the refinery wide average NOx emission limit of 0.033 lb NOx/MMBtu fired duty.

*2. The Owner/Operator of each source with a maximum firing rate greater than 25 MMBtu/hr listed in Part 1 shall properly install, properly maintain, and properly operate an O2 monitor and recorder. (Basis: Regulation 9-10-502)

*3. The Owner/Operator shall operate each source listed in Part 1, which does not have a NOx CEM, within specified ranges of operating conditions (firing rate and oxygen content) as detailed in Part 5. The ranges shall be established by utilizing data from District-approved source tests. (Basis: Regulation 9-10-502)

A. The NOx Box for units with a maximum firing rate of 25 MMBtu/hr or more shall be established using the procedures in Part 4.

B. The NOx Box for units with a maximum firing rate less than 25MMBtu/hr shall be established as follows: High-fire shall be the maximum rated capacity. Low-fire shall be 20% of the maximum rated capacity (except for S-35, for which the low-fire shall be 8% of the maximum rated capacity). There shall be no maximum or minimum O2.

*4. The Owner/Operator shall establish the initial NOx box for each source subject to Part 3 by January 1, 2005. The NOx Box may consist of two operating ranges in order to allow for operating flexibility and to encourage emission minimization during standard operation. (Basis: Regulation 9-10-502) The procedure for establishing the NOx box is

A. Conduct District approved source tests for NOx and CO, while varying the oxygen concentration and firing rate over the desired operating ranges for the furnace;

B. Determine the minimum and maximum oxygen concentrations and firing rates for the desired operating ranges (Note that the minimum O_2 at low-fire may be different than the minimum O_2 at high-fire. The same is true for the maximum O_2). The Owner/Operator shall also verify the accuracy of the O2 monitor on an annual basis.

C. Determine the highest NOx emission factor (lb/MMBtu) over the preferred operating ranges while maintaining CO concentration below 200 ppm; the Owner/Operator may choose to use a higher NOx emission factor than tested.

D. Plot the points representing the desired operating ranges on a graph. The resulting polygon(s) are the NOx Box, which represents the allowable operating range(s) for the furnace under which the NOx emission factor from part 5a is deemed to be valid.

1). The NOx Box can represent/utilize either one or two emission factors.

2) The NOx Box for each emission factor can be represented either as a 4- or 5-sided polygon The NOx box is the area within the 4- or 5-sided polygon formed by connecting the source test parameters that lie about the perimeter of successful approved source tests. The source test parameters forming the corners of the NOx box are listed in Part 5.

E. Upon establishment of each NOx Box, the Owner/Operator shall prepare a graphical representation of the box. The representation shall be made available on-site for APCO review upon request. The box shall also be submitted to the BAAQMD with permit amendments.

*5. Except as provided in part 5B & C, the Owner/Operator shall operate each source within the NOx Box ranges listed below at all times of operation. This part shall not apply to any source that has a properly operated and properly installed NOx CEM. (Basis: Regulation 9-10-502)

A. NOx Box ranges. The limits listed below are based on a calendar day averaging period for both firing rate and O2%.

Source No.	Emission Factor (lb/MMBtu)	Min O_2 at Low Firing (O2% , MMBtu/hr)	Max O_2 at Low Firing (O2% , MMBtu/hr)	Min O_2 at High Firing (O2% , MMBtu/hr)	Mid O_2 at Mid/High Firing (polygon) (O2% , MMBtu/hr)	Max O_2 at High Firing (O2% , MMBtu/hr)
Plant B2626						
7	0.350	3, 16	17, 10	6, 30	N/A	11, 37
20	0.28	2, 19	~~7~~12, ~~19~~23	2, 37	2, 50	~~6~~5, ~~41~~47
24	0.757	11,7	14, 8	3, 27	6, 12	7, 29
26	0.194	13, 9	17, 7	6, 21	8, 17	12, 24
34	0.250	17, 2	20, 2	4, 26	N/A	7, 38
35	0.200	(Note 1), 1	(Note 1), 1	(Note 1), 14	N/A	(Note 1), 14
173	0.050	(Note 1), 4	(Note 1), 4	(Note 1), 20	N/A	(Note 1), 20
Plant A0901 (13193)						
S-19	0.030	6.8, 13.6	7.6, 13.5	2.8, 38.5	7.7, 16.6	6.2, 38.8
S-20	0.055	(Note 1), 2.9	(Note 1), 2.9	(Note 1), 14.7	N/A	(Note 1), 14.7
S-21	TBD	(Note 1), 2.9	(Note 1), 2.9	(Note 1), 14.7	N/A	(Note 1), 14.7

Note 1: Per Part 3B, Oxygen limits do not apply to sources with maximum firing rates less than 25 MMBtu/hr.

D. Part 5A does not apply to low firing rate conditions (i.e., firing rate less than or equal to 20% of the unit's rated capacity), during startup or shutdown periods, or periods of curtailed operation (ex. during heater idling, refractory dry out, etc.) lasting 5 days or less. During these conditions the means for determining compliance with the refinery wide limit shall be accomplished using the method described in 9-10-301.2 (i.e. units out of service & 30-day averaging data).

E. Part 5A does not apply during any source test required or permitted by this condition. See Part 7 for the consequences of source test results that exceed the emission factors in Part 5.

*6. NOx Box Deviations (Basis: Regulation 9-10-502) .

A. The Owner/Operator may deviate from the NOx Box (either the firing rate or oxygen limit) provided that the Owner/Operator conducts a District approved source test that reasonably represents the past operation outside of the established ranges. The source test representing the new conditions shall be conducted no later than the next regularly scheduled source test period, or within eight months, whichever is sooner. The source test results will establish whether the source was operating outside of the emission factor utilized for the source. The source test results shall be submitted to the District Source Test Manager within 45 days of the test. The Owner/Operator may request, and the APCO may grant, an extension of 15 days for submittal of results. As necessary, a permit amendment shall be submitted.

1) Source Test ≤ Emission Factor

If the results of this source test do not exceed the higher NOx emission factor in Part 5, or the CO limit in Part 9, the unit will not be considered to be in violation during this period for operating out of the "box."

The facility may submit an accelerated permit program permit application to request an administrative change of the permit condition to adjust the NOx Box operating range(s), based on the new test data.

3) Source Test > Emission Factor

If the results of this source test exceed the permitted emission concentrations or emission rates then the actions described below must be followed:

a. Utilizing the measured emission concentration or rate, the Owner/Operator shall perform an assessment of compliance with Regulation 9-10-301 as follows:

1. "Out of Box" Condition – for the day(s) in which the "out of box" condition(s) occurred, the Owner/Operator shall ensure sufficient NOx IERCs are provided to ensure the facility is in compliance with the refinery wide limit. The Owner/Operator will be in violation of Regulation 9-10-301 for each day there are insufficient NOx IERCs provided to bring the refinery wide

average into compliance with Regulation 9-10-301.

2. Within the Box – for the case when the source is operated within the "box" but source test results indicate a higher emission factor, the Owner/Operator shall apply the higher emission factor retroactively to the date of the previous source test and provide sufficient NOx IERCs for that time period to ensure the facility is in compliance with the refinery wide limit specified in Regulation 9-10-301. The Owner/Operator will be in violation of Regulation 9-10-301 for each day there are insufficient NOx IERCs provided to bring the refinery wide average into compliance with Regulation 9-10-301.

b. The facility may submit a permit application to request an alteration of the permit condition to change the NOx emission factor and/or adjust the operating range, based on the new test data.

B. Reporting. The Owner/Operator must report conditions outside of box within 96 hours of occurrence.

*7. For each source subject to Part 3, the Owner/Operator shall conduct source tests on the schedule listed below. The source tests are performed in order to measure NOx, CO, and O2 at the as-found firing rate, or at conditions reasonably specified by the APCO. The source test results shall be submitted to the District Source Test Manager within 45 days of the test. The Owner/Operator may request, and the APCO may grant, an extension of 15 days for submittal of results. (Basis: Regulation 9-10-502)

A. Source Testing Schedule

4) Heater < 25 MMBtu/hr

Annual~~One~~ source test ~~per consecutive 12 month period~~. The time interval between source tests shall not exceed 16 months. The source test results shall be submitted to the District Source Test Manager within 45 days of the test.

5) Heaters ≥ 25 MMBtu/hr

Two source tests per consecutive 12 month period. The time interval between source tests shall not exceed 8 months and not be less than 5 months apart. The source test results shall be submitted to the District Source Test Manager within 45 days of the test.

6) If a source has been shutdown longer than the period allowed between source testing periods (e.g. <25 MMBtu/hr - > 16 mos or > 25 MMBtu/hr - > 8 mos),

the owner/operator shall conduct the required source test within 30 days of start up of the source.

B. Source Test Results > NOx Box Emission Factor

If the results of any source test under this part exceed the permitted concentrations or emission rates the Owner/Operator shall follow the requirements of Part 6A2. If the Owner/Operator chooses not to submit an application to revise the emission factor, the Owner/Operator shall conduct another Part 7 source test, at the same conditions, within 90 days of the initial test.

*8. For each source listed in Part 1 with a NOx CEM installed that does not have a CO CEM installed pursuant to Part 9, the Owner/Operator shall conduct semi-annual District approved CO source tests at as-found conditions. The time interval between source tests shall not exceed 8 months. District conducted CO emission tests associated with District-conducted NOx CEM field accuracy tests may be substituted for the CO semi-annual source tests. (Basis: Regulation 9-10-502)

*9. For any source listed in Part 1 with a maximum firing limit greater than 25 MMBtu/hr for which any two source test results over any consecutive five year period are greater than or equal to 200 ppmv CO at 3% O2, the Owner/Operator shall properly install, properly maintain, and properly operate a CEM to continuously measure CO and O2. The Owner/Operator shall install the CEM within the time period allowed in the District's Manual of Procedures. (Basis: Regulation 9-10-502, 1-522)

*10. In addition to records required by Regulation 9-10-504, the Owner/Operator must maintain records of all source tests conducted to demonstrate compliance with Parts 1 and 5. These records shall be kept on site for at least five years from the date of entry in a District approved log and be made available to District staff upon request. (Basis: Regulation 9-10-504)

RECOMMENDATION

It is recommended that a Change of Conditions to the Permit to Operate be granted to Valero for:

S-19 Vacuum Heater, 40 MMBtu/hr
S-20 Steam Boiler, 14.7 MMBtu/hr
S-21 Steam Boiler H-2B, 14.7 MMBtu/hr

Arthur P. Valla	Date
Air Quality Engineer	8Sep05

EVALUATION REPORT
VALERO BENICIA ASPHALT PLANT

APPLICATION 12703, REVISIONS TO A-31 TEMPERATURE CONDITION 1240

BACKGROUND

The Valero Benicia Asphalt Plant (Valero) operates

A-31 H-3 Thermal Oxidizer

as abatement for several sources. When A-31 malfunctions or requires maintenance, the feed gas is diverted to S-24, Hot Oil Heater. Normally S-24 is used as a process heater and is not used for emissions abatement.

The primary permit condition for the Asphalt Plant is #1240 covering most of the facility sources. In several locations in Permit Condition 1240 (e.g. Parts II.32a, II.32b and II.32c), source emissions are required to be collected and abated with an efficiency of 98.5%. Permit Condition 1240 Part II.58b requires Valero to perform a source test on S-24 and A-31 to confirm the abatement devices comply with the 98.5% destruction efficiency and the grain-loading requirement of Regulation 6-310. Valero submitted application 12237 for S-24. This application defines the operating temperature for A-31 compliance.

Valero performed the required source test February 28, 2004 and has determined that the minimum operating temperature for A-31 must be 1409ºF to comply with the 98.5% destruction efficiency. However, District standards require a 1400F operation temperature for a thermal oxidizer unless a source test demonstrates a lower temperature provides the required destruction. Therefore, A-31 will be conditionally required to operate at 1400F. In addition, the source test demonstrated that A-31 complies with 6-310. The Source Test Section has reviewed and approved the source test report.

This application is to revise Permit Condition 1240 to reflect the results of this source test.

EMISSIONS SUMMARY

There are no changes in emissions due to this application. District emission calculations are based on the primary abatement device A-31 at 98.5% efficiency. This application to incorporate the results of the source test required by Condition 1240 Part II.58b will not change the facility emissions.

PLANT CUMULATIVE INCREASE

There are no changes to the plant cumulative emissions.

TOXIC RISK SCREEN

This proposed change does not impact toxic emissions. Therefore, a toxic risk screen is not required.

BEST AVAILABLE CONTROL TECHNOLOGY

BACT is triggered for new or modified sources that emit criteria pollutants in excess of 10 lbs/day. However, Regulation 2-1-234 defines a modified source as one that results in an increase in daily or annual emissions of a regulated air pollutant. For this application, there is no change in emissions. Therefore, BACT does not apply.

PLANT LOCATION

According to the SCHOOL program, the closest school is Semple Elementary, which is over three thousand feet from the facility.

COMPLIANCE

The change to Permit Condition 1240 will not change the compliance for the covered sources. Emissions from A-31, when operating at a minimum temperature of 1400ºF, will comply with the 98.5% destruction efficiency requirement. In addition, A-31 will comply with Regulations 6-310.

The closest school is over 1000 feet from the facility, so the Public Notice requirements of Regulation 2-1-214 do not apply.

Toxics, CEQA, NESHAPS, BACT, Offsets and NSPS do not apply.

CONDITIONS

The Asphalt Plant Condition 1240 will be modified as shown below, shown in underline/strikeout format. Only Part II.58b is shown since this is the only part modified by this application. The remainder of the permit condition is unchanged. Note that the 1115F minimum operating temperature of S-24 is also included per application 12237.

Condition 2140

II. TANKAGE AND LOADING RACK CONDITIONS:

58b. The ~~permit holder~~Owner/Operator shall install and properly maintain continuous temperature monitoring and recording devices for A31, Thermal Oxidizer and S24, Hot Oil Heater. ~~By March 1, 2004, the permit holder shall perform a source test to determine whether A31 and S24 are in compliance with the requirement for 98.5% destruction efficiency, the grain loading limit in BAAQMD Regulation 6-310, and the minimum temperature at which A31 and S24 must operate to maintain the destruction efficiency and compliance with the other~~

~~standards. All source testing shall be done in accordance with the District's Manual of Procedures. The permit holder shall receive approval from the District's Source Test Manager for installation of test ports and source testing procedures. The results shall be delivered to the District no later than 30 days from the date of the source test.~~ The Owner/Operator shall operate A-31 with a minimum combustion zone temperature of 1400F to maintain a 98.5% destruction efficiency. The Owner/Operator shall operate S-24 at a minimum operating temperature of 1115F to maintain a 98.5% destruction efficiency when S-24 is operated in abatement service. (Source Test Requirements demonstrating compliance with the 98.5% abatement destruction efficiency and the Regulation 6-310 grain loading requirements were completed February 28 and 29, 2004.) ~~Minor revision procedures in accordance with BAAQMD Regulation 2-6-414 shall be used to add the minimum temperature specification to the Title V permit.~~ (Applications 12704 for A-31 and Application 12236 for S-24 have been submitted for the Title V permit revisions) (Basis: 40 CFR 60.113bc(1)(ii) and 60.113bc(2); 40 CFR 60.473c; 40 CFR 61.354c(4), 61.356(f)(2)(i)(A), and 61.356(f)(2)(i)c~~, Regulation 2-6-409.2.2, 2-6-414~~)

The 'clean' part will read as follows:

58b. The Owner/Operator shall install and properly maintain continuous temperature monitoring and recording devices for A31, Thermal Oxidizer and S24, Hot Oil Heater. The Owner/Operator shall operate A-31 with a minimum combustion zone temperature of 1400F to maintain a 98.5% destruction efficiency. The Owner/Operator shall operate S-24 at a minimum operating temperature of 1115F to maintain a 98.5% destruction efficiency when S-24 is operated in abatement service. (Source Test Requirements demonstrating compliance with the 98.5% abatement destruction efficiency and the Regulation 6-310 grain loading requirements were completed February 28 and 29, 2004.) (Applications 12704 for A-31 and Application 12236 for S-24 have been submitted for the Title V permit revisions) (Basis: 40 CFR 60.113bc(1)(ii) and 60.113bc(2); 40 CFR 60.473c; 40 CFR 61.354c(4), 61.356(f)(2)(i)(A), and 61.356(f)(2)(i)c)

RECOMMENDATION

It is recommended that a Change of Conditions to the Permit to Operate be granted to Valero for:

A-31 H-3 Thermal Ozidizer

Arthur P. Valla	Date
Air Quality Engineer	21Dec05

EVALUATION REPORT
VALERO BENICIA ASPHALT PLANT

APPLICATION 13044, REVISIONS TO S-19 SOURCE TEST CONDITION 1240

BACKGROUND

The Valero Benicia Asphalt Plant (Valero) operates

S-19 Vacuum Heater, 40 MMBtu/hr

subject to Condition 1240 I.16a requiring periodic source testing to determine compliance with NOx and CO emission standards. This permit condition was created in Application 1261 (received in 2000) and has been revised, primarily by increasing the source test frequency from biennial to semiannual. However, Valero believes the current language is in error. This application is for an administrative change in conditions to correct Condition 1240, Part I.16a to conduct the source test at the highest duty possible, not above 85% of the design duty (i.e. 34 MMBtu/hr or above)

A review of the Permit Condition 1240 Part 16a history does not completely support the contention that the current language is in error. Rather, it appears that Valero requested the language change in its August 11, 2003 comments on the Proposed Revision 0 permit issued for public comment in June, 2003 (comment # 175). The District's response rejected the comment stating that an application was required for this change. Regardless of whether there is an error or not, this application properly requests the change. A comprehensive history of the condition language is summarized in the table starting on page 2.

Valero's rationale for the August 2003 comment was that S-19 frequently operates below the 85% level and that it would be difficult to change the operation to achieve high duties. This is particularly true during low demand periods (i.e. winter when roadwork is at a seasonal low). In support of this rationale, Valero provided the following history for S-19:

Month	Average MMBtu/hr	Month	Average MMBtu/hr
Jul 2003	29.9	Jul 2004	31.5
Aug	21.8	Aug	33.1
Sep	34.8	Sep	34.0
Oct	35.7	Oct	28.3
Nov	33.2	Nov	30.1
Dec	20.8	Dec	25.3
Jan 2004	19.7	Jan 2005	13.4
Feb	17.3	Feb	0
Mar	23.8	Mar	0
Apr	23.8	Apr	23.7
May	27.5	May	25.2
Jun	30.4	Jun	27.7

Number of months at or above 34MMBtu/hr 3 (12.5%)
Average Duty 24.6 MMBtu/hr Maximum Duty 35.7 MMBtu/hr

S-19 Source Test Condition History			
Date Application	**Databank Language**	**Title V Language**	**Comments**
2000 (A/C) – 2003 (PO) App 1261	16. The permit holder shall perform a source test at S-19, Vacuum Heater, **every 24 months** to determine compliance with the NOx and CO standards in Regulation 9, Rule 7, the CO limit in part 5b of this condition, and the requirement for 98.5% POC destruction efficiency. **The source test shall be performed at the maximum capacity of 33 mmbtu/hr**. All source testing shall be done in accordance with the District's Manual of Procedures. The facility shall receive approval from the District's Source Test Manager for installation of test ports and source testing procedures. The results shall be delivered to the District no later than 30 days from the date of the source test.		Application 1261 was for an increase in S-19 heat input, from 22.4 MMBtu/hr to 33 MMBtu/hr. Part I.16 of Condition 1240 did not exist in the Authority to Construct granted to Huntway in 2000. Part I.16 shown here was added to Condition 1240 when the Permit to Operate was granted to Valero in 2003. 1261 Eval included in application file.
Aug 2001 Draft Permit		16. The permit holder shall perform a source test at S19, Vacuum Heater, **every 24 months** to determine compliance with the NOx and CO standards in Regulation 9, Rule 7, the CO limit in part 5b of this condition, and the requirement for 98.5% POC destruction efficiency. **The source test shall be performed at the maximum capacity of 33 mmbtu/hr**. All source testing shall be done in accordance with the District's Manual of Procedures. The facility shall receive approval from the District's Source Test Manager for installation of test ports and source testing procedures. The results shall be delivered to the District no later than 30 days from the date of the source test. <Regulation 9-7-301, Cumulative Increase, Toxics>	No difference. From A0901 permit located on H:\Engineering\TITLEV \PERMIT\SITES\A0901\2001 files

S-19 Source Test Condition History			
Date Application	**Databank Language**	**Title V Language**	**Comments**
April 2003 App 7123 PO granted 5/1/03	16. The permit holder shall perform a source test at S19, Vacuum Heater, **every 24 months** to determine compliance with the NOx and CO standards in Regulation 9, Rule 10, and the NOx limit in part 8 of this condition, and the CO limit in part 5b of this condition, and the requirement for 98.5% POC destruction efficiency. **The source test shall be performed at a minimum of 85% the maximum capacity of ~~33~~ 40 MMBtu/hr (34 to 40 MMBtu/hr).** All source testing shall be done in accordance with the District's Manual of Procedures. The facility shall receive approval from the District's Source Test Manager for installation of test ports and source testing procedures. The results shall be delivered to the District no later than 30 days from the date of the source test. (Regulation 9-10-301, 9-10-305, Cumulative Increase, BACT)		Copied from Application 7123 evaluation, which was for an increase in S-19 heat input, from 33 MMBtu/hr to 40 MMBtu/hr. 7123 Eval included in application file. Valero agreed to perform the source test once every 2 years at 85% of the maximum capacity.

S-19 Source Test Condition History			
Date Application	**Databank Language**	**Title V Language**	**Comments**
April 2003 App 7194	16. The permit holder shall perform a source test at S19, Vacuum Heater, **every 24 months** to determine compliance with the NOx and CO standards in Regulation 9, Rule 10, and the NOx limit in part 8 of this condition, and the CO limit in part 5b of this condition, and the requirement for 98.5% POC destruction efficiency. **The source test shall be performed at a minimum of 85% the maximum capacity of ~~33~~ 40 MMBtu/hr (34 to 40 MMBtu/hr).** All source testing shall be done in accordance with the District's Manual of Procedures. The facility shall receive approval from the District's Source Test Manager for installation of test ports and source testing procedures. The results shall be delivered to the District no later than 30 days from the date of the source test. (Regulation 9-10-301, 9-10-305, Cumulative Increase, BACT)		Essentially identical to Application 7123. Copied from Application 7194 evaluation, which was for an alteration to S-19 installing automatic damper controls. 7123 Eval included in application file.

S-19 Source Test Condition History			
Date Application	**Databank Language**	**Title V Language**	**Comments**
Jun 2003 Proposed Rev 0 Permit		16a. The permit holder shall perform a source test at S19, Vacuum Heater, every ~~24~~ 6 months to determine compliance with the NOx and CO standards in Regulation 9, Rule ~~7~~10~~,~~ the NOx limit in part 8 of this condition, and the CO limit in part 5b of this condition~~, and the requirement for 98.5% POC destruction efficiency~~. The source test shall be performed at ~~the highest duty possible for the prevailing process conditions~~maximum capacity of 33 MMbtu/hr a minimum of 85% of the maximum capacity of 40 MMBtu/hr (34 to 40 MMBtu/hr). All source testing shall be done in accordance with the District's Manual of Procedures. The facility shall receive approval from the District's Source Test Manager for installation of test ports and source testing procedures. The results shall be delivered to the District no later than 30 days from the date of the source test. (~~Regulation 9-7-301,~~ Regulation 9-10-301, 9-10-305, Cumulative Increase~~, Toxics~~, BACT) 16b. The permit holder shall perform a source test at S19, Vacuum Heater, every 24 months to determine compliance with the requirement for 98.5% POC destruction efficiency. The source test shall be performed at the ~~maximum capacity of 33 MMbtu/hr~~highest duty possible for the prevailing process conditions. All source testing shall be done in accordance with the District's Manual of Procedures. The facility shall receive approval from the District's Source Test Manager for installation of test ports and source testing procedures. The results shall be delivered to the District no later than 30 days from the date of the source test. (Cumulative Increase, Toxics)	Copied from the file B3193 epa version-1.doc. This file is dated Jun03, but it may not be the correct file. Nevertheless, the tracked text implies that there was a version with the "highest duty possible" language.

S-19 Source Test Condition History			
Date Application	**Databank Language**	**Title V Language**	**Comments**
Aug 2003 Valero Comments on Proposed Rev 0 Permit		Valero Comment # 175: ***Delete "a minimum of 85% of the maximum capacity of 40 MMBtu/hr (34 to 40 MMBtu/hr)"; and*** ***Do not delete "highest duty possible for the prevailing process conditions"***	Valero Rationale: It is very difficult to run this source at the upper end of its limit. The normal operating duty for S19 is approximately 30 MMBTU/hr. It will be difficult to adjust the operating parameters for this device to reach the upper duty range for frequent (semi-annual) source tests.
Nov 2003 App 8517 A/C granted Jan 2004	Condition 20617, Part7. The owner/operator shall conduct at least two district approved NOx, CO, and O2 source tests at S19 per consecutive 12 month period in order to measure NOx, CO, and O2 at the as-found firing rate, within 20% of the permitted O2 conditions likely to maximize NOx emissions. The time interval between source tests shall not exceed 8 months and not be less than 5 months apart. The source test results shall be submitted to the district source test manager within 30 days of the test. (9-10-502)		Application 8517 established a NOx Box for S-19. Permit condition 20617 Part 7 required two source tests per year. Condition 1240 not revised in application 8517.

S-19 Source Test Condition History			
Date Application	**Databank Language**	**Title V Language**	**Comments**
Dec 2003 Rev 0 Permit		16a. The permit holder shall perform a source test at S19, Vacuum Heater, **every 6 months** to determine compliance with the NOx and CO standards in Regulation 9, Rule 10 the NOx limit in part I.8 of this condition, and the CO limit in parts I.5b and I.5c of this condition. **The source test shall be performed at a minimum of 85% of the maximum capacity of 40 MMBtu/hr (34 to 40 MMBtu/hr).** All source testing shall be done in accordance with the District's Manual of Procedures. The facility shall receive approval from the District's Source Test Manager for installation of test ports and source testing procedures. The results shall be delivered to the District no later than 30 days from the date of the source test. (Regulation 9-10-301, 9-10-305, Cumulative Increase, BACT) 16b. The permit holder shall perform a source test at S19, Vacuum Heater, every 24 months to determine compliance with the requirement for 98.5% POC destruction efficiency requirement in part I.3. The source test shall be performed at a minimum of 85% of the maximum capacity of 40 MMbtu/hr (34 to 40 MMbtu/hr). All source testing shall be done in accordance with the District's Manual of Procedures. The facility shall receive approval from the District's Source Test Manager for installation of test ports and source testing procedures. The results shall be delivered to the District no later than 30 days from the date of the source test. (Cumulative Increase, Toxics)	District Response to Comments: Comment 175: In Section VI, Permit Conditions, Condition 1240, part I.16a, change the requirement for testing from "a minimum of 85% of the maximum capacity" to "the highest duty possible for the prevailing process conditions." Response: The phrase "a minimum of 85% of the maximum capacity" has been reinstated. The owner/operator may apply for a change in permit conditions. This change can not be handled in the comments/response phase of Title V issuance. Furthermore, in Attachment A of the response to comments, the following was included: No changes have been made to BAAQMD Condition 1240, part I.16a, because any changes would require a separate application.

S-19 Source Test Condition History			
Date Application	**Databank Language**	**Title V Language**	**Comments**
Dec 2004 Rev 1 Permit		16a. The permit holder shall perform a source test at S19, Vacuum Heater, **every 6 months** to determine compliance the NOx limit in part I.8 of this condition, and the CO limit in parts I.5b and I.5c of this condition. **The source test shall be performed at a minimum of 85% of the maximum capacity of 40 MMBtu/hr (34 to 40 MMBtu/hr).** All source testing shall be done in accordance with the District's Manual of Procedures. The facility shall receive approval from the District's Source Test Manager for installation of test ports and source testing procedures. The results shall be delivered to the District no later than 45 days from the date of the source test. (Cumulative Increase, BACT) 16b. The permit holder shall perform a source test at S19, Vacuum Heater, every 24 months to determine compliance with the requirement for 98.5% POC destruction efficiency requirement in part I.3. The source test shall be performed at a minimum of 85% of the maximum capacity of 40 MMbtu/hr (34 to 40 MMbtu/hr). All source testing shall be done in accordance with the District's Manual of Procedures. The facility shall receive approval from the District's Source Test Manager for installation of test ports and source testing procedures. The results shall be delivered to the District no later than 45 days from the date of the source test. (Cumulative Increase, Toxics)	No difference from Rev 0.

This change to the source test requirement fired duty is not an unreasonable owner request. Furthermore, the change benefits the facility inventory accuracy since the source tests will be performed at realistic operating conditions, rather than design conditions. Oftentimes equipment operates well at design conditions, but performance degrades a turndown conditions. If this is the case for S-19, allowing the source test to use realistic operating conditions will identify problems that would not otherwise be found.

EMISSIONS SUMMARY

There are no changes in emissions due to this application.

PLANT CUMULATIVE INCREASE

There are no changes to the plant cumulative emissions.

TOXIC RISK SCREEN

This proposed changes do not impact toxic emissions. Therefore, a toxic risk screen is not required.

BEST AVAILABLE CONTROL TECHNOLOGY

BACT is triggered for new or modified sources that emit criteria pollutants in excess of 10 lbs/day. However, Regulation 2-1-234 defines a modified source as one that results in an increase in daily or annual emissions of a regulated air pollutant. For this application, there is no change in emissions. Therefore, BACT does not apply.

PLANT LOCATION

According to the SCHOOL program, the closest school is Semple Elementary, which is over three thousand feet from the facility.

COMPLIANCE

The change to Permit Condition 1240 will not change the compliance for S-19. Only the specific requirements for the semiannual source test is impacted. Compliance with Regulation 6, Regulation 9-10, 40 CFR 60 Subpart J and 40 CFR 63 Subpart CC remain unchanged.

The closest school is over 1000 feet from the facility, so the Public Notice requirements of Regulation 2-1-214 do not apply.

Toxics, CEQA, NESHAPS, BACT, Offsets and NSPS do not apply.

CONDITIONS

The Asphalt Plant Condition 1240 will be modified as shown below, shown in underline/strikeout format. Only Part I.16a is shown since this is the only part modified by this application. The remainder of the permit condition is unchanged.

Condition 2140

I. ASPHALT PLANT CONDITIONS

16a. The permit holder shall perform a source test at S19, Vacuum Heater, every 6 months to determine compliance with the NOx and CO standards in Regulation 9, Rule 10 the NOx limit in part I.8 of this condition, and the CO limit in parts I.5b and I.5c of this condition. The source test shall be performed at the highest duty possible for the prevailing process conditions~~a minimum of 85% of the maximum capacity of 40 MMBtu/hr (34 to 40 MMBtu/hr)~~. All source testing shall be done in accordance with the District's Manual of Procedures. The facility shall receive approval from the District's Source Test Manager for installation of test ports and source testing procedures. The results shall be delivered to the District no later than 30 days from the date of the source test.
(Regulation 9-10-301, 9-10-305, Cumulative Increase, BACT)

RECOMMENDATION

It is recommended that a Change of Conditions to the Permit to Operate be granted to Valero for:

S-19 Vacuum Heater, 40 MMBtu/hr

Arthur P. Valla Air Quality Engineer	Date 07Nov05

EVALUATION REPORT
VALERO BENICIA ASPHALT PLANT

APPLICATION 13011, REVISED NOx BOX FOR S-19, H-1 VACUUM HEATER

BACKGROUND

The Valero Benicia Asphalt Plant (Valero) operates several furnaces that are subject to Regulation 9-10-301 that limits the facility wide NOx limit to 0.033 lb/MMBtu of fired duty. Regulation 9-10-502 requires the installation of a NOx, CO and O2 CEM to demonstrate compliance with Regulation 9-10-301. Regulation 9-10-502 also allows a CEM equivalent verification system to determine compliance with Regulation 9-10-301. The District and Valero have worked hard to produce the CEM equivalent verification system. This system is called the "NOx Box". The NOx Box is an operating window for the unit, expressed in terms of fired duty and oxygen content in the flue gas. The operating window is established by source tests for various operating conditions. The source tests demonstrate the NOx emissions are equal to or less than a specified emission factor. As long as the fired unit duty and oxygen content are in this NOx Box operating window, the specified emission factor is used to determine compliance with the 0.033 lb/MMBtu limit of Regulation 9-10-301. The Permit Condition that contains the details of the NOx Box is #21233.

Condition 21233, Part 4 required Valero to submit the initial NOx Box for the affected sources by December 1, 2004. Valero met this requirement via Application 11356, a Minor Revision to the Title V permit.

This application requests a change in the NOx Box operating window for:

S-19 H-1 Vacuum Heater, 40 MMBtu/hr

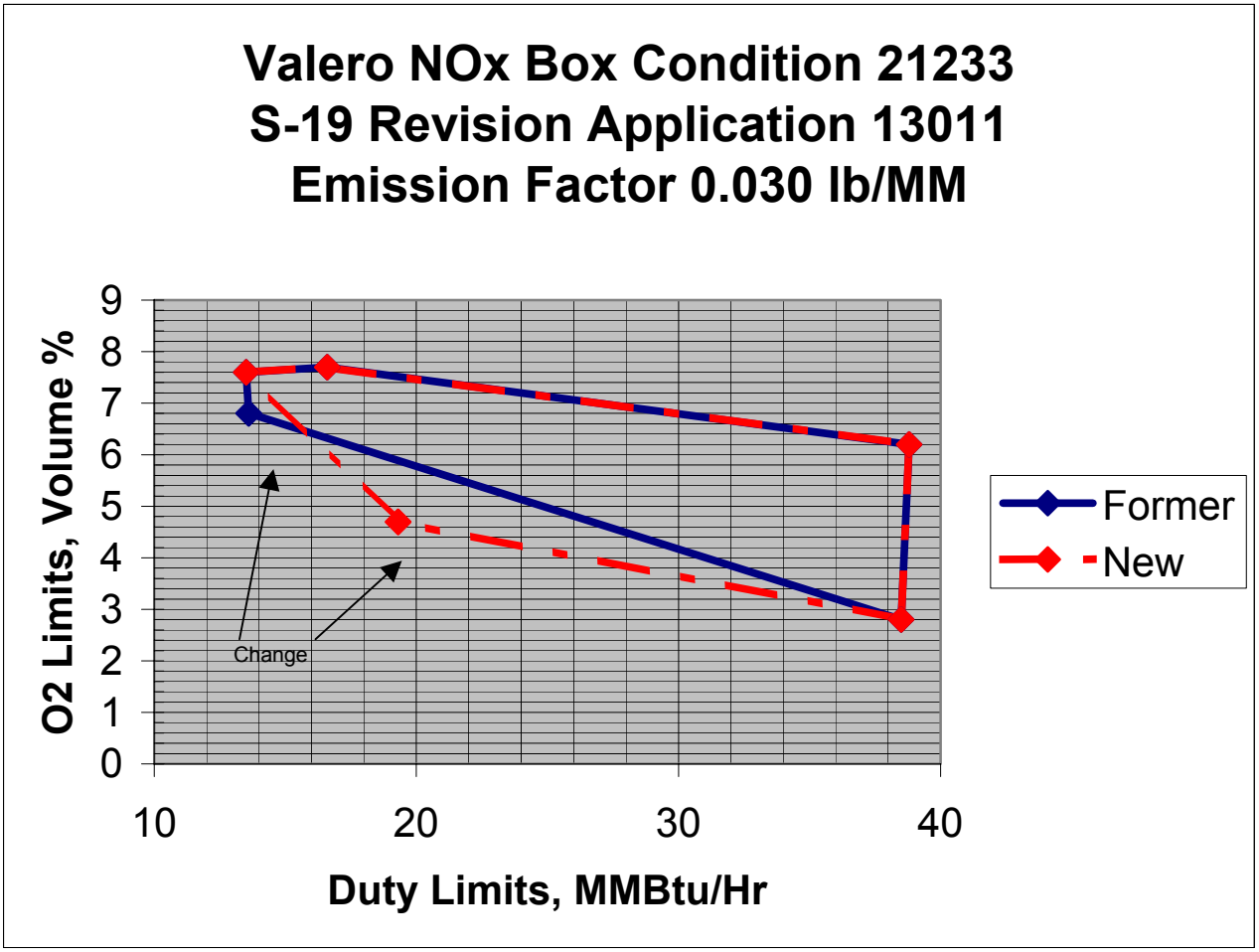
The change is as follows:

Source No.	Emission Factor (lb/MMBtu)	Min O_2 at Low Firing (O2% , MMBtu/hr)	Max O_2 at Low Firing (O2% , MMBtu/hr)	Min O_2 at High Firing (O2% , MMBtu/hr)	Mid O_2 at Mid/High Firing (polygon) (O2% , MMBtu/hr)	Max O_2 at High Firing (O2% , MMBtu/hr)
Plant A0901 (13193)						
19 old	0.030	6.8, 13.6	7.6, 13.5	2.8, 38.5	7.7, 16.6	6.2, 38.8
19 new	0.030	4.7, 19.3	7.6, 13.5	2.8, 38.5	7.7, 16.6	6.2, 38.8

The changes are supported by source tests reviewed by the Source Test Section.

This application is being processed as an administrative change in conditions since there is no change to the specified NOx emission factor for this unit.

The following diagram summarizes the changes to the S-19 NOx Box:



EMISSIONS SUMMARY

There are no changes in emissions due to this application. The specified NOx Box emission factor for S-19 remains 0.030 lb/MMBtu and is not changed by this application.

PLANT CUMULATIVE INCREASE

There are no net changes to the plant cumulative emissions.

TOXIC RISK SCREEN

This proposed NOx Box change would not emit toxic compounds in amounts different that previously emitted. Therefore, a toxic risk screen is not required.

BEST AVAILABLE CONTROL TECHNOLOGY

BACT is triggered for new or modified sources that emit criteria pollutants in excess of 10 lbs/day. However, Regulation 2-1-234 defines a modified source as one that results in an increase in daily or annual emissions of a regulated air pollutant. For this application, there is no change in emissions. Therefore, BACT does not apply.

PLANT LOCATION

According to the SCHOOL program, the closest school is Semple Elementary, which is just over 3000 feet from the facility.

COMPLIANCE

The change to the NOx Box will not change the compliance for Furnace S-19. Emissions from S-19 will comply with Regulation 2-9-303 (Alternative Compliance Plan using IERC's), Regulations 6 and Regulation 9, Rule 10 as before the change.

The closest school is over 3000 feet from the facility, so the Public Notice requirements of Regulation 2-1-214 do not apply.

Toxics, CEQA, NESHAPS, BACT, Offsets and NSPS do not apply.

CONDITIONS

The NOx Box Condition 21233 will be modified as shown below. The S-19 change is in Part 5A of the condition. For clarity, the change is tracked from the condition 21233 version in Revision 3 (proposed) of the B2626 Valero Refinery Title V permit, with the underline/strikeout removed. In addition, the changes approved in Application 12701 (revision to the B2626 S-20 NOx Box) are also included. (The condition with the underline/strikeout included is located in the application file if needed.)

Condition 21233

Valero Refining Company – California
3400 E. Second Street
Benicia, Ca 94510
Application 11307 (B2626)
Application 11356 (A0901, 13193)
S-20 (B2626) Modified by Application 12701
S-19 (A0901) Modified by Application 13011
Plant B2626 and A0901
Regulation 9-10 Refinery-Wide Compliance

*1. The following sources are subject to the refinery-wide NOx emission rate and CO concentration limits in Regulation 9-10: (Basis: Regulation 9-10-301 & 305)

Facility No. B2626, Valero Refining Company

S#	Description	NOx CEM
7	F-103 Jet Fuel HF, 53 MMBtu/hr	No
20	F-104 Naphtha HF, 62 MMBtu/hr	No
21	F-301 Hydrogen, 614 MMBtu/hr	Yes
22	F-351 Hydrogen, 614 MMBtu/hr	Yes
23	F-401 Gas Oil HC, 200 MMBtu/hr	Yes
24	F-601 Cat Feed HF, 33 MMBtu/hr	No
25	F-701 Cat Feed, 230 MMBtu/hr	Yes
26	F-801 HCN HF, 33 MMBtu/hr	No
30	F-2901 PFR Preheat, 463 MMBtu/hr total	Yes
31	F-2902 PFR Preheat, 463 MMBtu/hr total	Yes
32	F-2903 PFR Preheat, 463 MMBtu/hr total	Yes
33	F-2904 PFR Preheat, 463 MMBtu/hr total	Yes
34	F-2905 PFR Regen Gas, 74 MMBtu/hr	No
35	F-2906 PFR React Gas, 14 MMBtu/hr	No
40	SG-2301 Steam Gen, 218 MMBtu/hr	Yes
41	SG-2302 Steam Gen, 218 MMBtu/hr	Yes
173	F-902 Coker Steam Superheat, 20 MMBtu/hr	No
220	F-4460 MRU Hot Oil, 351 MMBtu/hr	Yes

Facility No. A0901 (13193), Valero Benicia Asphalt Plant

S#	Description	NOx CEM
19	Vacuum Heater, 40 MMBtu/hr	No
20	Steam Boiler, 14.7 MMBtu/hr	No
21	Steam Boiler H-2B, 14.7 MMBtu/hr	No

A. Compliance with the daily refinery wide average NOx emission limit, 0.033 lb NOx/MMBtu fired duty is achieved through the use of an approved Alternate Compliance Plan using NOx IERCs in accordance with the provisions in Regulation 2-9-303.

B. The owner/operator of each source listed in Part 1 above shall determine compliance with Regulation 9-10 as follows:

7) Calculate NOx emissions from each furnace using measured fuel gas rates, and either:

c. CEM data or

d. NOx emission factors from Part 5A

8) The daily facility wide average emission rate shall be determined by dividing the combined total emissions from sources listed in Part 1 above by the combined total heat input.

9) Sufficient NOx IERC's will be provided in accordance with the provisions of Regulation 2-9-303 to ensure compliance with the refinery wide average NOx emission limit of 0.033 lb NOx/MMBtu fired duty.

*2. The Owner/Operator of each source with a maximum firing rate greater than 25 MMBtu/hr listed in Part 1 shall properly install, properly maintain, and properly operate an O2 monitor and recorder. (Basis: Regulation 9-10-502)

*3. The Owner/Operator shall operate each source listed in Part 1, which does not have a NOx CEM, within specified ranges of operating conditions (firing rate and oxygen content) as detailed in Part 5. The ranges shall be established by utilizing data from District-approved source tests. (Basis: Regulation 9-10-502)

A. The NOx Box for units with a maximum firing rate of 25 MMBtu/hr or more shall be established using the procedures in Part 4.

B. The NOx Box for units with a maximum firing rate less than 25MMBtu/hr shall be established as follows: High-fire shall be the maximum rated capacity. Low-fire shall be 20% of the maximum rated capacity (except for S-35, for which the low-fire shall be 8% of the maximum rated capacity). There shall be no maximum or minimum O2.

*4. The Owner/Operator shall establish the initial NOx box for each source subject to Part 3 by January 1, 2005. The NOx Box may consist of two operating ranges in order to allow for operating flexibility and to encourage emission minimization during standard operation. (Basis: Regulation 9-10-502) The procedure for establishing the NOx box is

A. Conduct District approved source tests for NOx and CO, while varying the oxygen concentration and firing rate over the desired operating ranges for the furnace;

B. Determine the minimum and maximum oxygen concentrations and firing rates for the desired operating ranges (Note that the minimum O_2 at low-fire may be different than the minimum O_2 at high-fire. The same is true for the maximum O_2). The Owner/Operator shall also verify the accuracy of the O2 monitor on an annual basis.

C. Determine the highest NOx emission factor (lb/MMBtu) over the preferred operating ranges while maintaining CO concentration below 200 ppm; the Owner/Operator may choose to use a higher NOx emission factor than tested.

D. Plot the points representing the desired operating ranges on a graph. The resulting polygon(s) are the NOx Box, which represents the allowable operating range(s) for the furnace under which the NOx emission factor from part 5a is deemed to be valid.

1). The NOx Box can represent/utilize either one or two emission factors.

2) The NOx Box for each emission factor can be represented either as a 4- or 5-sided polygon The NOx box is the area within the 4- or 5-sided polygon formed by connecting the source test parameters that lie about the

perimeter of successful approved source tests. The source test parameters forming the corners of the NOx box are listed in Part 5.

E. Upon establishment of each NOx Box, the Owner/Operator shall prepare a graphical representation of the box. The representation shall be made available on-site for APCO review upon request. The box shall also be submitted to the BAAQMD with permit amendments.

*5. Except as provided in part 5B & C, the Owner/Operator shall operate each source within the NOx Box ranges listed below at all times of operation. This part shall not apply to any source that has a properly operated and properly installed NOx CEM. (Basis: Regulation 9-10-502)

A. NOx Box ranges. The limits listed below are based on a calendar day averaging period for both firing rate and O2%.

Source No.	Emission Factor (lb/MMBtu)	Min O_2 at Low Firing (O2% , MMBtu/hr)	Max O_2 at Low Firing (O2% , MMBtu/hr)	Min O_2 at High Firing (O2% , MMBtu/hr)	Mid O_2 at Mid/High Firing (polygon) (O2% , MMBtu/hr)	Max O_2 at High Firing (O2% , MMBtu/hr)
Plant B2626						
7	0.350	3, 16	17, 10	6, 30	N/A	11, 37
20	0.28	2, 19	12, 23	2, 37	2, 50	5, 47
24	0.757	11,7	14, 8	3, 27	6, 12	7, 29
26	0.194	13, 9	17, 7	6, 21	8, 17	12, 24
34	0.250	17, 2	20, 2	4, 26	N/A	7, 38
35	0.200	(Note 1), 1	(Note 1), 1	(Note 1), 14	N/A	(Note 1), 14
173	0.050	(Note 1), 4	(Note 1), 4	(Note 1), 20	N/A	(Note 1), 20
Plant A0901 (13193)						
S-19	0.030	4.7~~6.8~~, 19.3~~13.6~~	7.6, 13.5	2.8, 38.5	7.7, 16.6	6.2, 38.8
S-20	0.055	(Note 1), 2.9	(Note 1), 2.9	(Note 1), 14.7	N/A	(Note 1), 14.7
S-21	0.055	(Note 1), 2.9	(Note 1), 2.9	(Note 1), 14.7	N/A	(Note 1), 14.7

Note 1: Per Part 3B, Oxygen limits do not apply to sources with maximum firing rates less than 25 MMBtu/hr.

F. Part 5A does not apply to low firing rate conditions (i.e., firing rate less than or equal to 20% of the unit's rated capacity), during startup or shutdown periods, or periods of curtailed operation (ex. during heater idling, refractory dry out, etc.) lasting 5 days or less. During these conditions the means for determining compliance with the refinery wide limit shall be accomplished using the method described in 9-10-301.2 (i.e. units out of service & 30-day averaging data).

G. Part 5A does not apply during any source test required or permitted by this condition. See Part 7 for the consequences of source test results that exceed the emission factors in Part 5.

*6. NOx Box Deviations (Basis: Regulation 9-10-502) .

A. The Owner/Operator may deviate from the NOx Box (either the firing rate or oxygen limit) provided that the Owner/Operator conducts a District approved source test that reasonably represents the past operation outside of the established ranges. The source test representing the new conditions shall be conducted no later than the next regularly scheduled source test period, or within eight months, whichever is sooner. The source test results will establish whether the source was operating outside of the emission factor utilized for the source. The source test results shall be submitted to the District Source Test Manager within 45 days of the test. The Owner/Operator may request, and the APCO may grant, an extension of 15 days for submittal of results. As necessary, a permit amendment shall be submitted.

1) Source Test ≤ Emission Factor

If the results of this source test do not exceed the higher NOx emission factor in Part 5, or the CO limit in Part 9, the unit will not be considered to be in violation during this period for operating out of the "box."

The facility may submit an accelerated permit program permit application to request an administrative change of the permit condition to adjust the NOx Box operating range(s), based on the new test data.

4) Source Test > Emission Factor

If the results of this source test exceed the permitted emission concentrations or emission rates then the actions described below must be followed:

a. Utilizing the measured emission concentration or rate, the Owner/Operator shall perform an assessment of compliance with Regulation 9-10-301 as follows:

1. "Out of Box" Condition – for the day(s) in which the "out of box" condition(s) occurred, the Owner/Operator shall ensure sufficient NOx IERCs are provided to ensure the facility is in compliance with the refinery wide limit. The Owner/Operator will be in violation of Regulation 9-10-301 for each day there are insufficient NOx IERCs provided to bring the refinery wide average into compliance with Regulation 9-10-301.

2. Within the Box – for the case when the source is operated within the "box" but source test results indicate a higher emission factor, the Owner/Operator shall apply the higher emission factor retroactively to the date of the previous source test and provide sufficient NOx IERCs for that time period to ensure the facility is in compliance with the refinery wide limit specified in Regulation 9-10-301. The Owner/Operator will be in violation of Regulation 9-10-301 for each day there are insufficient NOx IERCs provided to

bring the refinery wide average into compliance with Regulation 9-10-301.

b. The facility may submit a permit application to request an alteration of the permit condition to change the NOx emission factor and/or adjust the operating range, based on the new test data.

B. Reporting. The Owner/Operator must report conditions outside of box within 96 hours of occurrence.

*7. For each source subject to Part 3, the Owner/Operator shall conduct source tests on the schedule listed below. The source tests are performed in order to measure NOx, CO, and O2 at the as-found firing rate, or at conditions reasonably specified by the APCO. The source test results shall be submitted to the District Source Test Manager within 45 days of the test. The Owner/Operator may request, and the APCO may grant, an extension of 15 days for submittal of results. (Basis: Regulation 9-10-502)

A. Source Testing Schedule

7) Heater < 25 MMBtu/hr

One source test per consecutive 12 month period. The time interval between source tests shall not exceed 16 months. The source test results shall be submitted to the District Source Test Manager within 45 days of the test.

8) Heaters ≥ 25 MMBtu/hr

Two source tests per consecutive 12 month period. The time interval between source tests shall not exceed 8 months and not be less than 5 months apart. The source test results shall be submitted to the District Source Test Manager within 45 days of the test.

9) If a source has been shutdown longer than the period allowed between source testing periods (e.g. <25 MMBtu/hr - > 16 mos or > 25 MMBtu/hr - > 8 mos), the owner/operator shall conduct the required source test within 30 days of start up of the source.

B. Source Test Results > NOx Box Emission Factor

If the results of any source test under this part exceed the permitted concentrations or emission rates the Owner/Operator shall follow the requirements of Part 6A2. If the Owner/Operator chooses not to submit an application to revise the emission factor, the Owner/Operator shall conduct another Part 7 source test, at the same conditions, within 90 days of the initial test.

*8. For each source listed in Part 1 with a NOx CEM installed that does not have a CO CEM installed pursuant to Part 9, the Owner/Operator shall conduct semi-annual District approved CO source tests at as-found conditions. The time interval between source tests shall not exceed 8 months. District conducted CO emission tests associated with District-conducted NOx CEM field accuracy tests may be substituted for the CO semi-annual source tests. (Basis: Regulation 9-10-502)

*9. For any source listed in Part 1 with a maximum firing limit greater than 25 MMBtu/hr for which any two source test results over any consecutive five year period are greater than or equal to 200 ppmv CO at 3% O2, the Owner/Operator shall properly install, properly maintain, and properly operate a CEM to continuously measure CO and O2. The Owner/Operator shall install the CEM within the time period allowed in the District's Manual of Procedures. (Basis: Regulation 9-10-502, 1-522)

*10. In addition to records required by Regulation 9-10-504, the Owner/Operator must maintain records of all source tests conducted to demonstrate compliance with Parts 1 and 5. These records shall be kept on site for at least five years from the date of entry in a District approved log and be made available to District staff upon request. (Basis: Regulation 9-10-504)

RECOMMENDATION

It is recommended that a Change of Conditions to the Permit to Operate be granted to Valero for:

S-19 H-1 Vacuum Heater, 40 MMBtu/hr

Arthur P. Valla Air Quality Engineer	Date 21Dec05

EVALUATION REPORT
VALERO BENICIA ASPHALT PLANT

APPLICATION 13207, H2S LIMIT, NSPS SUBPART J

BACKGROUND

The Valero Benicia Asphalt Plant (Valero) is subject to fuel gas H2S concentration limit based on 40 CFR 60.104(a)(1), NSPS Subpart J:

> § 60.104 Standards for sulfur oxides.
> Each owner or operator that is subject to the requirements of this subpart shall comply with the emission limitations set forth in this section on and after the date on which the initial performance test, required by §60.8, is completed, but not later than 60 days after achieving the maximum production rate at which the affected facility will be operated, or 180 days after initial startup, whichever comes first.
> (a) No owner or operator subject to the provisions of this subpart shall:
> (1) Burn in any fuel gas combustion device any fuel gas that contains hydrogen sulfide (H_2S) in excess of 230 mg/dscm (0.10 gr/dscf). The combustion in a flare of process upset gases or fuel gas that is released to the flare as a result of relief valve leakage or other emergency malfunctions is exempt from this paragraph.

This limit is expressed for S-19 F-4601 Vacuum Heater in Permit condition 1240 in terms of a concentration limit of 163 ppm H2S:

Cond ID	Part	Source(s)	Limit
1240	I.11	S-19	The H2S content in the asphalt plant's refinery process gas prior to mixing with another gaseous fluid shall not exceed 163 ppmv, dry, averaged over any consecutive 3-hour period. (NSPS) (Compliance with this condition will not necessarily ensure compliance with part I.12 of this condition.)

Valero has submitted this administrative change in conditions application to change the H2S limit to 162 ppm. This request is to be consistent with the EPA guidance document *Alternative Monitoring Plan for NSPS Subpart J Refinery Fuel Gas, 8/7/2002,* included in the application file. In addition, the change would also make the permit condition limits consistent with the recent Valero Consent Decree (http://www.epa.gov/compliance/resources/decrees/civil/caa/valero-cd.pdf pg. 55, part 119 and pg. 119, part 243).

This application is for an administrative change in conditions for the following sources:

S-19 Vacuum Heater F-4601, 40MM Btu/hr

In a similar application for the B2626 Refinery, it was agreed to eliminate all reference to the H2S concentration and instead, simply state that the source needs to comply with NSPS.

EMISSIONS SUMMARY

There are no changes in emissions due to this application. The change from 163 ppm to 162 ppm H2S is merely showing 3 significant figures on the limitation. It could be argued that this is

an inappropriate adjustment since both the 0.10 gr/dscf and to 230 mg/dscm are only two significant figures. However, since EPA uses 162 ppm elsewhere it would be of little value to argue against this change in conditions.

The conversion calculation from 40 CFR 60.104(a)(1) 0.10 gr/dscf is as follows:

ppmv H2S = (0.10 grains H2S/dscf Fuel Gas)
X (1 Lb H2S /7000 grains H2S)
X (1 Lb-mole H2S / 34 Lb H2S)
X (385.3 dscf Fuel Gas / Lb-mole Fuel Gas)
X 1,000,000
= 161.89 ppmv

The conversion calculation from 40 CFR 60.104(a)(1) 230 mg/dscm is as follows:

ppmv H2S = (230 mg H2S/dscm Fuel Gas) X (1 g / 1000 mg)
X (1 Lb H2S /453.6 grams H2S)
X (1 Lb-mole H2S / 34 Lb H2S)
X (1 dscm / 35.314 dscf)
X (385.3 dscf Fuel Gas / Lb-mole Fuel Gas)
X 1,000,000
= 162.71 ppmv

PLANT CUMULATIVE INCREASE

There are no net changes to the plant cumulative emissions.

TOXIC RISK SCREEN

This proposed change would not emit toxic compounds in amounts different that previously emitted. Therefore, a toxic risk screen is not required.

BEST AVAILABLE CONTROL TECHNOLOGY

BACT is triggered for new or modified sources that emit criteria pollutants in excess of 10 lbs/day. However, Regulation 2-1-234 defines a modified source as one that results in an increase in daily or annual emissions of a regulated air pollutant. For this application, there is no change in emissions. Therefore, BACT does not apply.

PLANT LOCATION

According to the SCHOOL program, the closest school is Semple Elementary, which is over 3000 feet from the facility.

COMPLIANCE

This application will not change the compliance for the affected S-19. Specifically, compliance with NSPS Subpart J 40 CFR 60.104(a)(1) is not changed.

The closest school is over a mile from the facility, so the Public Notice requirements of Regulation 2-1-214 do not apply.

Toxics, CEQA, NESHAPS, BACT, and Offsets do not apply.

CONDITIONS

Existing Conditions will be modified as follows:

Cond ID	Part	Source(s)	Limit
1240	I.11	S-19	The H2S content in the asphalt plant's refinery process gas prior to mixing with another gaseous fluid shall not exceed the H2S concentration limitation specified in NSPS 40 CFR 60 Subpart J~~163 ppmv, dry, averaged over any consecutive 3-hour period~~. (NSPS) (Compliance with this condition will not necessarily ensure compliance with part I.12 of this condition.)

RECOMMENDATION

It is recommended that an Administrative Change in Conditions to the Permit to Operate be granted to Valero for:

S-19 Vacuum Heater F-4601, 40MM Btu/hr

Arthur P. Valla
Air Quality Engineer

03Jan06

EVALUATION REPORT
VALERO BENICIA ASPHALT PLANT

APPLICATION 13812, LOADING RACKS S-17 AND S-54 CHANGE OF CONDITION 1240

BACKGROUND

The Valero Benicia Asphalt Plant (Valero) produces various grades of asphalt. One grade, called "Cutback Asphalt", is a blend of regular asphalt and a distillate material. At the Valero Asphalt Plant, this distillate material is either kerosene or heavy vacuum gas oil (HVGO). The blending reduces regular asphalt viscosity making handling easier during cold weather application. The hydrocarbon used to blend the asphalt evaporates in the application process (typically roadwork). The cutback asphalt contains 22 to 38% kerosene, depending of the product. The products are designated MC-70, MC-250 and MC-800, indicating that these mixtures are Medium Cure Liquid Asphalt products. Valero has stated that MSDSs are not available for the cutback asphalts, but a web search resulted in other MSDSs that confirmed these mixtures are Medium Cure Liquid Asphalt. Medium Cure Liquid Asphalt products are subject to prohibitions in Regulation 8-15 unless temperatures are below 50F (limited exemption 8-15-112). Regulation 8-15-501 requires Valero to keep records of the destinations of these products, but there is no requirement to record the temperature during the product application (although the ambient temperature during application will not impact the organic emission quantity, only the rate of evaporation).

The Valero asphalt products are loaded on trucks in

S-17 Truck Loading Racks, Asphalt, 8 Loading Arms

S-54 Truck Loading Rack, Asphalt, 2 Loading Arms

The Cutback Asphalt is made by sending the blending material to the truck in the same loading arm that the asphalt is loaded. Mixing of the materials occurs in the pipe to the loading arms. Thermal oxidizers abate both truck loading sources.

Permit Condition 1240, Part 71 prohibits transferring any materials in S-17 and S-54 with true vapor pressures that exceed 0.5 psia. Kerosene may not meet this 0.5 psia true vapor pressure limitation at loading temperatures. Valero has submitted this application to change permit condition 1240, part 71 to allow the loading of cutback asphalt blending kerosene.

EMISSIONS SUMMARY

Loading losses from the kerosene blending material can be estimated using equation (1) in AP-42, section 5.2:

L_L = (12.46)SPM/T
Where
L_L = loading loss in lb/1000 gallons loaded
S = Saturation factor from AP-42 Table 5.2-1 = 1.0 for vapor balancing
P = True vapor pressure of liquid loaded
M = Molecular weight of vapors
T = Loading temperature °R

Valero has provided the following information:

Kerosene loaded annually: 5,500 Barrels
Kerosene loading temperature: 275°F = 735°R
Kerosene true vapor pressure at 275°F = 2.5 psia
Kerosene vapors molecular weight = 130 (From AP-42 Table 7.1-2)

Substituting these values in the AP-42 equation,

L_L = (12.46)SPM/T
= (12.46)(1.0)(2.5)(130)/(735)
= 5.51 lb/1000 gallons
= 231.42 lb/1000 barrels

Unabated POC emissions = 231.42 * 5500 Barrels Kerosene / 1000
= 1272.81 lb/yr
= 3.49 lb/day

Thermal Oxidizer A-4 abates S-17 and Thermal Oxidizer A-31 abates S-54. Both are required to meet or exceed 98.5% destruction efficiency (Permit Condition 1240, Parts 68 and 70).

Abated POC Emissions = 1272.81 (1-.985)
= 19.1 lb/yr
= 0.00955 ton/yr

PLANT CUMULATIVE INCREASE

The abated POC emissions are 0.00955 TPY. However, the plant has a NMHC bubble in Permit Condition 1240, Part I.14:

Total Non-Methane Hydrocarbon emissions: 49.345 tons/yr

Since there is no change to this NMHC bubble, there is no change to the cumulative increase.

OFFSETS

Normally, the POC offset required is 0.00955 TPY * 1.15 = 0.011 TPY

However, the plant has a NMHC bubble in Permit Condition 1240, Part I.14:

Total Non-Methane Hydrocarbon emissions: 49.345 tons/yr

Since there is no change to this NMHC bubble, offsets are not required.

TOXIC RISK SCREEN

The Kerosene MSDS identifies the following TACs:

TAC	Wt.% Conc.	Vapor Volume fraction based on Vapor Press @ 275F (Note 1)	Vapor Weight Fraction @ 275F	Abated TAC emissions, lb/yr	Abated TAC emissions, lb/hr	Acute toxic Trigger, lb/hr	Chronic Toxic Trigger, lb/yr
Naphthalene	3	0.012	0.011	0.22	N/A	N/A	5.3
Xylene	2	0.127	0.104	2.0	0.000226	49	27000
Toluene	1	0.231	0.163	3.1	0.000237	82	12000
Ethylbenzene	1	0.117	0.095	1.8	N/A	N/A	77000
Benzene	0.5	0.513	0.309	5.9	0.000673	2.9	6.4
Hydrogen Sulfide (Note 2)	0.1	N/A	N/A	23.1	0.0026	0.093	390

Note 1: Vapor pressures derived based on Antoine's Fit relationship (CRC Handbook of Physics and Chemistry, 52ed):
$log_{10}(VP_{Torr}) = -0.2185A/K + B$
Note 2: Antoine's Fit out of Temperature range for H2S. H2S emissions assume worst case: all H2S in Kerosene emitted.

This proposed change does not emit toxic compounds in amounts that exceed the toxic trigger levels. Therefore, a toxic risk screen is not required.

BEST AVAILABLE CONTROL TECHNOLOGY

BACT is triggered for new or modified sources that emit criteria pollutants in excess of 10 lbs/day. For this application, unabated POC emissions increase 3.49 lb/day. Therefore, BACT does not apply.

PLANT LOCATION

According to the SCHOOL program, the closest school is Semple Elementary, which is over three thousand feet from the facility.

COMPLIANCE

S-17 and S-54 Asphalt Truck Loading Racks will continue to comply with Regulation 6. In addition, **Regulation 8-15 Emulsified and Liquid Asphalts** applies. S-17 and S-54 will comply with:
8-15-305 Prohibition of Manufacture and Sale
8-15-501 Records

The following regulations apply to the users of the cutback asphalt, not the manufacturer:
8-15-302 Medium-cure Liquid Asphalt
8-15-306 Prohibition of Specification
8-15-112 Exemptions, Cool Weather

8-15-302 prohibits the use of Medium-cure Asphalts in the District. 8-15-112 exempts this prohibition if the National Weather service predicts the ambient temperature will not exceed 50F for the 24 hours after use of the medium-cure cutback asphalt. Valero has provided the 8-15-501 records showing that the medium-cure asphalt product has not been used in the District.

The closest school is over 1000 feet from the facility, so the Public Notice requirements of Regulation 2-1-214 do not apply.

Toxics, CEQA, NESHAPS, BACT, Offsets and NSPS do not apply.

CONDITIONS

The Asphalt Plant Condition 1240 will be modified as shown below, shown in underline/strikeout format. Only Part II.71 is shown since this is the only part modified by this application. The remainder of the permit condition is unchanged. (Note that this condition 1240 does not yet reflect the changes caused by Crude Storage Tanks being sold to Valero Logistic Operations, LP.)

Condition 2140

II. TANKAGE AND LOADING RACK CONDITIONS:

S17 Asphalt Loading Racks abated by A2 Mist Eliminator F-9 and A4 Thermal Oxidizer H-6

S31 Rail Car Loading Rack; 5 Loading Arms, Loading: Asphalt and Light Vacuum Gas Oil abated by A6 Mist Eliminator F-3 and A31 Thermal Oxidizer H-7

S54 Asphalt Loading Rack abated by (either) A3 or A20 Mist Eliminator F-10 or F-500 and A31 Thermal Oxidizer H-7 or S24 Hot Oil Heater H-3

71. The true vapor pressure of the materials transferred at or sampled from S17 and/or S 54 shall not exceed 0.5 psia, except for 5,500 Barrels per year of kerosene when required to produce medium-cure cutback asphalt products. (cumulative increase, offsets)

RECOMMENDATION

It is recommended that a Change of Conditions to the Permit to Operate be granted to Valero for:

S-17 Truck Loading Racks, Asphalt, 8 Loading Arms

S-54 Truck Loading Rack, Asphalt, 2 Loading Arms

Arthur P. Valla Air Quality Engineer	Date 09Feb06

Engineering Evaluation
Valero Benicia Asphalt Plant, Plant # 13193

APPLICATION 13941, EMERGENCY DIESEL AIR COMPRESSOR

BACKGROUND

The applicant, Valero Benicia Asphalt Plant, has applied to install a new, emergency back-up air compressor equipped with a particulate filter. The equipment is:

S-71 Diesel Emergency Air Compressor, Caterpillar 3054C, 108 BHP,
abated by:
A-71 Catalyzed Diesel Particulate Filter, CleanAIR Systems

The Emergency Diesel Air Compressor Set (S-71) is equipped with the best available control technology (BACT) for minimizing the release of air borne criteria pollutants and harmful air toxins due to fuel combustion. The criteria pollutants are nitrogen oxides (NOx), carbon monoxide (CO), precursor organic compounds (POC) from unburned Diesel fuel, sulfur dioxide (SO_2) and particulate matter (PM10). All of these pollutants are briefly discussed on the District's web site at www.baaqmd.gov.

The engine has a smoke puff limiter, turbocharger, charge air cooler and direct Diesel fuel injection. The engine, S-71, is CARB certified in Executive Order U-R-022-0070 dated December 2, 2004. The PERMIT™ Catalyzed Diesel Filter, A-71, is certified by the manufacturer, CleanAIR Systems, Inc., to remove at least 85% of the Diesel particulate emissions. The engine will burn commercially available California low sulfur or ultra low sulfur Diesel fuel. The sulfur content of the Diesel fuel will not exceed 0.05% by weight.

EMISSIONS CALCULATIONS

The S-71 Diesel Engine has been certified by CARB to be a cleaner burning engine. Except for SO_2, the emission factors for this engine are from the CARB Certification (CARB Executive Order # U-R-022-0070), summarized as follows:

NOx + HC:	5.4 gm/kw-hr x .7457 kw/hp = 4.027 gm/Bhp-hr
CO	0.6 gm/kw-hr x .7457 kw/hp = 0.447 gm/Bhp-hr
PM	0.28 gm/kw-hr x .7457 kw/hp = 0.209 gm/Bhp-hr

CARB uses a combined NOx + HC specification. Based on District guidelines, 100% of this specification is used for a NOx emission factor and 3% of this specification is used for the POC emission factor. The SO_2 emission factor of 0.00205 lb SO_2/Bhp-hr is from AP-42, Fifth edition, Table 3.3-1 (0.00205 lb/Bhp-hr x 453.6 gm/lb = 0.930 gm/Bhp-hr). The engine will be permitted for 50 hours annually for maintenance and reliability purposes, the maximum allowed by the CARB Stationary Diesel Engine Air Toxic Control Measure (Section 93115, title 17, California Code of Regulations, part (e)(2)(A)3.a.I.iii).

The abatement factors for A-71, Catalyzed Diesel Filter, are as follows:

PM:	85%
CO:	90%
Hydrocarbon:	85%

The emission calculations are as follows:

Hours of Operation = 50 hr/yr (1/2 hour per week plus 24 extra hours for troubleshooting)
Fuel Consumption = 5.7 gal/hr
Estimated Fuel Usage = 5.7 gal/hr X 50 hr/yr = 285 gal/yr.
Engine power = 108 BHP

NOx = 4.027 gm/bhp-hr (108 hp)(1 lb/453.6 gm)(50 hr/yr) = 47.94 lb/yr or 0.024 TPY

CO = 0.447 gm/bhp-hr (108 hp)(1 lb/453.6 gm)(50 hr/yr) = 5.32 lb/yr unabated emissions.

POC = (4.027)(.03) gm/bhp-hr (108 hp)(1 lb/453.6 gm)(50 hr/yr) = 1.44 lb/yr unabated emissions

PM10 = 0.209 gm/bhp-hr (108 hp)(1 lb/453.6 gm)(50 hr/yr) = 2.49 lb/yr unabated emissions.

SO_2 = (0.00205 lb/bhp-hr)(108 hp)(50 hr/yr) = 11.07 lb/yr or 0.0055 TPY

CO, POC and PM10 emissions are abated by A-71 Catalyzed Diesel Filter. The abated emissions are as follows:

CO (abated)= (0.447) (108 hp) (1/453.6)(50)(1-.90) = 0.532 lb/yr or 0.0003 TPY

POC (abated) = (4.027)(.03) (108 hp)(1/453.6)(50)(1-.85) = 0.216 lb/yr or 0.0001 TPY

PM10 (abated) = (0.209)(108 hp)(1/453.6)(50)(1-.85) = 0.373 lb/yr or 0.0002 TPY

The effective abated emission factors are as follows:

CO: 0.532 lb/yr x 453.6 g/lb / 50 hr/yr / 108 Bhp = 0.0447 g/Bhp-hr

POC: 0.216 lb/yr x 453.6 g/lb / 50 hr/yr / 108 Bhp = 0.0181 g/Bhp-hr

PM10: 0.373 lb/yr x 453.6 g/lb / 50 hr/yr / 108 Bhp = 0.0314 g/Bhp-hr

Summary of Abated S-71 Diesel Engine Emissions

Pollutant	Abated Emission Factor (gm/Bhp-hr)	Daily Emissions (lb/day)	Annual Emissions (lb/yr)	Cumulative Increase (Ton/yr)
Nitrogen Oxides	4.027	0.479	47.94	0.0240

Carbon Monoxide	0.0447	0.00532	0.532	0.0003
POC	0.0181	0.00216	0.216	0.0001
PM-10	0.0314	0.00373	0.373	0.0002
Sulfur Dioxide	0.930	0.111	11.07	0.0055

Daily emissions = EF * 108 HP * 0.5 hr/day / 453.6 gm/lb. Annual emissions based on 50hr/yr.

PLANT CUMULATIVE EMISSIONS

The plant cumulative emissions in tons/yr are summarized in the table above. However, the facility has total emission limits ("bubbles") in Permit Condition 1240, Part I.14:

Non-Methane Hydrocarbon emissions: 49.345 tons/yr
Sulfur Dioxide, SO2: 28.049 tons/yr
Nitrogen Oxides, as NO2: 40.047 tons/yr

Since there is no change to these bubbles, there is no change to the cumulative increase for these pollutants.

PM10 emissions offsets will be deferred (as addressed below), so there is a cumulative increase in PM10 emissions:

Pollutant	Current ton/yr	S-71 ton/yr	Total Ton/yr
PM10	0.0040	0.0002	0.0042

TOXICS RISK SCREENING ANALYSIS

A Toxic Risk Screen was not required because there are no Toxic Air Contaminants emitted in amounts that exceed the trigger levels of Regulation 2, Rule 5:

TAC	Abated lb/hr	Acute Trigger lb/hr	Abated lb/yr	Chronic Trigger lb/yr
Diesel exhaust particulate matter	0.00746	N/A	0.373	0.58

OFFSETS

Valero Benicia Asphalt Plant (PN 13193) is located adjacent to and is owned by the Valero Refining Company (PN 12626). Although these plants have separate plant numbers, they are considered to be the same facility as per Regulation 2-1-213. Therefore, Valero Benicia Asphalt Plant is part of a major facility emitting more than 100 tpy of POC, NOx, CO, SO2 and PM10. Regulations 2-2-302 and 2-2-303 require emission offsets for NOx, POC, SO2 and PM10 emission increases. However, since the emission bubbles for NMHC (assumed to be POC), NOx and SO2 will not be changed, offsets will not be required.

The cumulative increase for PM10 is 0.0002 TPY. A review of the available information in the District's databank covering past projects for the Valero Asphalt Plant since April 5, 1991 revealed that the pre-existing cumulative increase for PM10 is 0.004 ton/yr (Application 7471). Pursuant to the provisions in Regulation 2-2-303, offsets will be deferred until the PM10 cumulative increase exceeds 1.0 ton/year.

Pollutant	Cumulative Increase ton/yr	Offset Ratio	Offsets Required ton/yr	Offsets Surrendered ton/yr
PM10	0.0002	1:1	0.0002	Deferred

BACT/TBACT

The engine emits less than 10 lbs/day of all criteria pollutants based on a ½ -hour operating day for maintenance/reliability operations. However, for the purposes of a Best Available Control Technology (BACT) determination, emissions due to a 24-hr/day operation need to be considered. Based on the worst case 24 hr/day operation, the emissions are as summarized below:

Pollutant	CARB Certified Emission Factor (gm/BHP-hr)	S-71 Abated Emission Factor (gm/BHP-hr)	24 hr Daily Emissions (lb/day)	BACT(2) (gm/BHP-hr)
Nitrogen Oxides	4.027	4.027	23.1	6.90
Carbon Monoxide	0.447	0.0447	0.26	2.75
POC (3% of NOx)	0.121	0.0181	0.10	1.50
PM-10	0.209	0.0314	0.18	0.10
Sulfur Dioxide	N/A	0.930	5.31	Low Sulfur Diesel

Daily emissions = EF * 108 HP * 24 hr/day / 453.6 g/lb.

S-71 triggers BACT since the emission rate of NOx from this source is more than 10 pounds of emission per highest day per Regulation 2-2-301. Source S-71 will comply with BACT(2) for NOx because it is CARB certified at the level below the BACT(2) requirements. BACT(2) requirements are shown above and can be found on the District's web site under BACT/TBACT Handbook, Section 2 – Combustion Sources for I.C. Engine – Compression Ignition < 175 HP, Document # 96.1.1 (http://www.baaqmd.gov/pmt/bactworkbook/96-1-1.htm).

CARB STATIONARY DIESEL ENGINE ATCM

Since this engine was installed after January 1, 2005, it is a new standby engine. Therefore, the engine is required to comply with subsection (e)(2)(A) of the ATCM. Specifically, S-71 will comply with the following requirements:

(e)(2)(A)2. No owner or operator shall operate any new stationary emergency standby diesel-fueled CI engine (>50 bhp) in response to the notification of an impending rotating outage, unless all the following criteria are met:

a. the engine's permit to operate allows operation of the engine in anticipation of a rotating outage, or the District has established a policy or program that authorizes operation of the engine in anticipation of a rotating outage; and

b. the Utility Distribution Company has ordered rotating outages in the control area where the engine is located, or has indicated it expects to issue such an order at a specified time; and

c. the engine is located in a specific location that is subject to the rotating outage; and

d. the engine is operated no more than 30 minutes prior to the time when the Utility Distribution Company officially forecasts a rotating outage in the control area; and

e. the engine operation is terminated immediately after the Utility Distribution Company advises that a rotating outage is no longer imminent or in effect.

(e)(2)(A)3.a. Diesel PM Standard and Hours of Operating Requirements
I. General Requirements: New stationary emergency standby diesel-fueled engines (>50 bhp) shall:
i. emit diesel PM at a rate less than or equal to 0.15 g/bhp-hr; or
ii. meet the current model year diesel PM standard specified in the Off-Road Compression Ignition Engine Standards for off-road engines with the same maximum rated power (title 13 CCR, section 2423), whichever is more stringent; and
iii. not operate more than 50 hours per year for maintenance and testing purposes, except as provided in (e)(2)(A)3.a.II. This subsection does not limit engine operation for emergency use and for emission testing to show compliance with (e)(2)(A)3.

The engine will also comply with the following other applicable requirements of the ATCM:

(e)(1)(B). The engine is required to use only CARB certified fuel, requiring refilling of any fuel tanks with 15ppm Sulfur Diesel after January 1, 2006 (any 500 ppm Sulfur Diesel can be used until consumed).

(e)(4)(G)1. A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed upon engine installation, or by no later than January 1, 2005, on all engines subject to all or part of the requirements of subsection (e)(2), unless the District determines on a case-by-case basis that a non-resettable hour meter with a different minimum display capability is appropriate in consideration of the historical use of the engine and the owner or operator's compliance history.

(e)(4)(G)2. All DPFs installed pursuant to the requirements in subsection (e)(2) must, upon engine installation or by no later than January 1, 2005, be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached.

(e)(4)(I). Reporting Requirements for Emergency Standby Engines
1. Starting January 1, 2005, each owner or operator of an emergency standby diesel-fueled CI engine shall keep a monthly log of usage that shall list and document the nature of use for each of the following:
   a. emergency use hours of operation;
   b. maintenance and testing hours of operation;
   c. hours of operation for emission testing to show compliance with subsections (e)(2)(A)3. and (e)(2)(B)3.;
   d. initial start-up hours;
   e. [NFPA not applicable to S-71];
   f. hours of operation for all uses other than those specified in subsections (e)(4)(I)1.a through (e)(4)(I)1.d. above; and
   g. [Not applicable to S-71 since not an in-use engine]
2. Log entries shall be retained for a minimum of 36 months from the date of entry. Log entries made within 24 months of the most recent entry shall be retained on-site, either at a central location or at the engine's location, and made immediately available to the District staff upon request. Log entries made from 25 to 36 months from most recent entry shall be made available to District staff within 5 working days from request.

STATEMENT OF COMPLIANCE

Source S-71 is subject to and expected to be in compliance with the requirements of District Regulation 1-301 "Public Nuisance", District Regulation 6 "Particulate Matter and Visible Emissions", Regulation 9-8 "NOx and CO from Stationary Internal Combustion Engines" and Regulation 9-1 "Sulfur Dioxide".

This project is considered to be ministerial under the District's CEQA Regulation 2-1-311 and therefore is not subject to CEQA review.

The project is not within 1000 feet of the nearest school and therefore the owner/operator is not subject to the public notification requirements of Reg. 2-1-412.

S-71 is subject to and in compliance with the requirements of the CARB Stationary Diesel Engine ATCM.

A Best Available Control Technology (BACT) review is required for any new or modified source that results in a cumulative emissions increase for POC, NPOC, NOx, SO_2, PM10, or CO of greater than 10 pounds per highest day. S-71 will exceed the 10 pounds limit for NO_x when operated for a 24-hour period. A BACT analysis indicates that this engine complies with the District BACT2 Standard, which is acceptable under the District's policy for emergency standby generators.

A toxic risk screen was not performed for the engine PM10 emissions since the toxic trigger level is not exceeded.

Prevention of Significant Deterioration (PSD), New Source Performance Standards (NSPS), National Emissions Standards for Hazardous Air Pollutants (NESHAPs) do not apply to this application. Offsets for PM10 emissions apply but are deferred because of the low emissions per Regulation 2-2-303.

PERMIT CONDITIONS

The following permit condition will apply to S-71:

Valero Benicia Asphalt Plant
Plant 13193
S-71, Diesel Emergency Air Compressor, Caterpillar 3054C, 108 BHP,
abated by A-71, Catalyzed Diesel Particulate Filter, CleanAIR Systems

1. The owner or operator shall operate S-71, stationary emergency standby engine, only to mitigate emergency conditions or for reliability-related activities (maintenance and testing). Operating while mitigating emergency conditions and while emission testing to show compliance with this part is unlimited. Operating for reliability-related activities is limited to 50 hours per year.
   (Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, subsection (e)(2)(A)3)

2. The owner/operator shall equip S-71 emergency standby engine(s) with:
   a. a non-resettable totalizing meter, with a minimum display capability of 9,999 hours, that measures the hours of operation for the engine; and
   b. a Diesel particulate filter backpressure monitor that notifies the owner/operator that the backpressure limit of the engine is approached.

   (Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations)

3. Records: The owner/operator shall maintain the following monthly records in a District-approved log for at least 60 months from the date of entry. Log entries shall be retained on-site, either at a central location or at the engine's locations, and made immediately available to the District staff upon request.
   a. Hours of operation (emergency).
   b. Hours of operation (maintenance and testing).

c. Hours of operation for emission testing to show compliance with emission limits.
d. Initial Startup hours.
e. For each emergency, the nature of the emergency condition.
f. Hours of operation for any use other than those specified in 3a through 3d above.
g. CARB Certification Executive Order for the engine.

(Basis: "Stationary Diesel Engine ATCM" section 93115, title 17, CA Code of Regulations, Regulation 1-441)

RECOMMENDATIONS

It is recommended that an Authority to Construct be waived and a Permit to Operate be issued to Valero Benicia Asphalt Plant for:

S-71 Diesel Emergency Air Compressor, Caterpillar 3054C, 108 BHP
A-71 Catalyzed Diesel Particulate Filter, CleanAIR Systems

by: _____ Date: _____

Arthur P. Valla 08Mar06
Air Quality Engineer II
Engineering Division